

31P141, NV31, 4(8,16)Mx16, 64(128,256)MB, VIDEO IN/OUT, DVI-I, VGA

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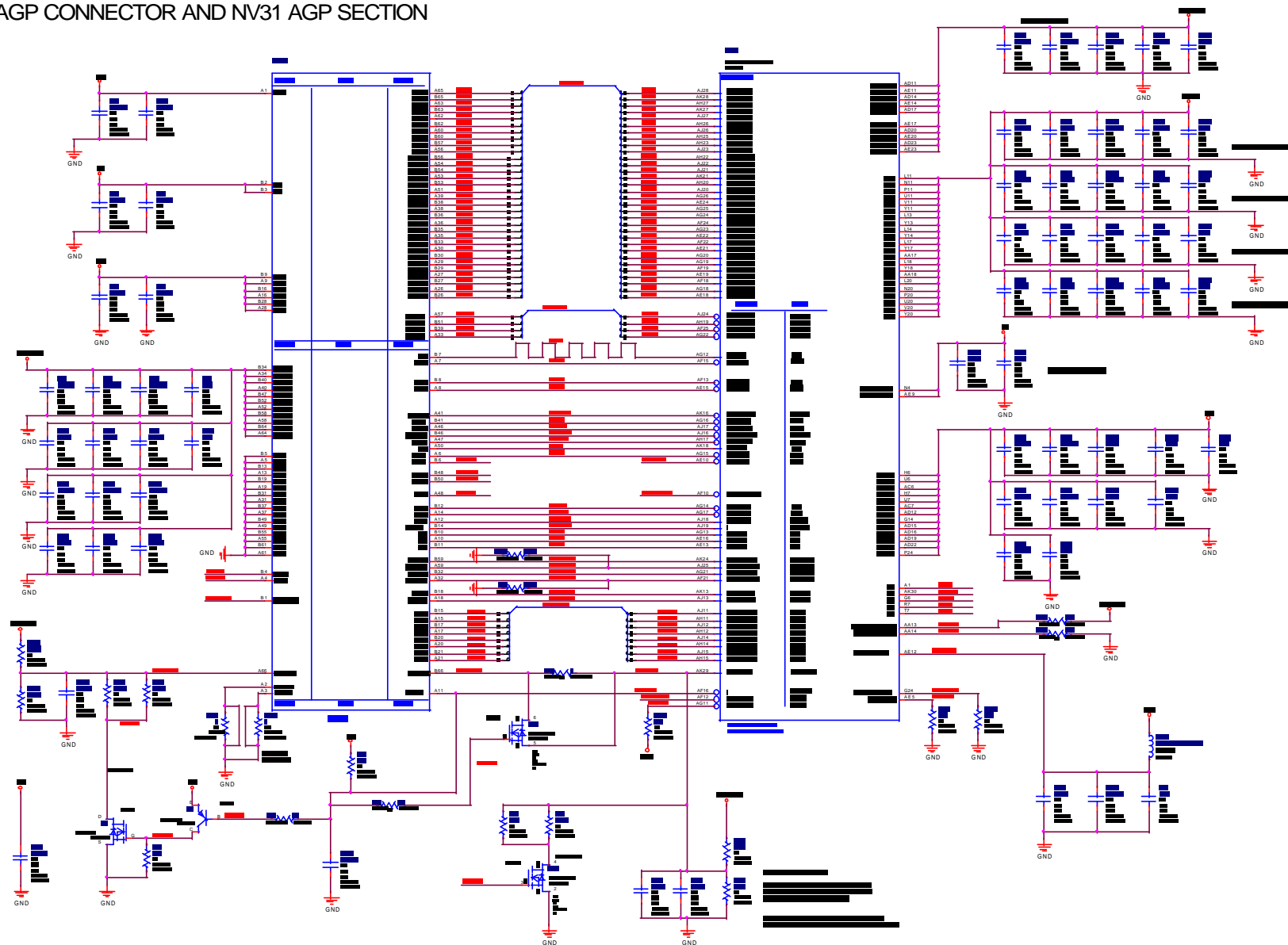
HISTORY:

A00

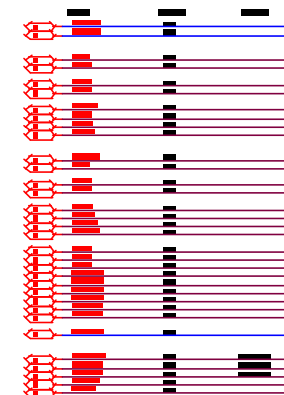
- X00: INITIAL VERSION
- X01: First Review
 - Replaced series resistors in sync lines with 33ohms
 - Moved clamping diodes next to GPU
 - Added parallel caps to EMI filter DACB
 - Removed not needed strap on SAA7114
 - Connected RESET and WP of SST ROM to ROMVCC
 - Added parallel ROM and Strapps
 - Added FBVDD regulator
 - Added STEREO glasses circuit
 - Removed Decoupling CAPs on VIP VDD, covered by Caps on page 2
 - Added ROM_VCC for cleaner planes
 - Changed used TMD5 lines of IFPA and IFPB to TP from NTP
 - Changed Resistor for AGP Vref circuit to 158k
- X02: Final Review
 - Added clock termination resistors
 - Added net name for FBALxxx
 - Added cap on filter input for FB_DLLVDD, DACA_VDD & DACB_VDD
 - Changed netnames for SAA7114 NTPs to NTP_xxx
 - Added 1uF cap parallel to fan connector
 - Changed all xxCALxx resistors to 50 Ohms
 - Changed all FBxDQS*-<x> to NTP_FBXDQS*-<x> with NO_TEST property

602-10141-0000-000 Base Schematic

AGP CONNECTOR AND NV31 AGP SECTION

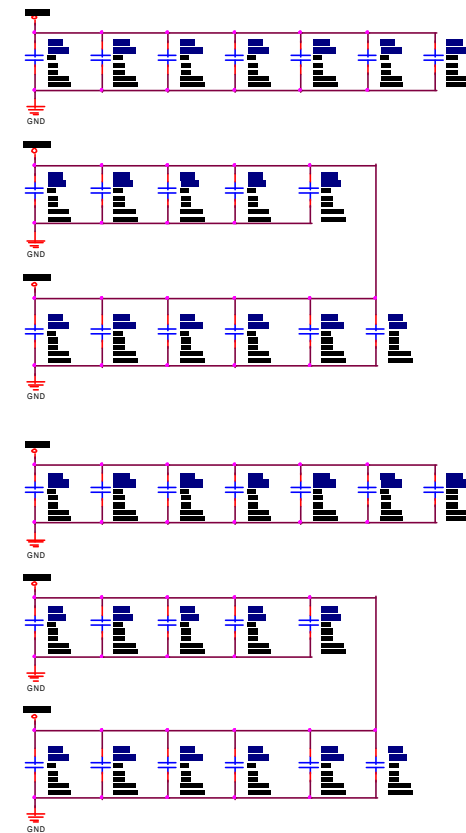
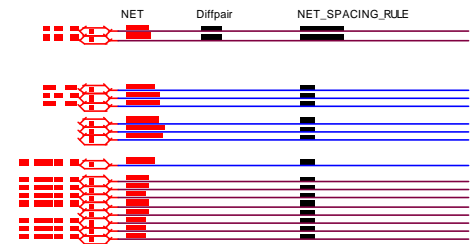
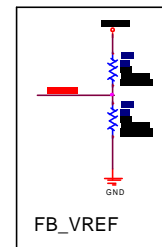
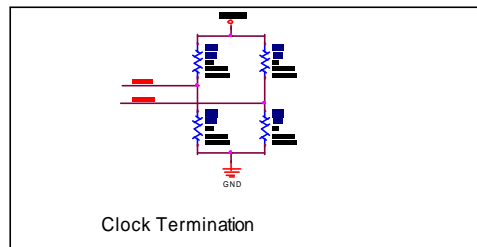
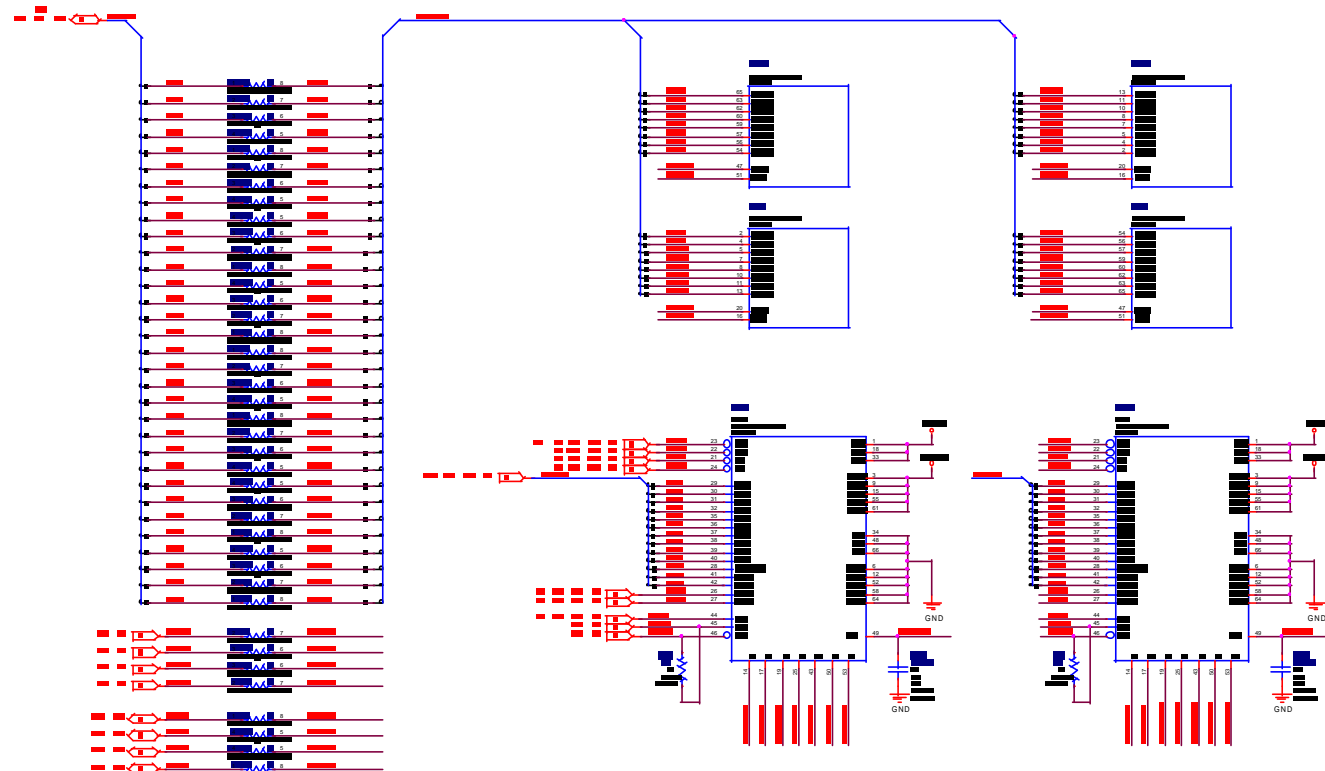


AGP rules



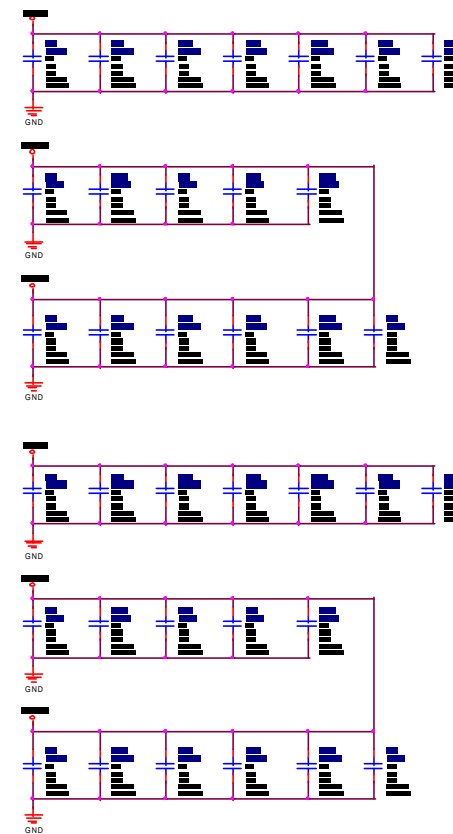
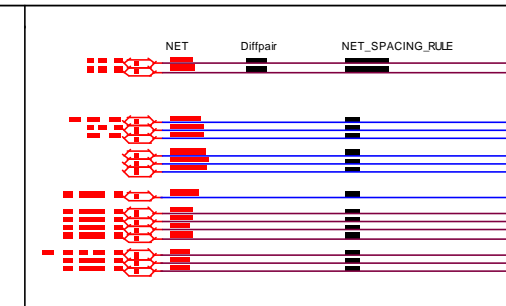
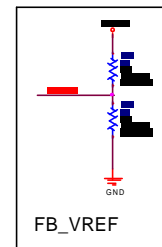
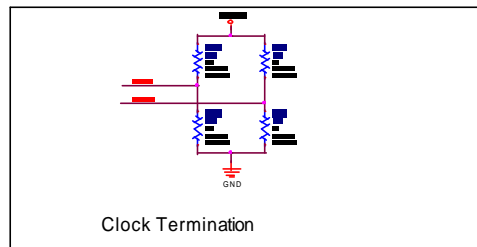
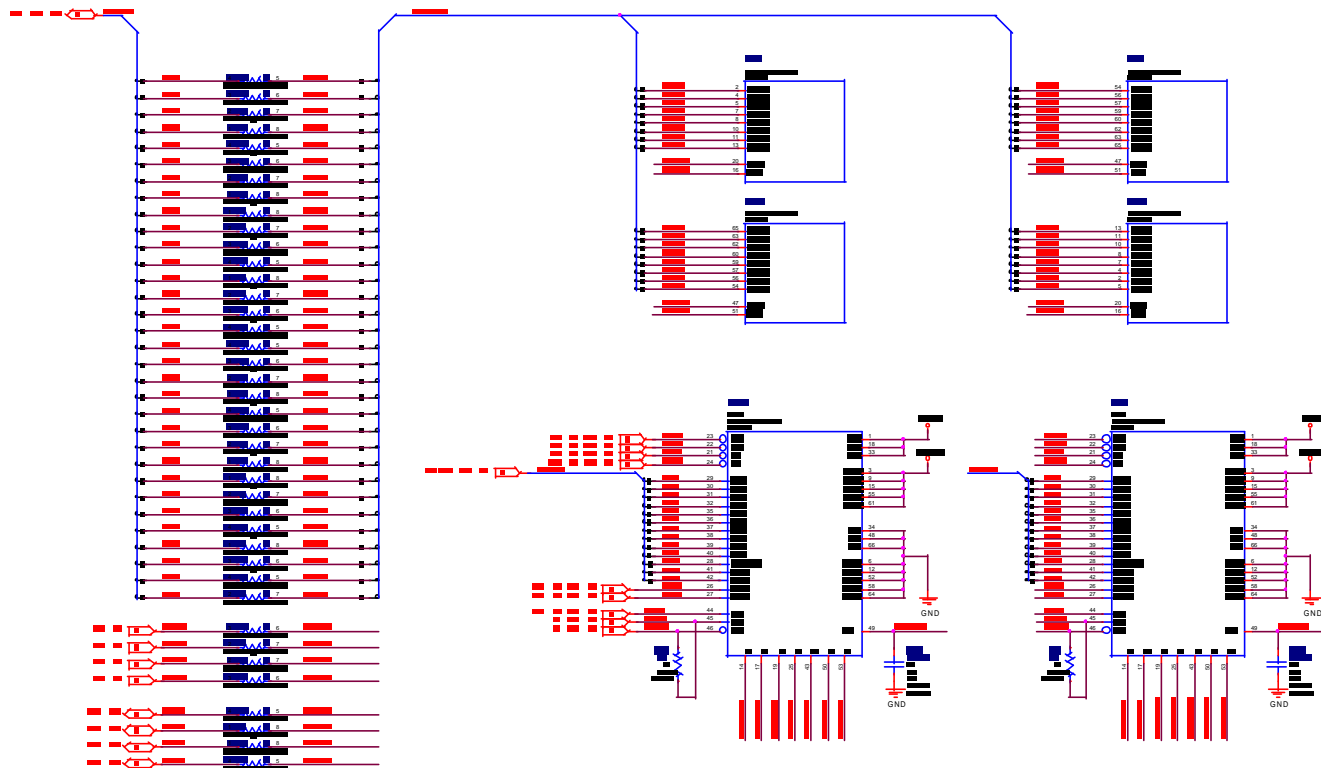
MEMORY 8(16)Mx16DDR Partition A , Bits 0..31

PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY!



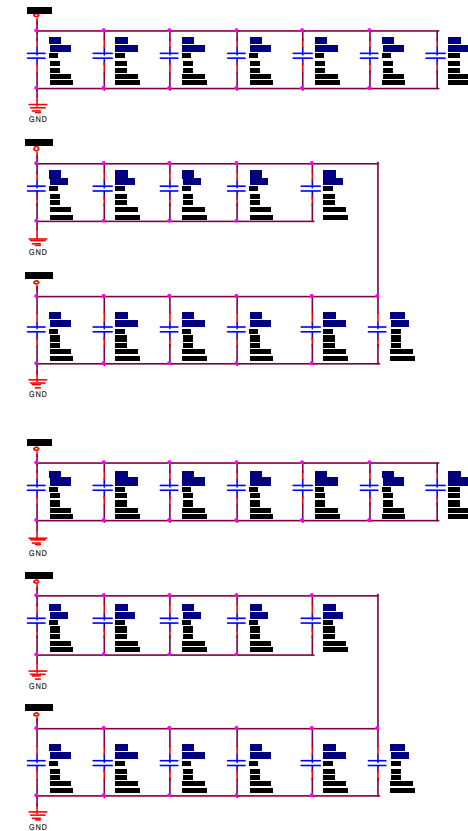
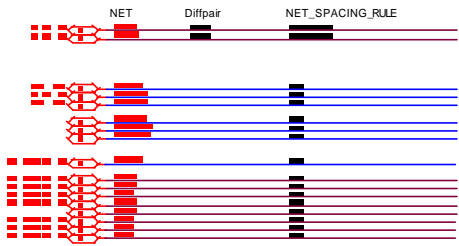
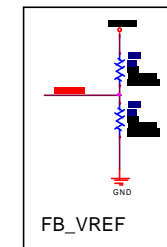
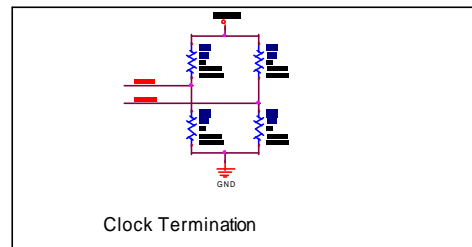
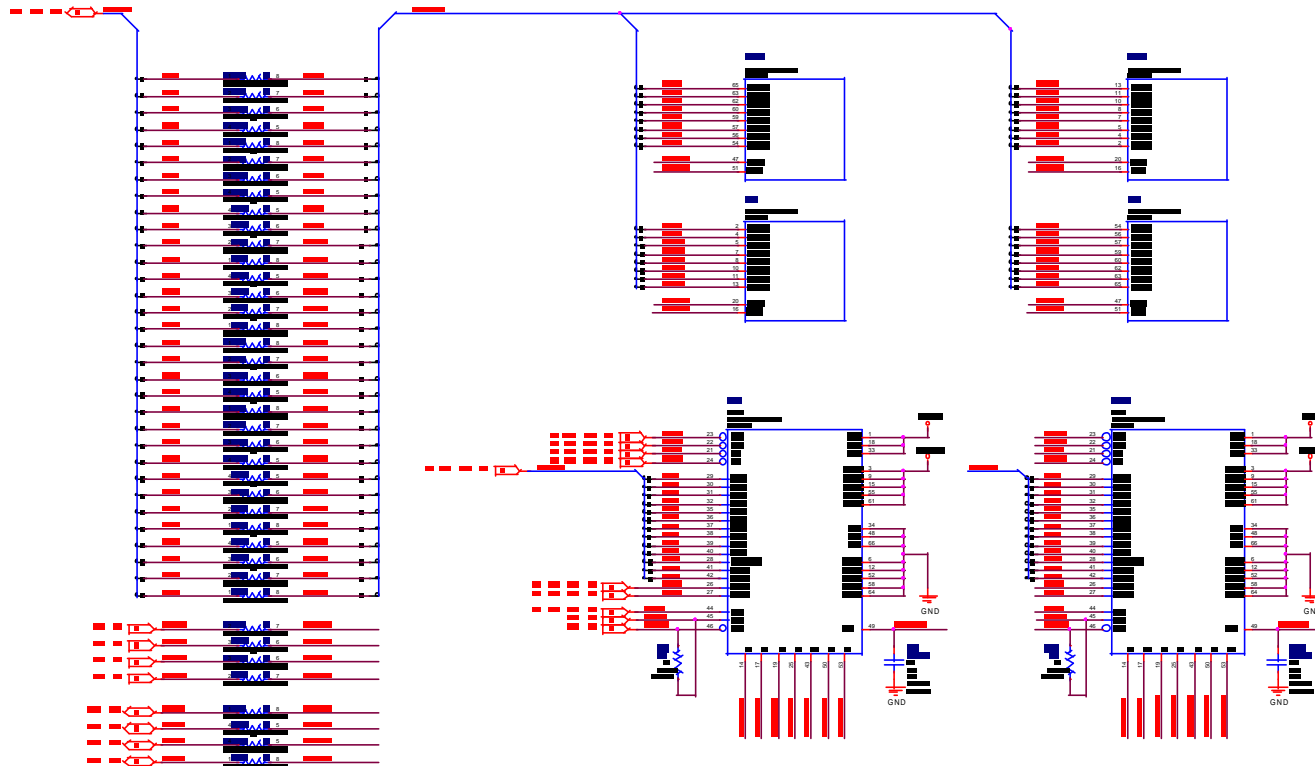
MEMORY 8(16)Mx16DDR Partition A , Bits 32..63

PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY!



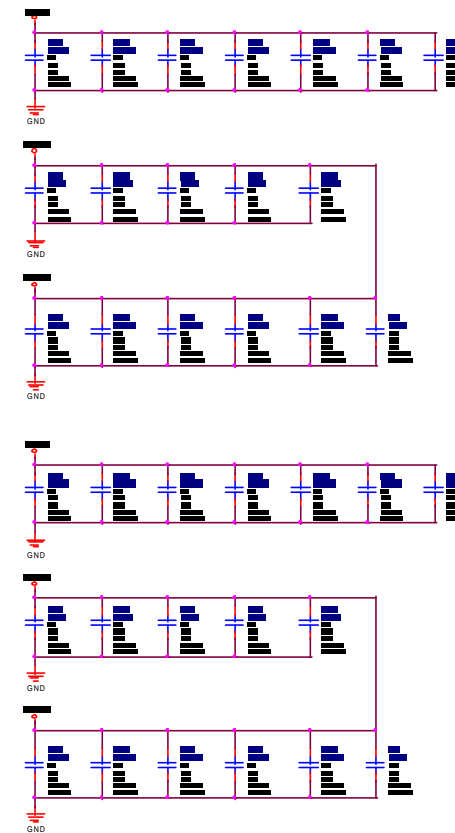
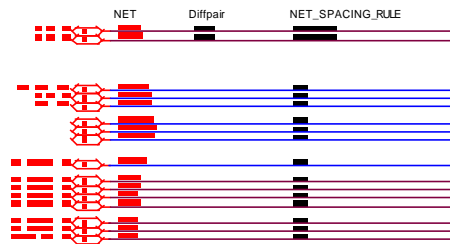
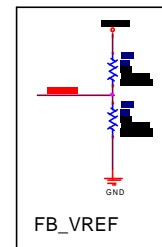
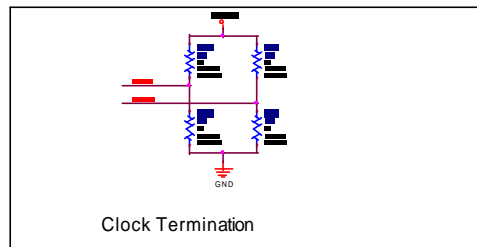
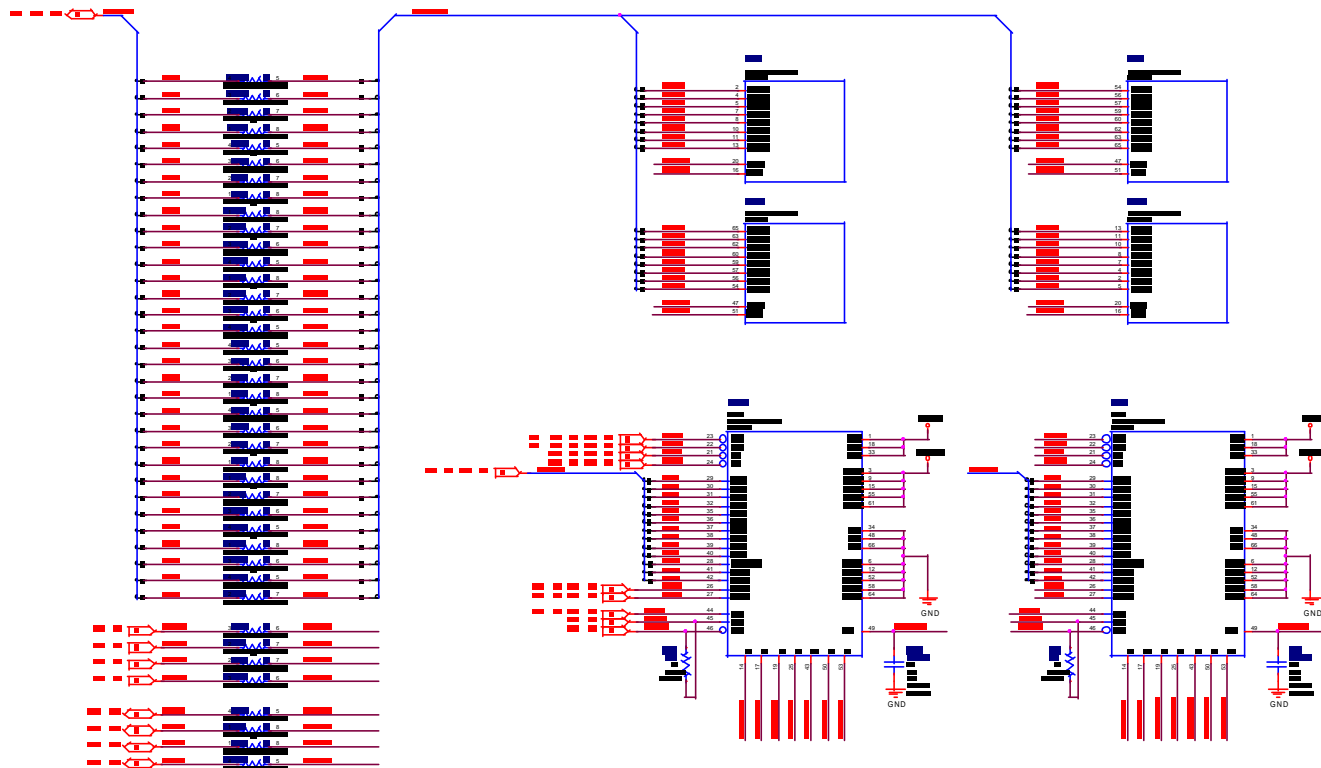
MEMORY 8(16)Mx16DDR Partition C , Bits 0..31

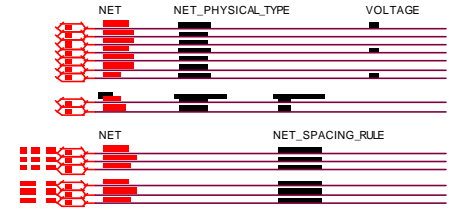
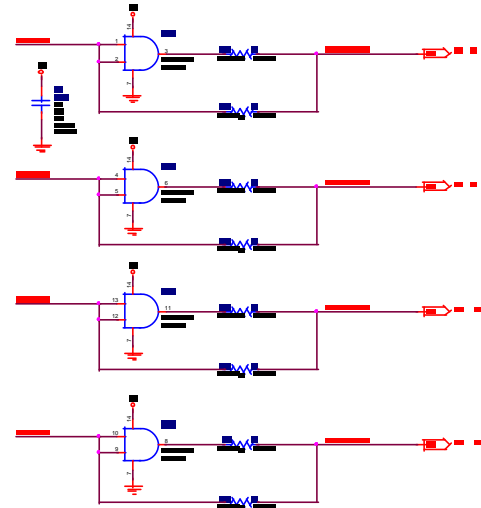
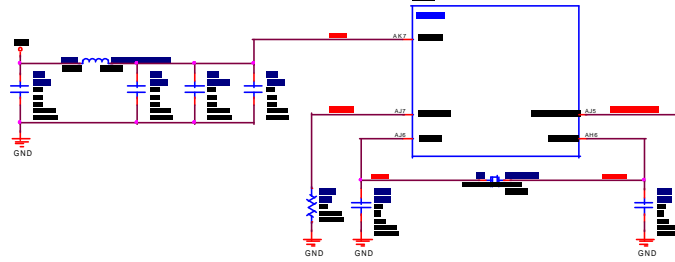
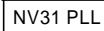
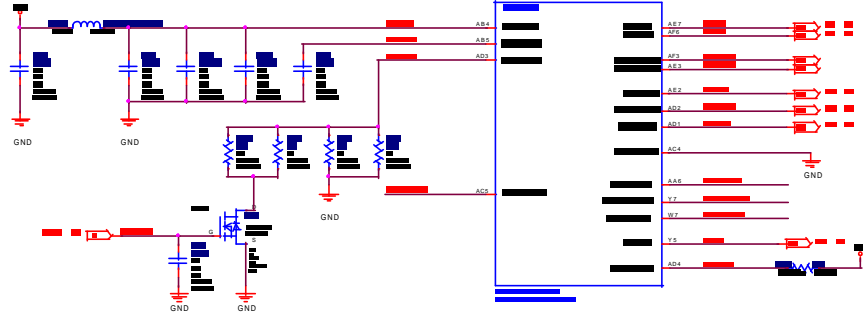
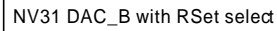
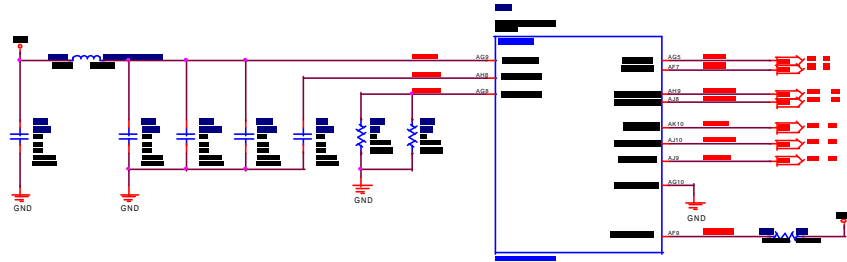
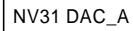
PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY!



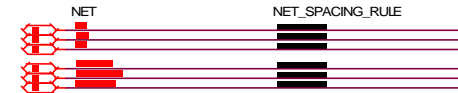
MEMORY 8(16)Mx16DDR Partition C , Bits 32..63

PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY!





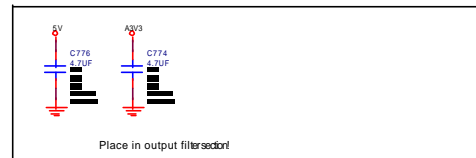
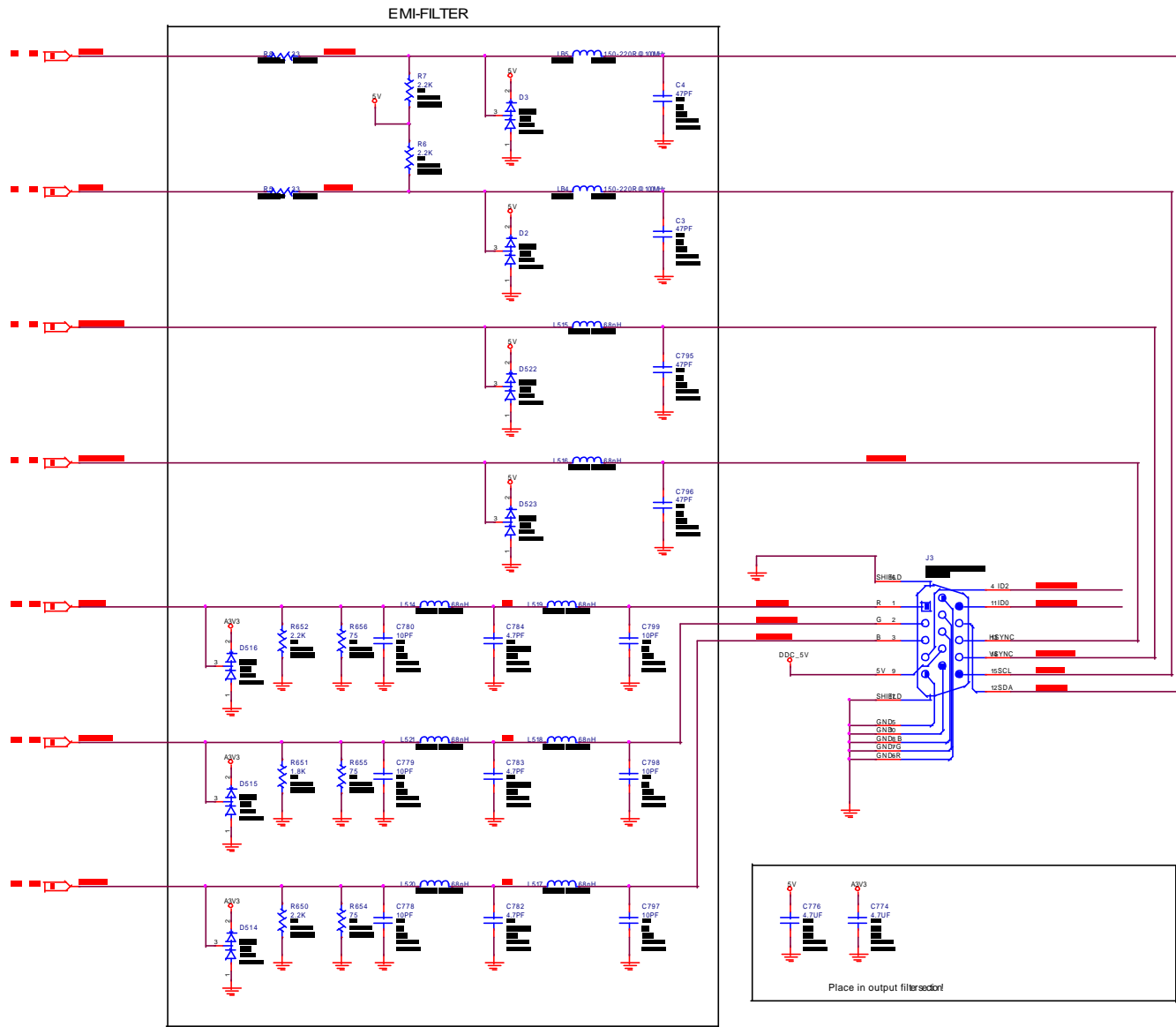
Primary Display (DACA), DB15 only!



Place all filter components
on the side nearest to the
reference GND plane!

Route all signals only on
layers referenced to GND!

Don't split the reference
GND plane beneath
a RGB signal!



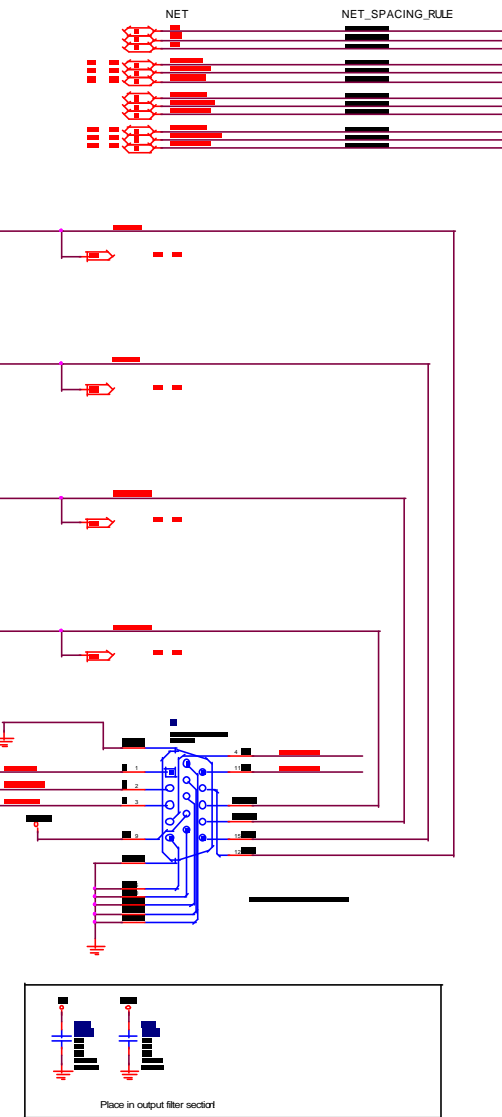
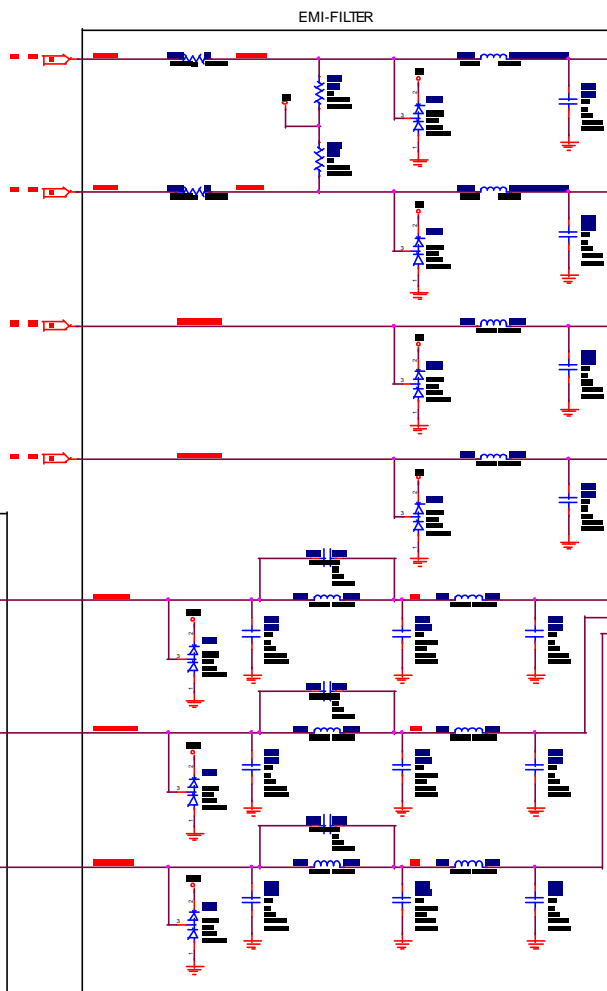
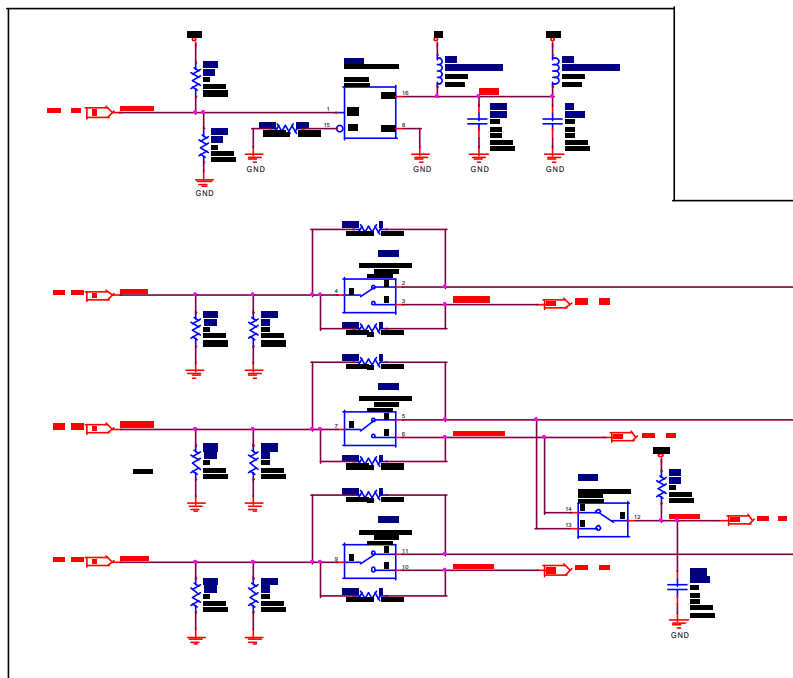
Secondary Display (DACB), long DB15 optional DVH

Place all filter components
on the side nearest to the
reference GND plane!

Route all signals only on
layers referenced to GND!

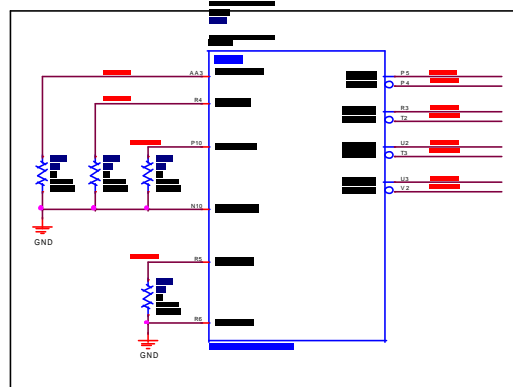
Don't split the reference
GND plane beneath
a RGB signal!

DACB Multiplexer

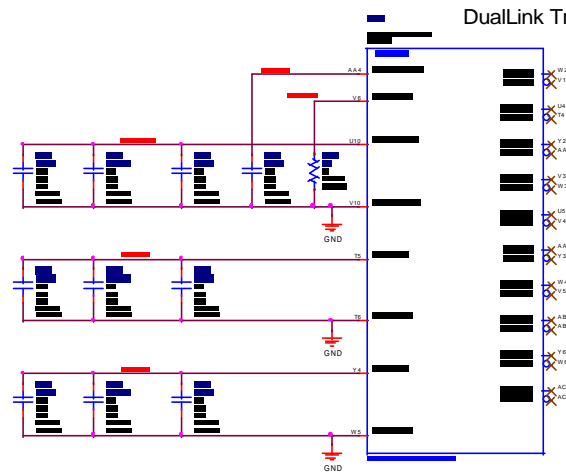


INTERNAL DUAL LINK TMDS POWER AND DECOUPLING

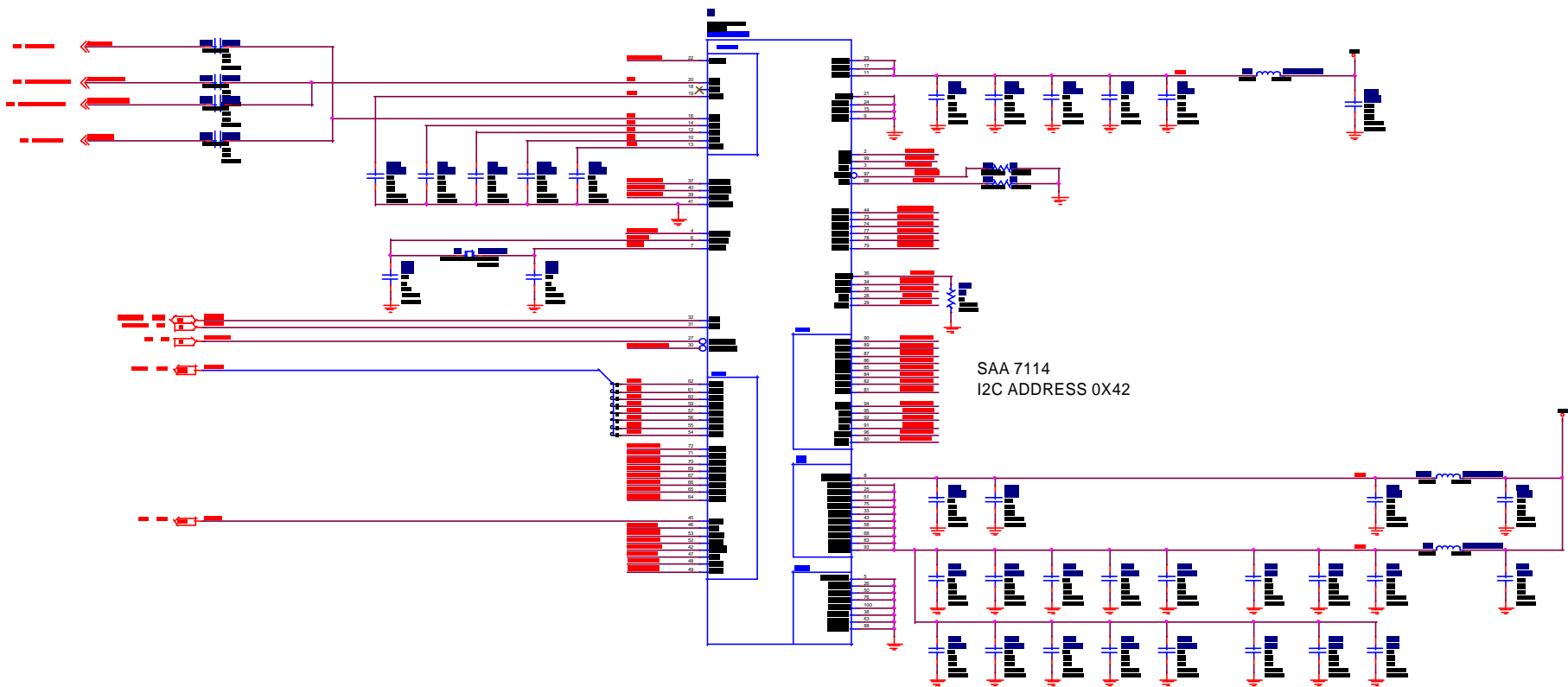
Unused Transmitter



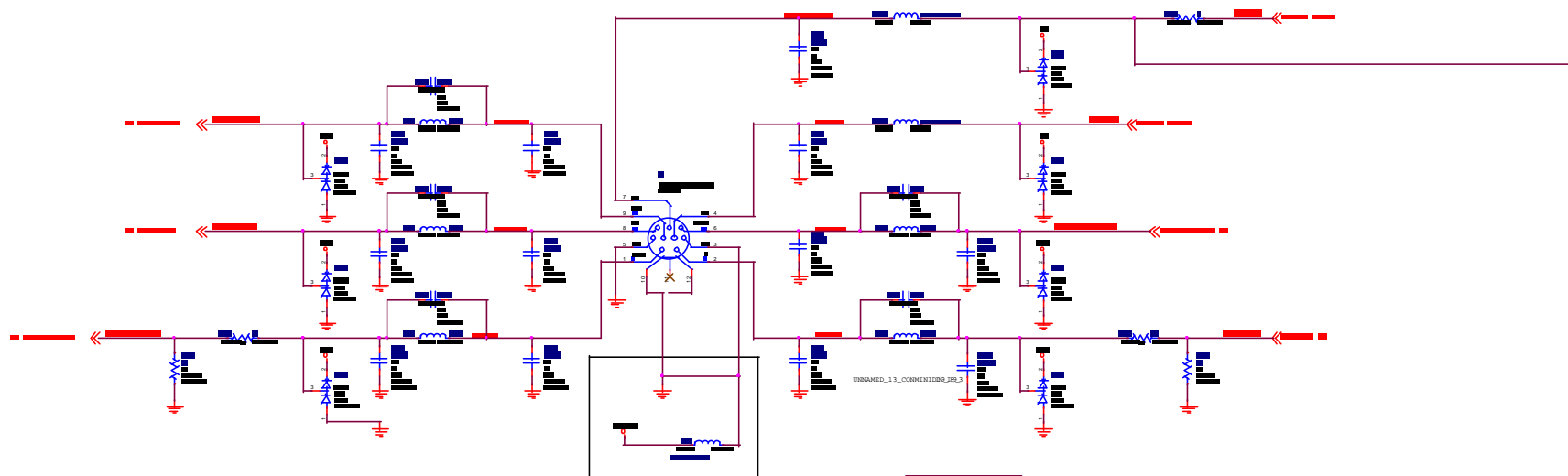
DualLink Transmitter



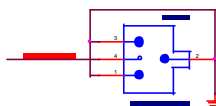
VIDEO CAPTURE



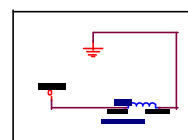
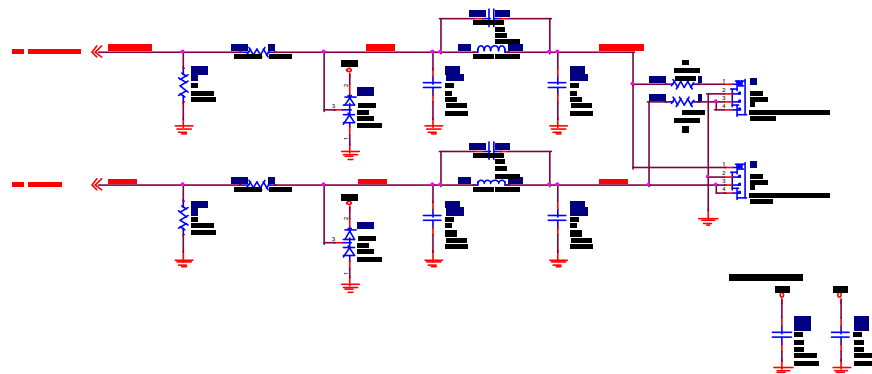
MiniDIN VIDEO IN/OUT CONNECTOR /STEREO GLASSES



For STEREO GLASSES 3pin MiniDIN only
Stuff bead!



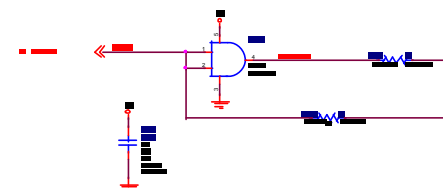
INTERNAL VIDEO IN CONNECTOR



For STEREO GLASSES 3pin MiniDIN only
Stuff bead!
And replace 0 Ohm resistor with 220PF cap!

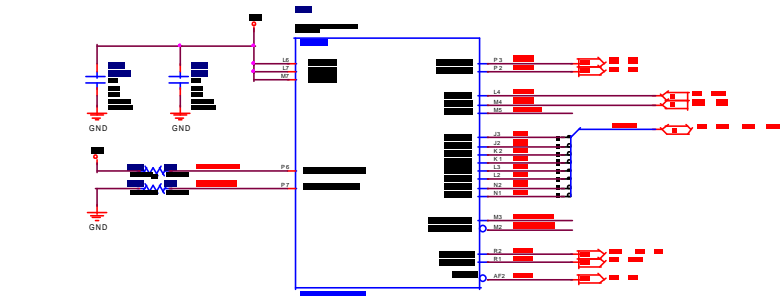
STEREO GLASSES BUFFER

Place close to MiniDIN connector!

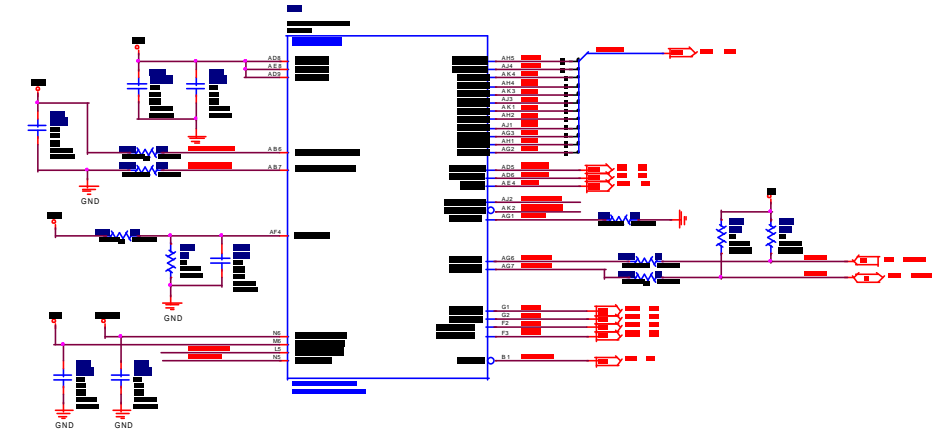


NV31 DVO, VIP AND GPIO SECTION, FAN CONTROL AND TEMP SENSOR

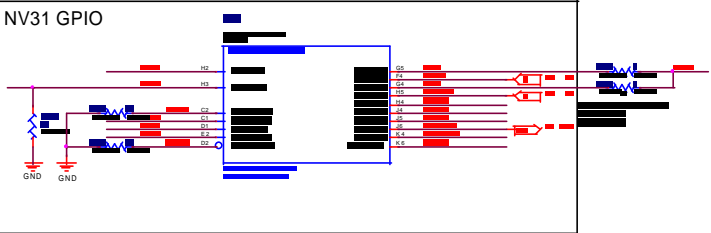
NV31 VIP



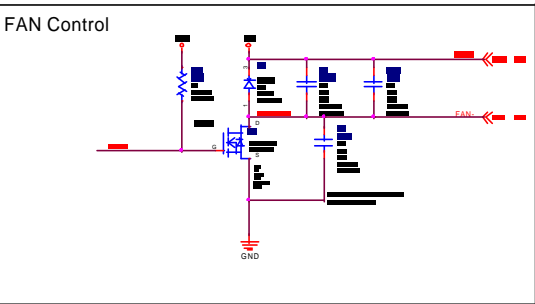
NV31 DVO



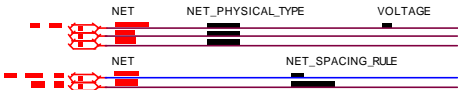
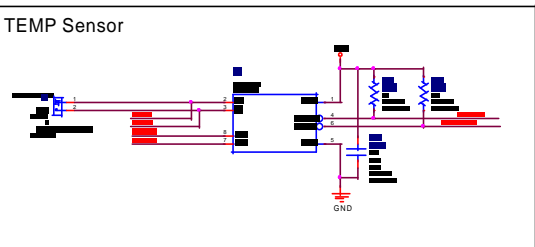
NV31 GPIO



FAN Control

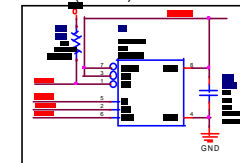


TEMP Sensor

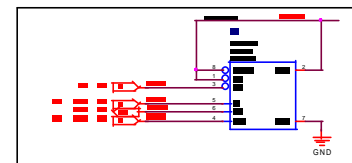


NV31 BIOS STRAPPING

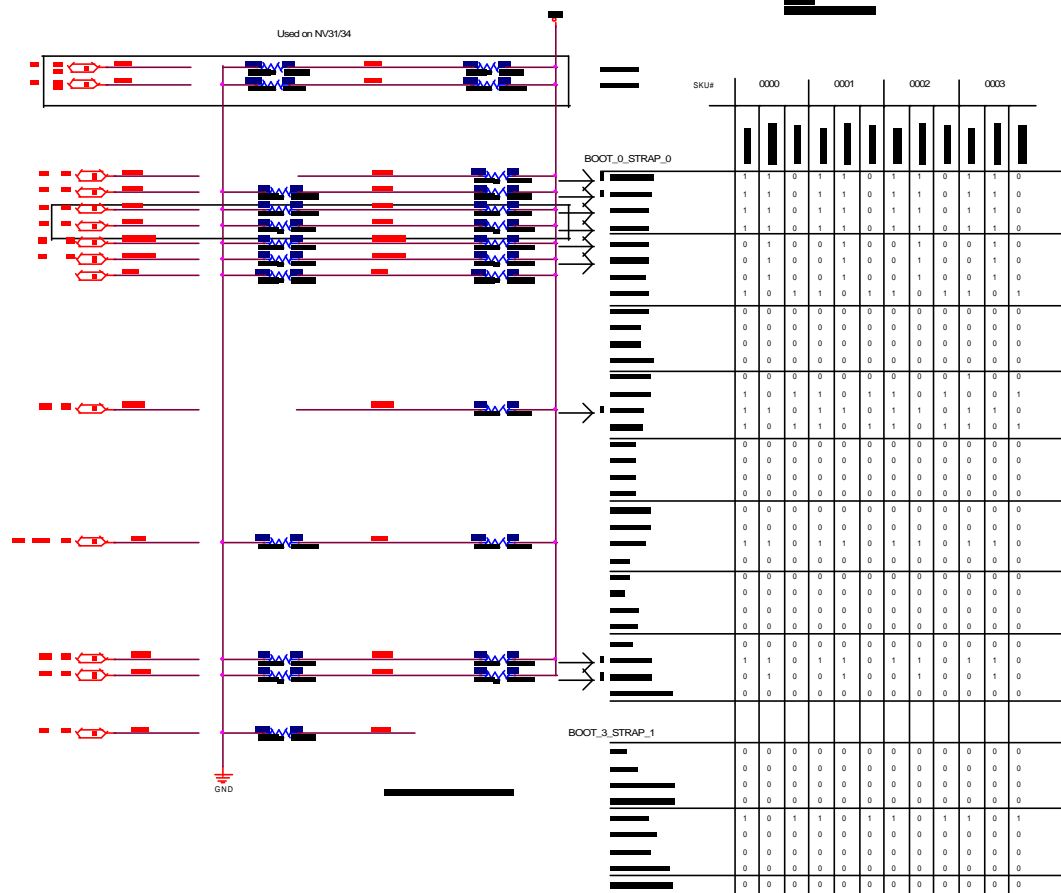
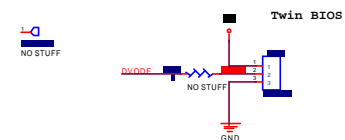
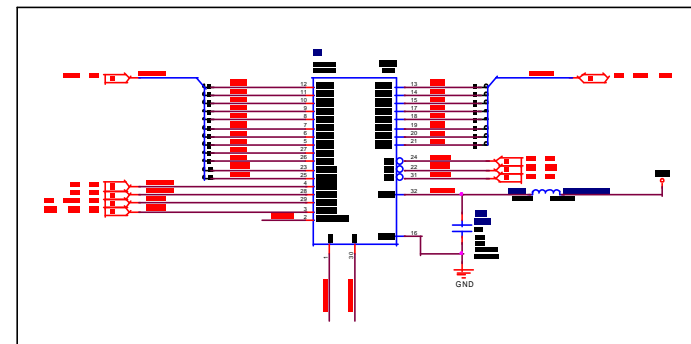
BIOS (serial)



BIOS (serial alternative)



BIOS (parallel alternative)

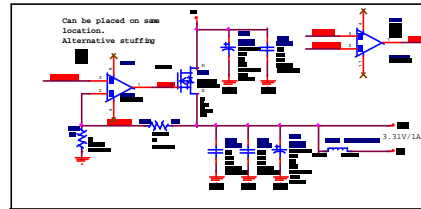


NV Register Description	NV Address	BIOS Address	Data SKU#0000-0002	Data SKU#0003
BOOT_0_STRAP_0	0x00101000		0x0000000F	0x0000000F
BOOT_1_STRAP_0_ANDMASK	0x00101004	0x58	0x0000000F	0x0000000F
BOOT_2_STRAP_0_ORMASK	0x00101008	0x5C	0x00000000	0x00000000
BOOT_3_STRAP_1	0x0010100C		0x00000010	0x00000010
BOOT_4_STRAP_1_ANDMASK	0x00101010	0x60	0x00000000	0x00000000
BOOT_5_STRAP_1_ORMASK	0x00101014	0x64	0x00000010	0x00000010

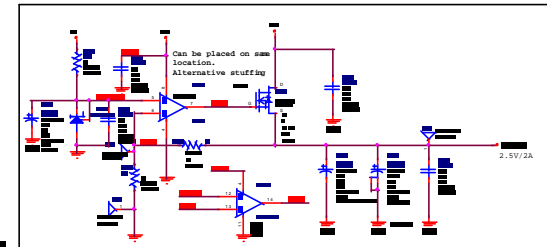
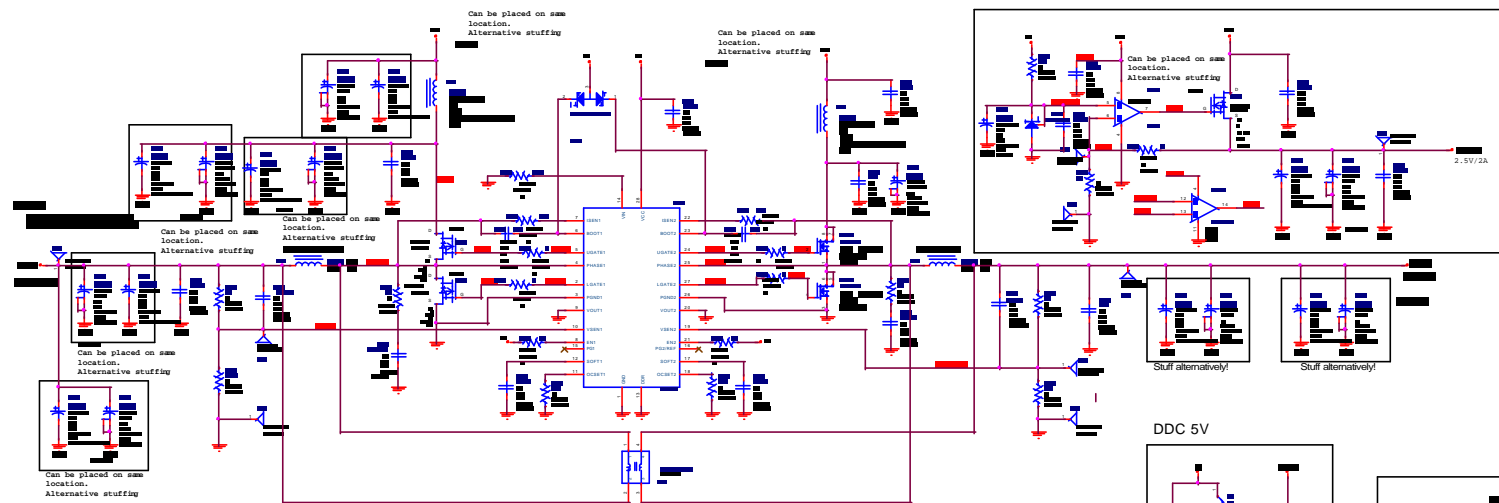
POWER SUPPLY

POWER SUPPLY

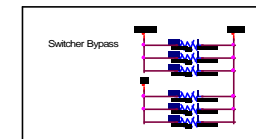
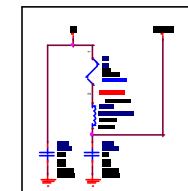
ANALOG 3V3



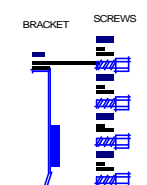
NVVDD-SWITCHER / FBVDDQ-LDO CONTROLER



DDC 5V



MECHANICAL COMPONENTS



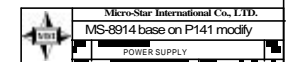
HEATSINK



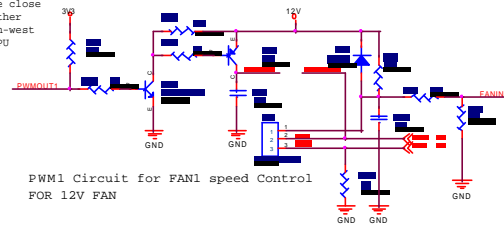
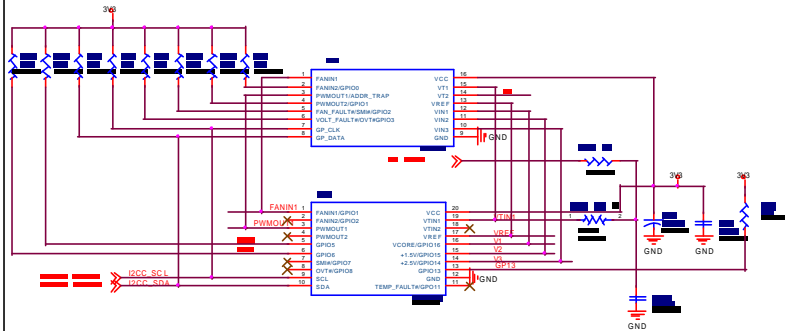
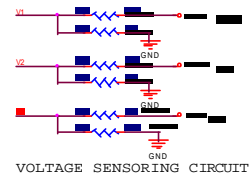
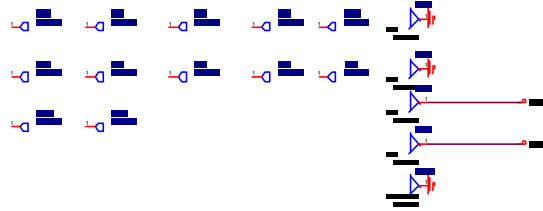
$$\frac{2.5V}{1.02k} = 0.800V \cdot \left(1 + \frac{2.37k}{1.02k}\right)$$

$$5) / 37$$

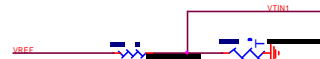
SL6529
SC2610
SL6225
NV31
NV18B



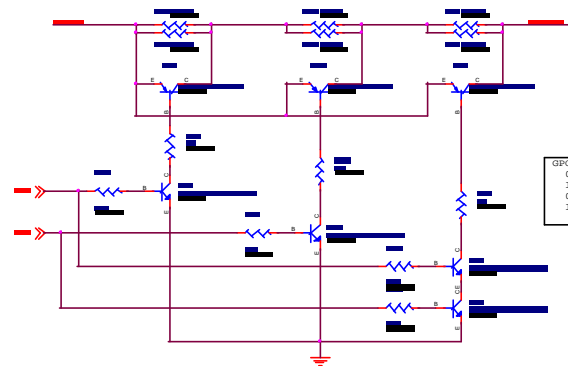
H/W Monitor Funtion



PWM1 Circuit for FAN1 speed Control
FOR 12V FAN



TEMPERATURE SENSING CIRCUIT



GP05	GP06	Q1	Q2	Q3	Vol
0	0	off	off	off	9V
1	0	on	off	off	10
0	1	off	on	off	11
1	1	on	on	on	12