# P162, NV34, 8Mx16DDR, 128MB, TV OUT, VGA

## Page Overview


1 Overview
2 AGP Interface
3 NV34 Frame Buffer
4 Frame Buffer 0..31
5 Frame Buffer 32..63
6 Frame Buffer 64..95
7 Frame Buffer 96..127
8 DAC A,B, DAC B MUX, PLL, Video OUT
9 DAC A,B RGB filter
10 Power Supply A3V3, FBVDD/FBVDDQ, Mechanicals.
11 BIOS and Strapping
12 DVO,GPIOs and Xtal.
13 TMDS LinkA and its power supplies, Backdrive.
14 NVVDD SW.
15 Current Supplement and Fan control.
16 Net Rules.


## P160 HISTORY:

| | |
|---|---|
| X00 | INITIAL VERSION |
| X01 | Cleaned up schematics - changes from initial design review meeting |
| X02 | Imported board file #65 and synchronized with latest version of schematics. |
| X03 | Nov 18/02 - Replaced LB502 with an 805 bead, changed PLLVDD rail to 3V3 instead of A3V3, and removed AGPVDDQ deoupling caps C130, C257, and C570. |
| X04 | Nov 21/02 - C75 is changed to decouple 3V3 to GND. |
| X05 | Nov 22/02 - VIP interface rail changed to 3V3 instead of A3V3 due to short between VIPVDDQ and VDD33. |
| X06 | Nov 25/02 - FRWR_VAUXP rail changed to 3V3. |
| X07 | Nov 26/02 - Changed DACB_LOAD_TEST GPIO assignment for NV34. |
| X08 | Dec 02/02 - AGP_PLL_VDD and FB_DLLVDD are supplied from A3V3 rail. |

## P162-A00 History:

1-Added P162 specific features:

- SW PS,TMDS LinkA, Backdrive, new slim VGA, Fan Cntl.
- Added Current sharing, TMDS IO and PLL linear regulators.

2-Added TH parts in PS section as ALT.
3-Added SST serial support.
4-Changed AGP_PLL_VDD, FB_PLLVDD, DAC_A/B_VDD and PLL_VDD to A3V3.
5-Added 10 caps as part of P160 sync up.
6-Added PU resitors on Jtag TMS and TDI
7-Incorporated recommendations from PS Vendor.
8-Added extra X elements near connectors to bridge CGND and GND cut.
9-Added an option to use a single dual FET for low end bd.
10-Fixed error on 6529 power good and current supplement.
11-Changed C302 to 0603 (too big pkg for .1uf in 0805)
12-Deleted C296 and C293 (shared them with C313, C324)
13-Changed C329 and C324 to 0603 pkg.
14-Removed alternate Semtech SW (could not route).

### Changes after the design review:

1-Remove C301 and R137-left over from Semtech PS circuit.
2-Remove sync buffer bypass resistors.
3-Remove R122 and R123 from Intersil power rails.
4-Add snubber circuit for NVVDD PS.
5-Add PD res on TP_XTALOUTBUF to terminate the signal.
6-Fan controler PU to 3V3 from A3V3.
7-Cleaned up Unnamed nets.

==========

8-Split CGND into 2 nets (added CGND1 to J6.25 and J2. 16).
9-Added PD resistor on FAN_ON.
10-Added 8 caps for DQS/DQM routings that break plane reference.

X-RELEASE.

## P162-A01 History:

Merged net IFPBIOVDD with IFPAIOVDD.
Merged Q4 and Q5 into one package.
Implemented TV signal return scheme thru zero Ohm resistors.

## P162-A02 History:

The main changes for this revision is to improve routing for DAC B and add 100ps inter-pair skew to pass EMC as modeled on A01 board. See 149- document for detail.

600-10162-0006-002


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| DETAIL | DRAWING DETAIL CONTINUED... | | |
| ID | 34p162 | PAGE | 1 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

# NV18/NV3X AGP SECTION AND AGP CONNECTOR

AGP BUS NET_SPACING_TYPE

| | | |
|---|---|---|
| NV_VREF | 12MIL_TRACE | 10MIL |
| AGP_VREFGC | 12MIL_TRACE | 10MIL |
| AGP_VREFCG | 12MIL_TRACE | 10MIL |
| AGPSTOP | | 10MIL |
| AGPMBDET | | 10MIL |
| SBA<7..0> | | 20MIL |
| SBSTB | | 25MIL |
| SBSTB* | | 25MIL |
| AGPSTB0 | | 25MIL |
| AGPSTB0* | | 25MIL |
| AGPSTB1 | | 25MIL |
| AGPSTB1* | | 25MIL |

| | | |
|---|---|---|
| AGPST0 | 15MIL | |
| AGPST1 | 15MIL | |
| AGPST2 | 15MIL | |
| PCIDEVSEL* | 10MIL | |
| PCIPAR | 10MIL | |
| PCIINTA* | 10MIL | |
| PCIINTB* | 10MIL | |
| AGPRBF* | 10MIL | |
| AGPWBF* | 10MIL | |
| AGPDBI_HI | 20MIL | |
| AGPDBI_LO | 20MIL | |

| | | |
|---|---|---|
| PCIAD<31..0> | 20MIL | |
| PCICBE<3..0> | 20MIL | |
| PCICLK | 20MIL | |
| PCIRST* | 10MIL | |
| PCIREQ* | 10MIL | |
| PCIGNT* | 10MIL | |
| PCIFRAME* | 10MIL | |
| PCIIRDY* | 10MIL | |
| PCITRDY* | 10MIL | |
| PCISTOP* | 10MIL | |

NO STUFF

CN501
CON_AGP

U8
NV34_DKTP_V_A1
BGA701
COMMONCHNG

1/11 PCI/AGP

AGP 2x,4x | AGP 8x

Split plane decoupling
place top, near AGP connector

Split plane decoupling
place bottom, near PCICLK

AGPVDDQ Decoupling

NVVDD Decoupling

3V3 Decoupling

NOT USED ON NV18

If easier to connect
use A3V3 instead of 3V3

For NV18B A02 and
lower R92 = 56.2

[..] = NOT USED ON NV18
[...] = NOT USED ON NV31/34

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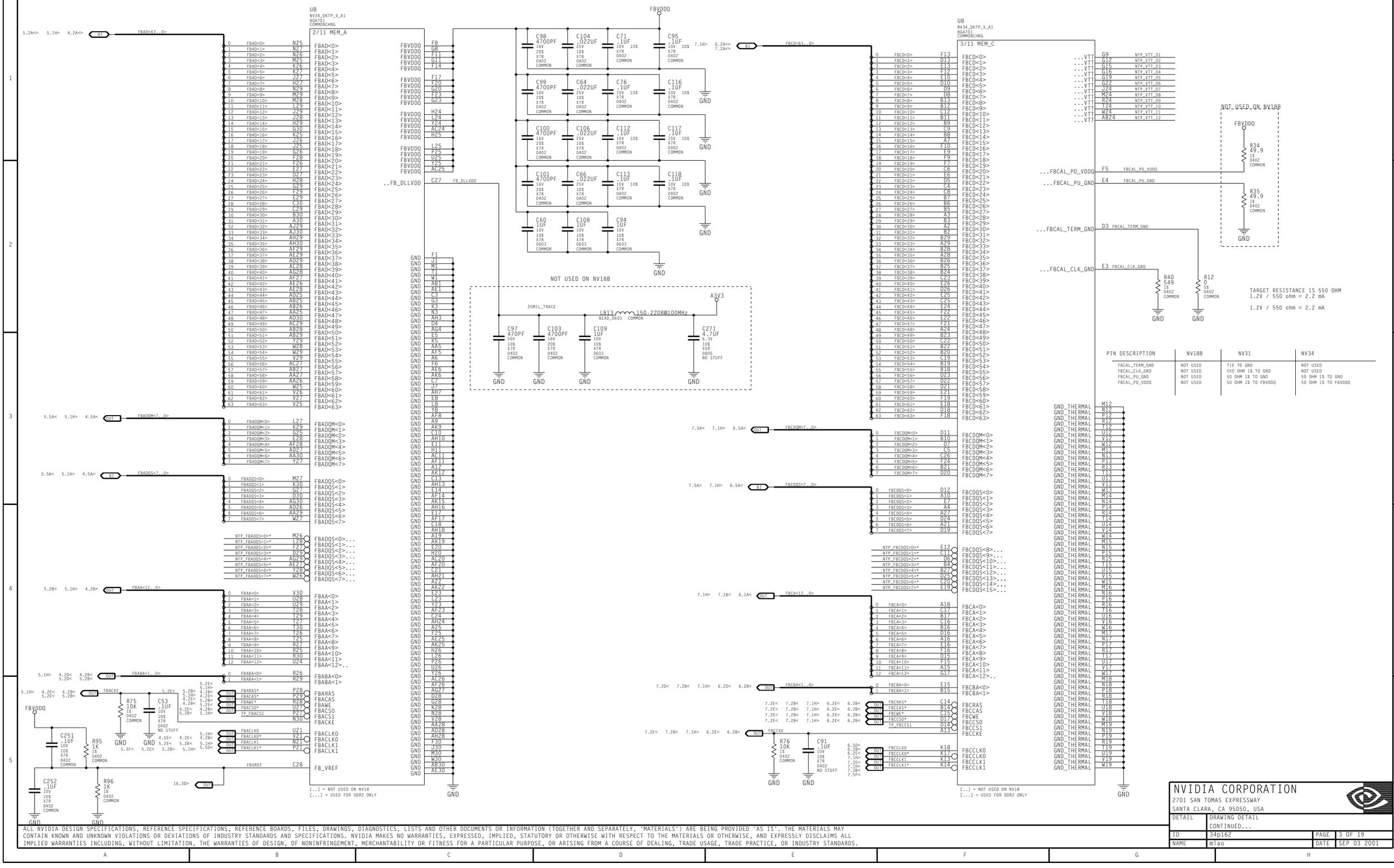
| | | | |
|---|---|---|---|
| DETAIL | NVxx AGP Section and AGP connector | | |
| ID | 34p162 | PAGE | 2 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

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|---|---|---|---|
| ID | 34p162 | PAGE | 3 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

# MEMORY 1st bank 0..31
# PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY

NV31 FB i/f can be configured in two ways:
2x64 bits or 2x32 bits

THIS REQUIRES THAT BOTH PARTITIONS

TO BE CONNECTED TO BE FUNCTIONAL




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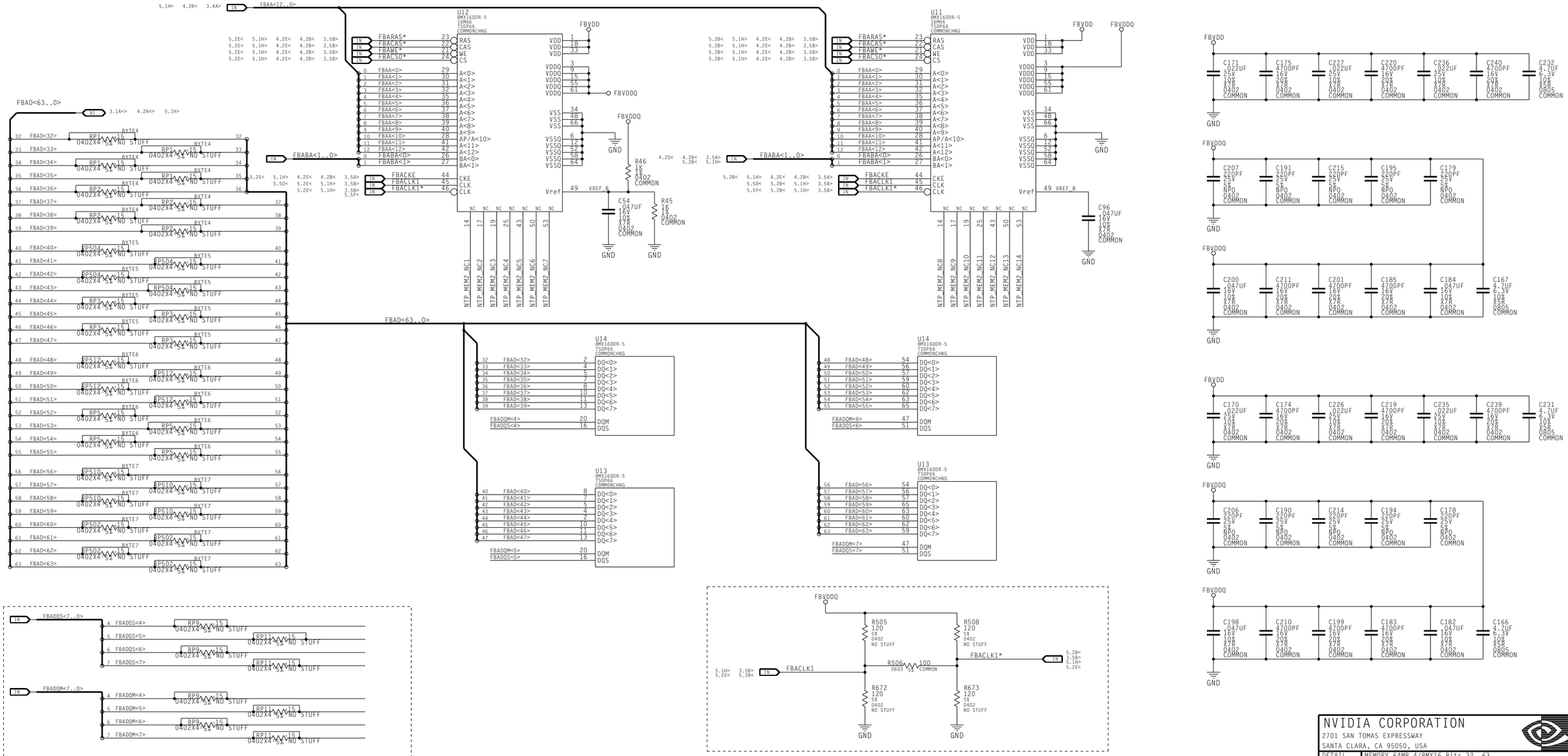
| ID | 34p162 | PAGE | 4 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

# MEMORY 1st bank 32..63
# PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY

| NET_PHYSICAL_TYPE | NET_SPACING_TYPE | Diffpair |
|---|---|---|
| FBACLK0 | 20MIL_G2G_30MIL | FBACLK0 |
| FBACLK0* | 20MIL_G2G_30MIL | FBACLK0 |
| FBACLK1 | 20MIL_G2G_30MIL | FBACLK1 |
| FBACLK1* | 20MIL_G2G_30MIL | FBACLK1 |
| FBAD<63..0> | 10MIL | |
| FBADQM<7..0> | 10MIL | |
| FBADQS<7..0> | 15MIL | |
| FBAA<12..0> | 10MIL | |
| FBARAS* | 10MIL | |
| FBACAS* | 10MIL | |
| FBAWE* | 10MIL | |
| FBACS0* | 10MIL | |
| FBABA<1..0> | 10MIL | |
| FBACKE | 10MIL | |
| VREF_A | 12MIL_TRACE | 10MIL |
| VREF_B | 12MIL_TRACE | 10MIL |

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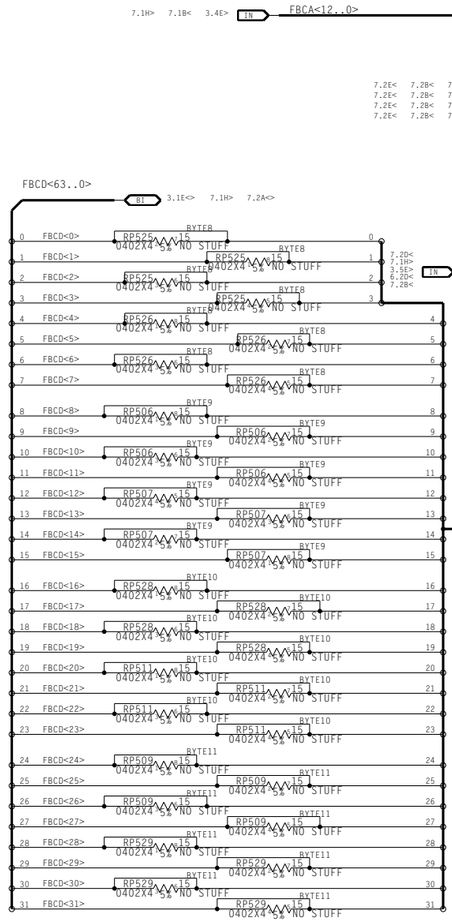
| ID | 34p162 | PAGE | 5 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

# MEMORY 2nd bank 0..31
# PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY



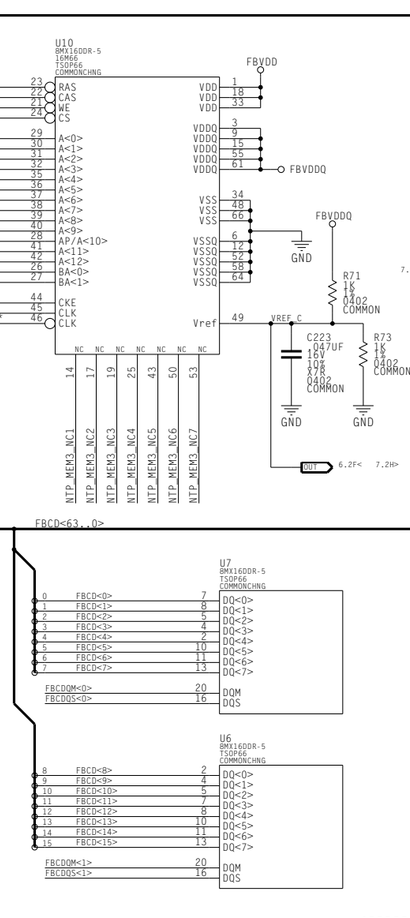


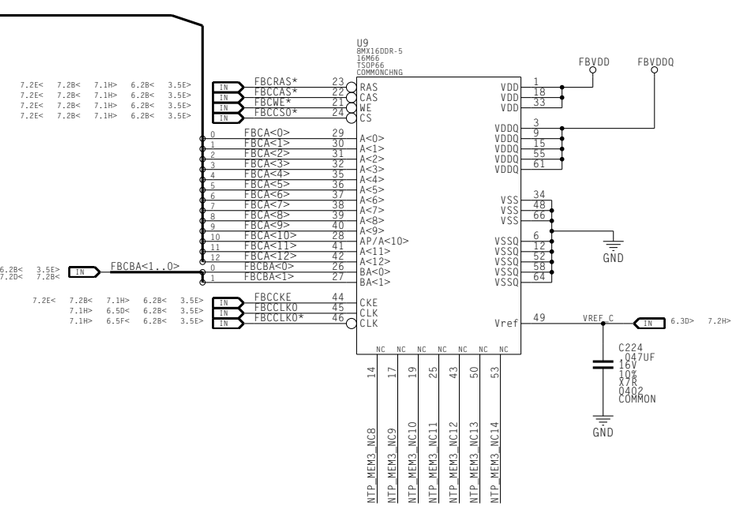


7.1H> 7.1B< 3.4E> FBCA<12..0>

FBCBA<1..0>

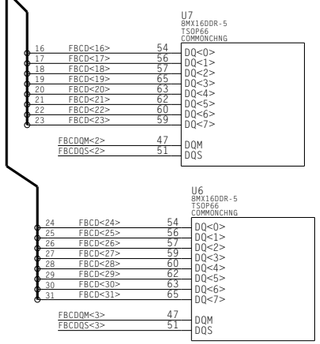
FBCCKE
FBCCLKO
FBCCLKO*

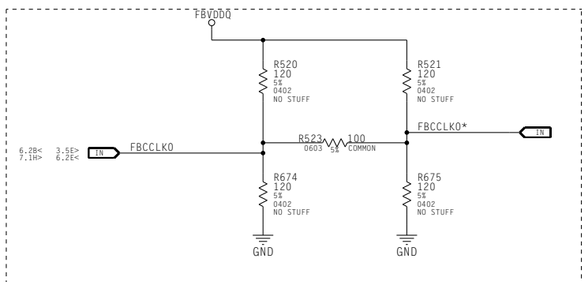


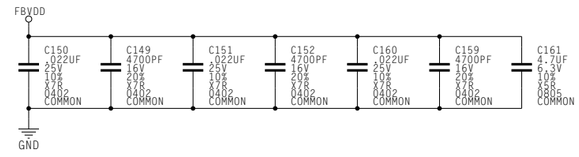



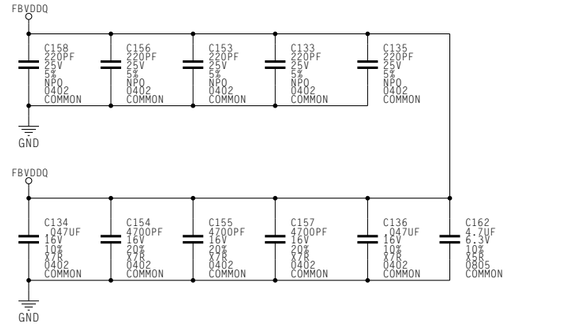

FBCD<63..0>

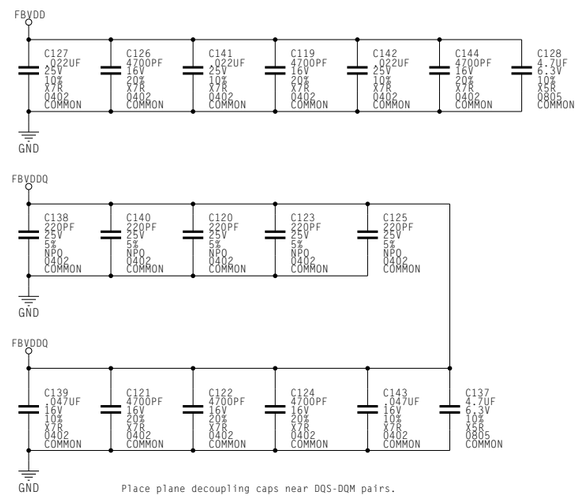


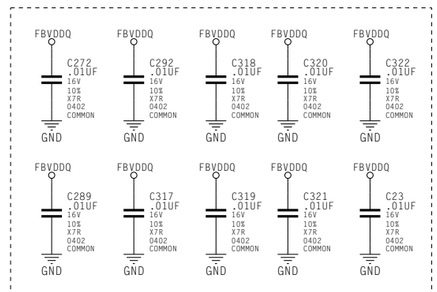




Place plane decoupling caps near DQS-DQM pairs.

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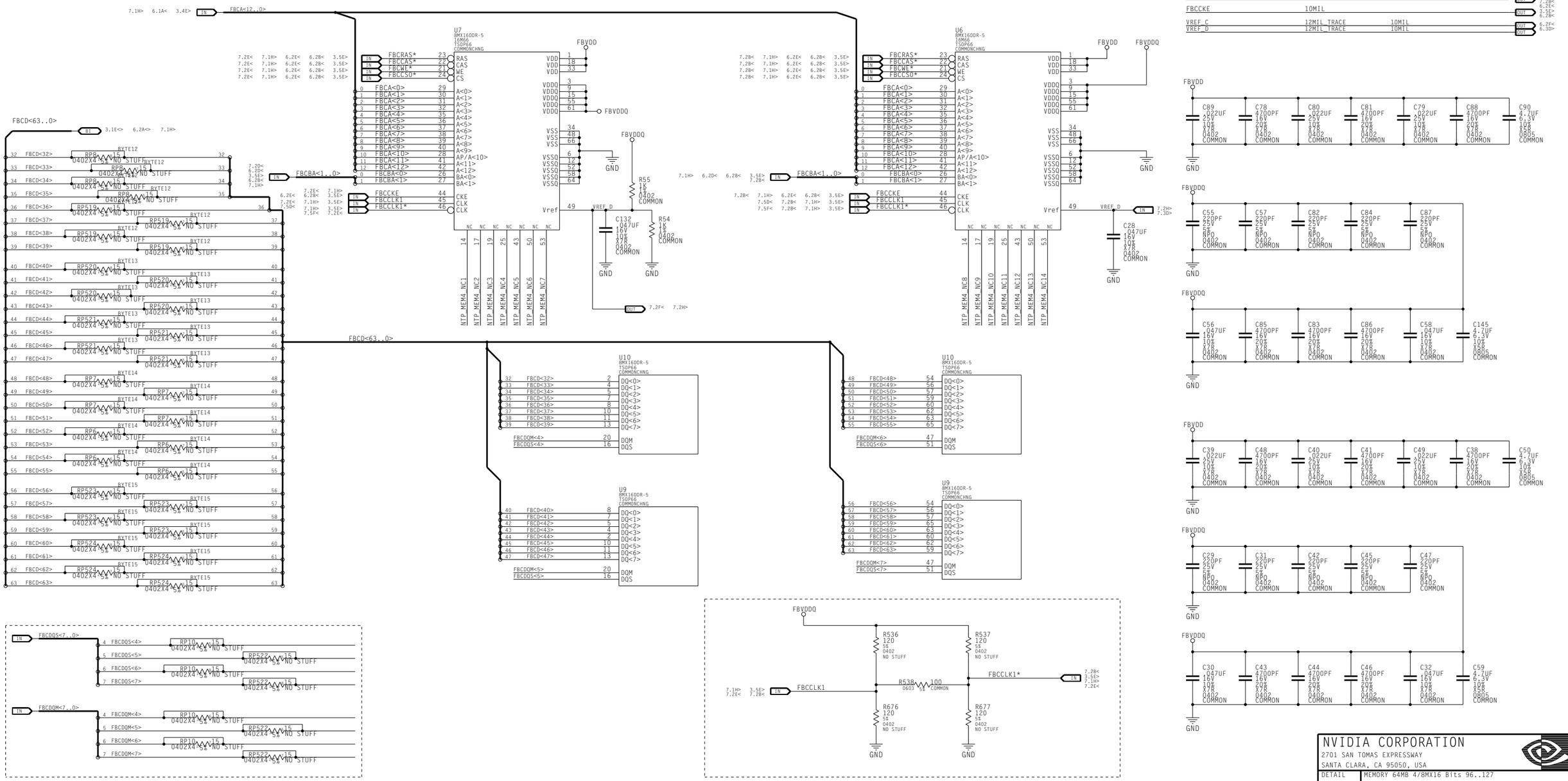
| ID | 34p162 | PAGE | 6 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

# MEMORY 2nd bank 32..63
# PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY

| NET_PHYSICAL_TYPE | NET_SPACING_TYPE | Diffpair |
|---|---|---|
| FBCCLK0 | 20MIL_G2G_30MIL | FBCCLK0 |
| FBCCLK0* | 20MIL_G2G_30MIL | FBCCLK0 |
| FBCCLK1 | 20MIL_G2G_30MIL | FBCCLK1 |
| FBCCLK1* | 20MIL_G2G_30MIL | FBCCLK1 |
| FBCD<63..0> | 10MIL | |
| FBCDQM<7..0> | 10MIL | |
| FBCDQS<7..0> | 15MIL | |
| FBCA<12..0> | 10MIL | |
| FBCRAS* | 10MIL | |
| FBCCAS* | 10MIL | |
| FBCWE* | 10MIL | |
| FBCCS0* | 10MIL | |
| FBCBA<1..0> | 10MIL | |
| FBCCKE | 10MIL | |
| VREF_C | 12MIL_TRACE 10MIL | |
| VREF_D | 12MIL_TRACE 10MIL | |

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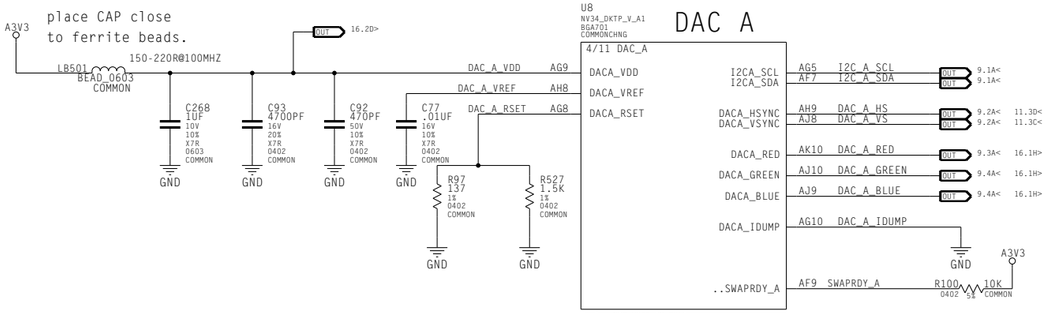
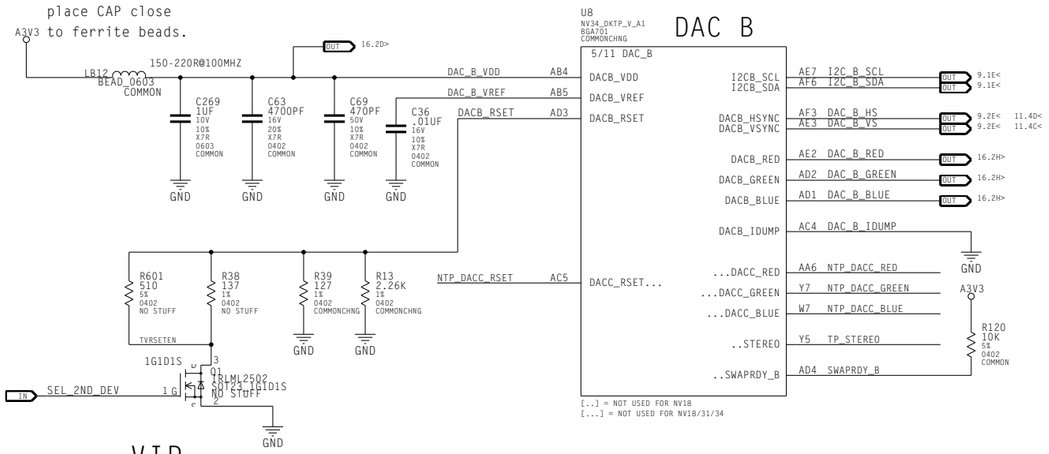
| ID | 34p162 | PAGE | 7 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

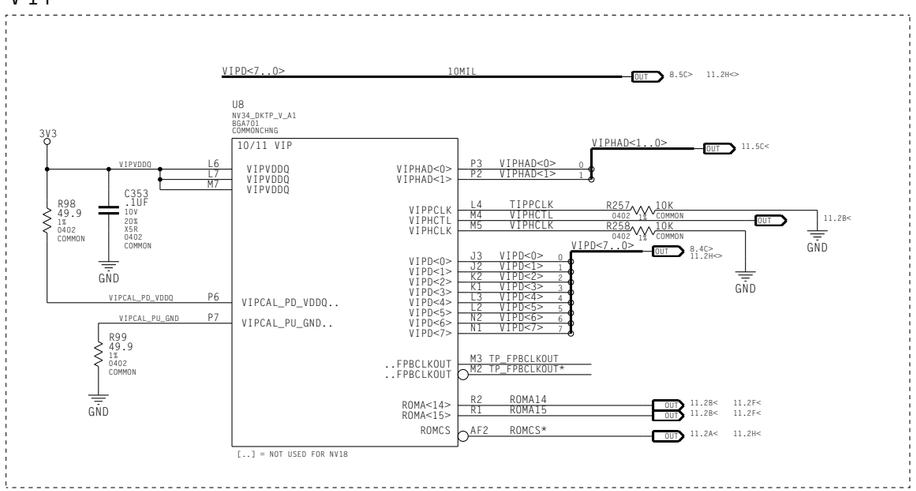
# DAC A



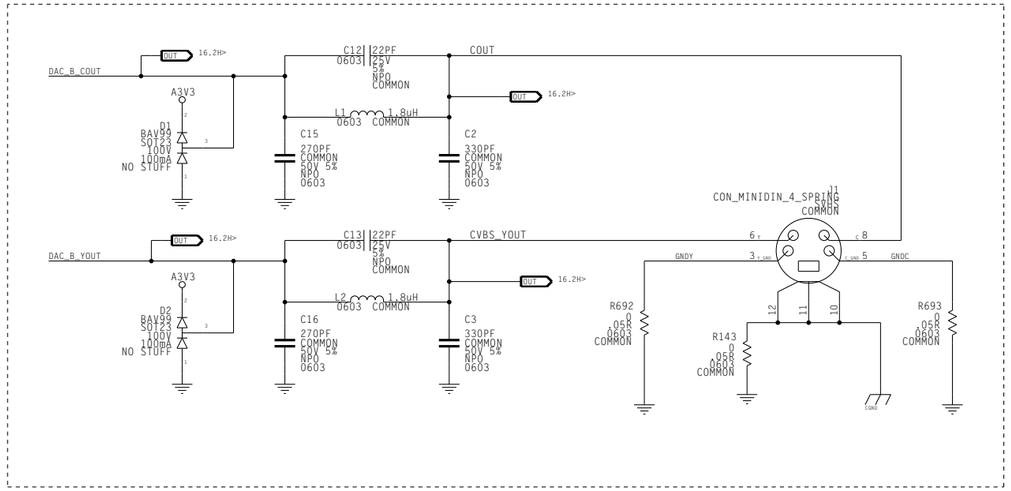

# DAC B




# VIP

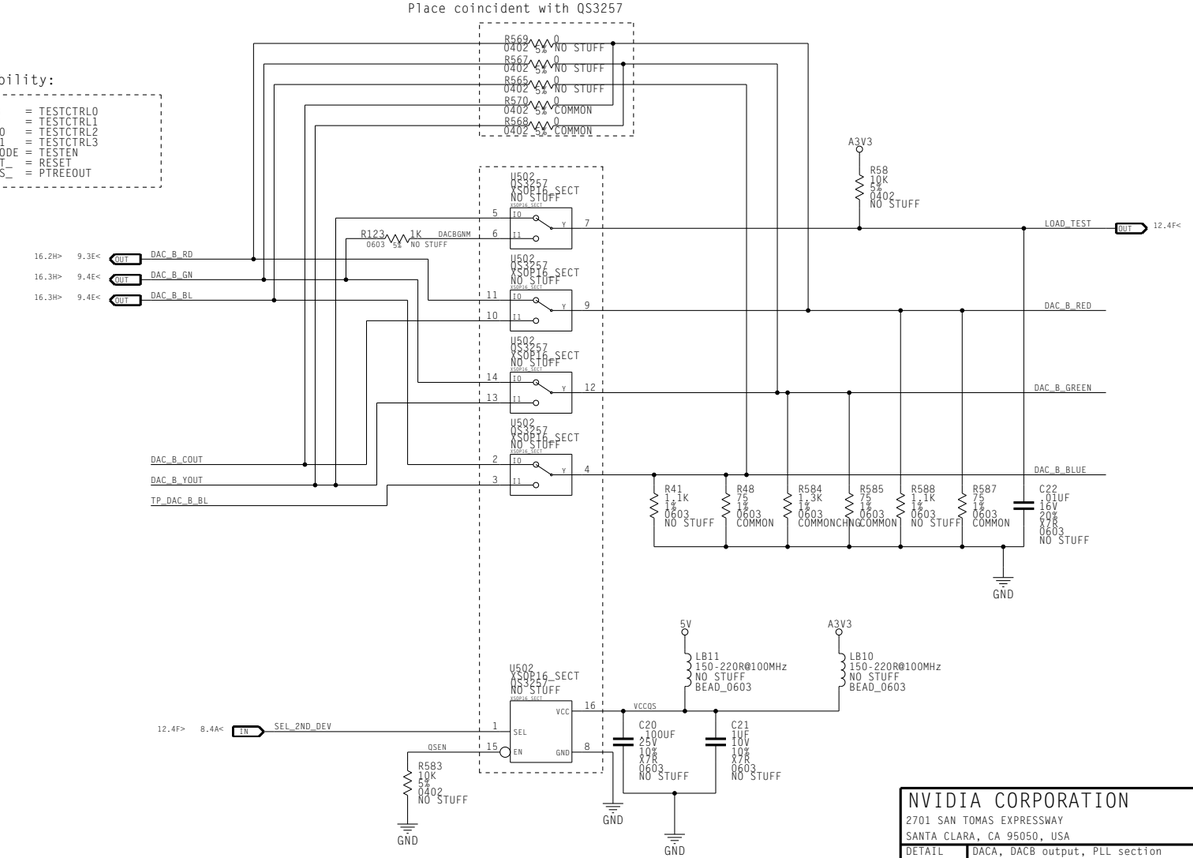



# VIDEO OUT , internal DAC




# DACB SWITCH BETWEEN VGA OUT AND TV OUT

Place coincident with QS3257




Testability:

```
DVDD8    = TESTCTRL0
DVDD9    = TESTCTRL1
DVDD10   = TESTCTRL2
DVDD11   = TESTCTRL3
TESTMODE = TESTEN
PCIRST_  = RESET
FBACAS_  = PTREEOUT
```

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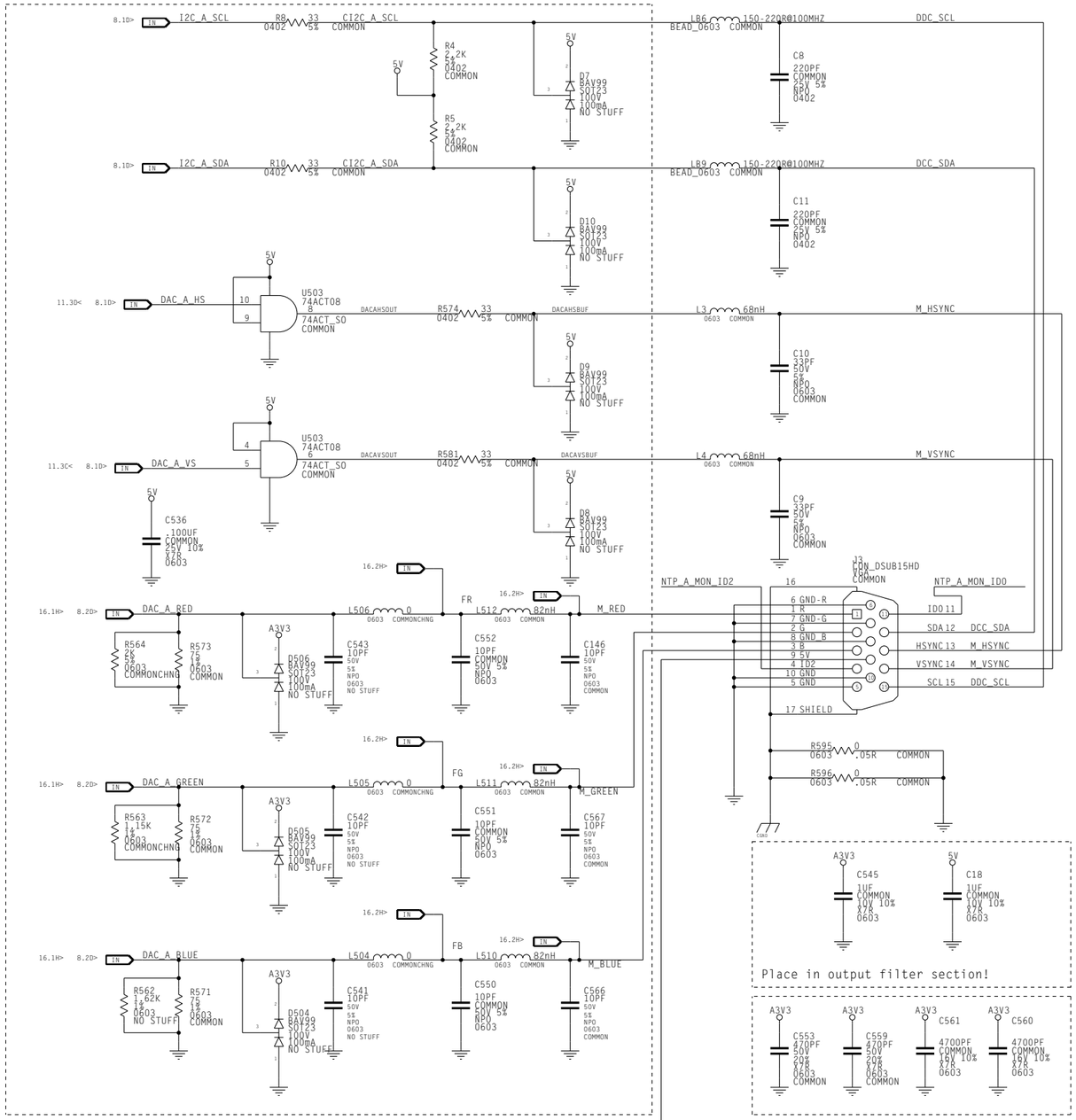
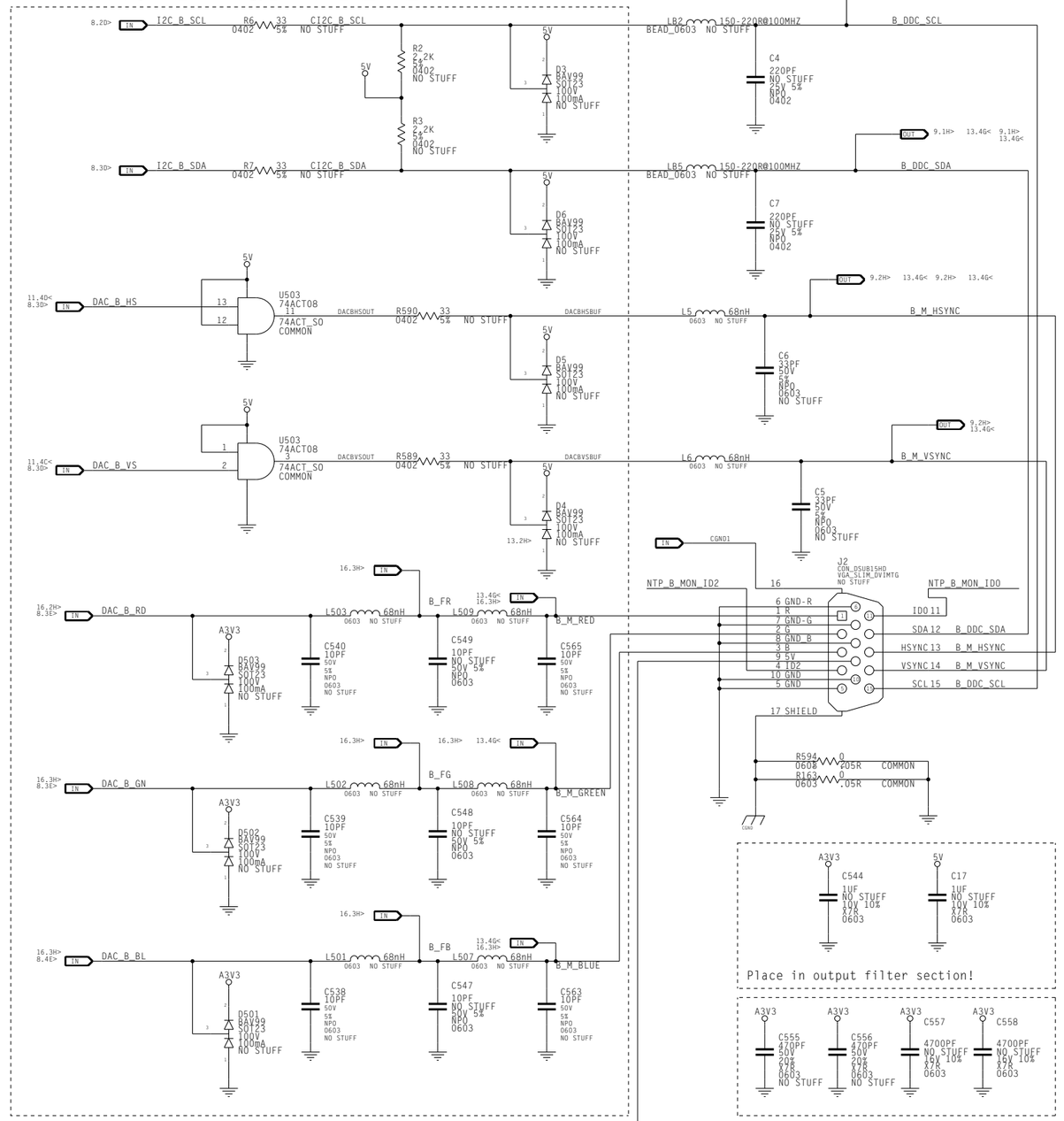
| | | | |
|---|---|---|---|
| DETAIL | DACA, DACB output, PLL section<br>DACB MUX, DACB TV-out | | |
| ID | 34p162 | PAGE | 8 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

# DAC A RGB-FILTER




# DAC B RGB-FILTER

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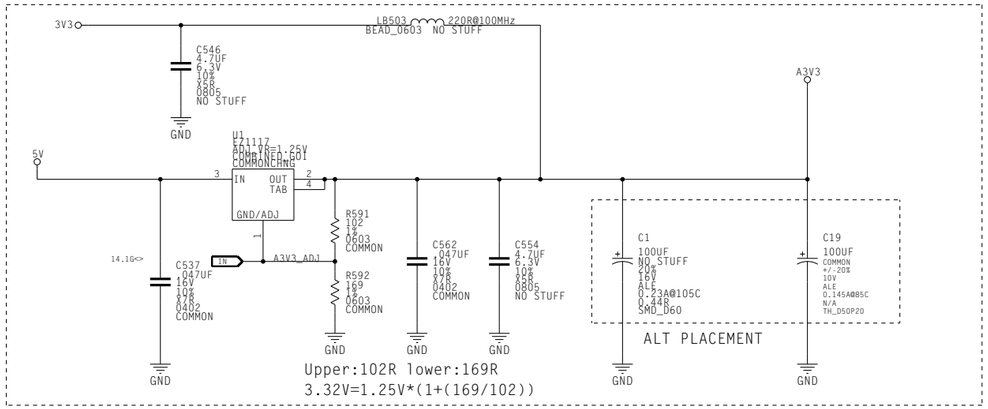
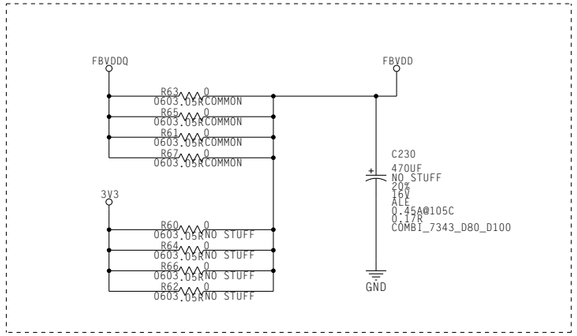
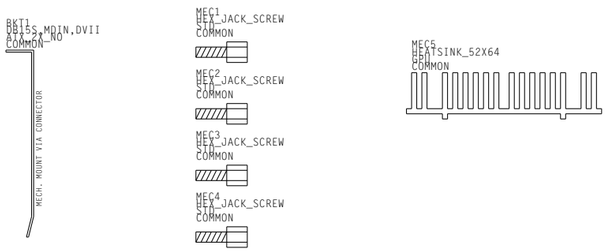
| | | | |
|---|---|---|---|
| DETAIL | DACA, DACB display filter and connector SYNC amplifier | | |
| ID | 34p162 | PAGE | 9 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

# Analog Power Supply




# FBVDD 3.3/2.5V

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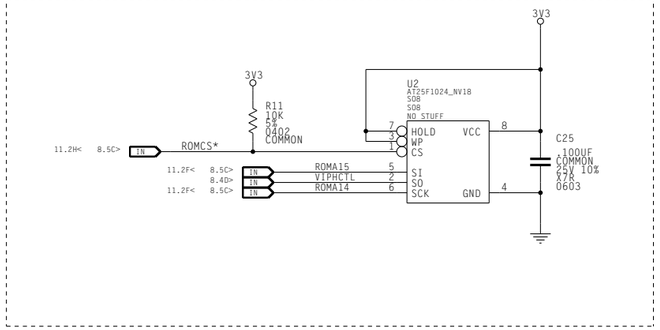
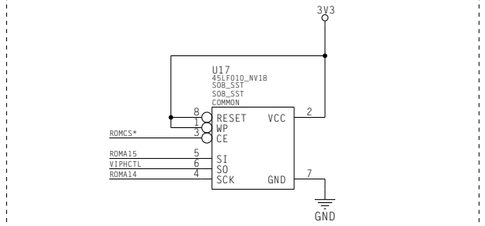
| | | | |
|---|---|---|---|
| DETAIL | POWER supply: A3V3,FBVDD,FBVDDQ,NVVDD MECHANICS | | |
| ID | 34p162 | PAGE | 10 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

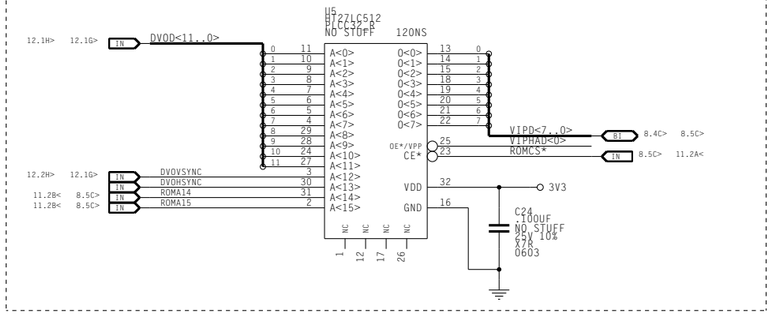
## ATL BIOS (ATMEL Serial ROM)



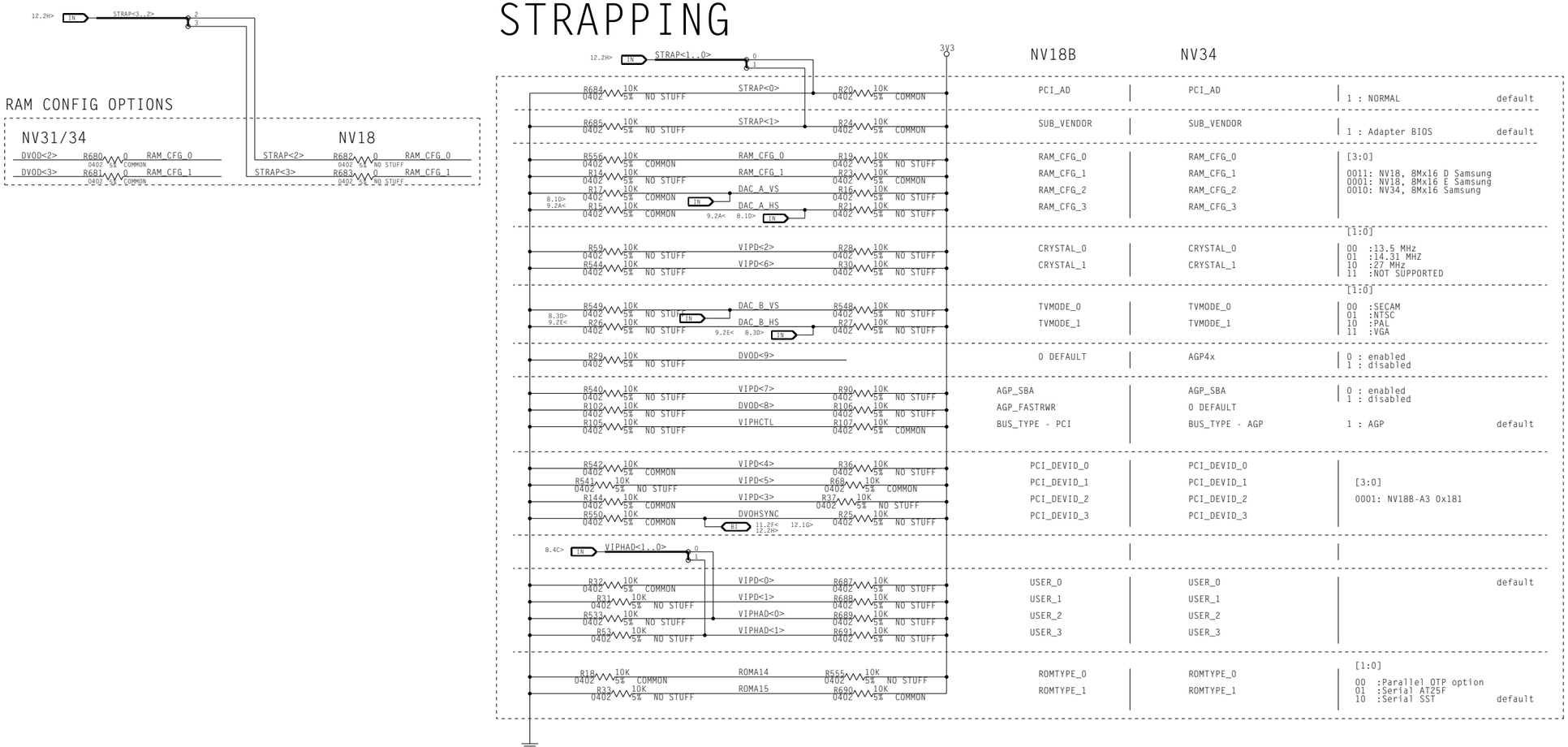

## BIOS (SST Serial ROM)




## PARALLEL EPROM




## STRAPPING

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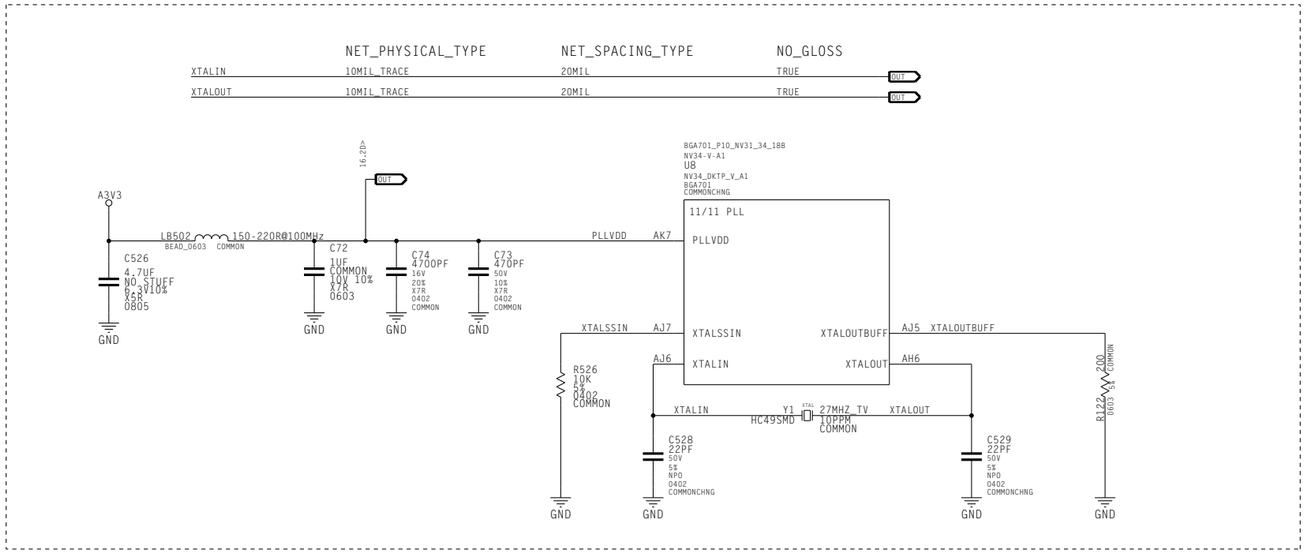
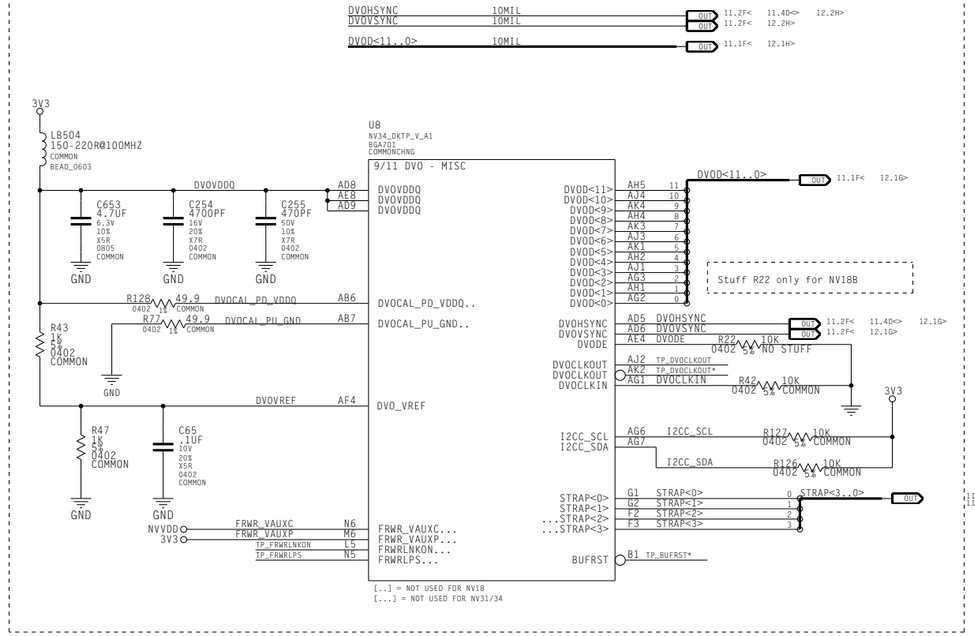
| | | | |
|---|---|---|---|
| DETAIL | NV17 STRAPPING, BIOS TMDS section | | |
| ID | 34p162 | PAGE | 11 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

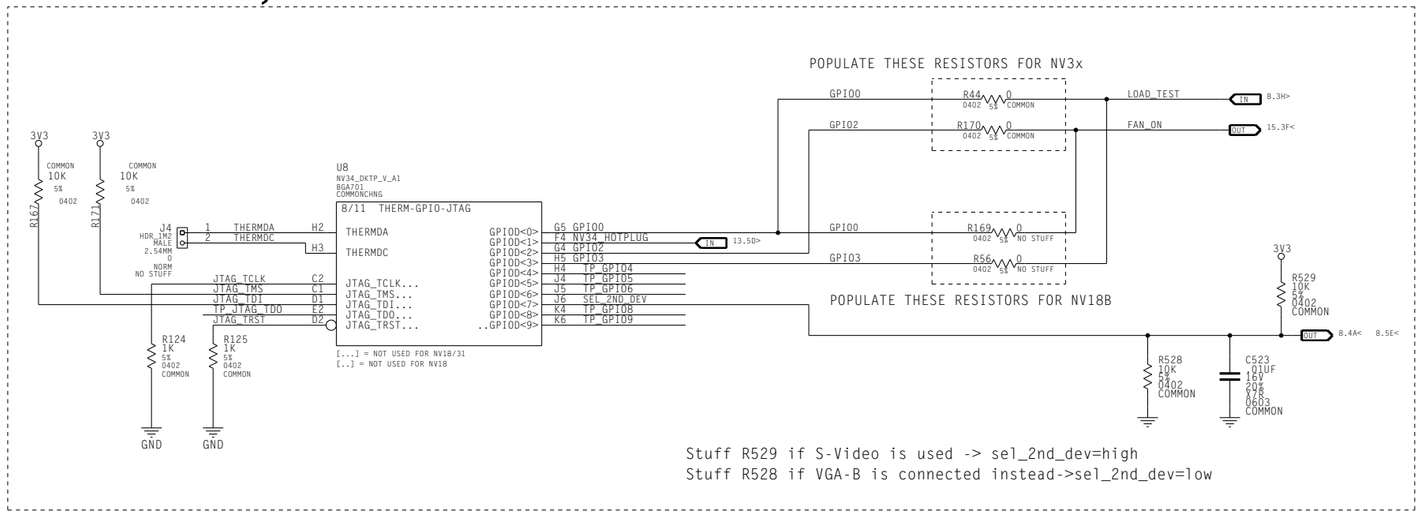
# CLOCK

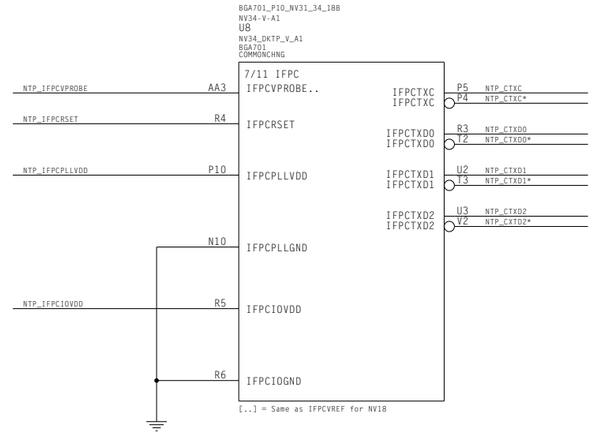



# DVO




# JTAG, THERMAL and GPIOs

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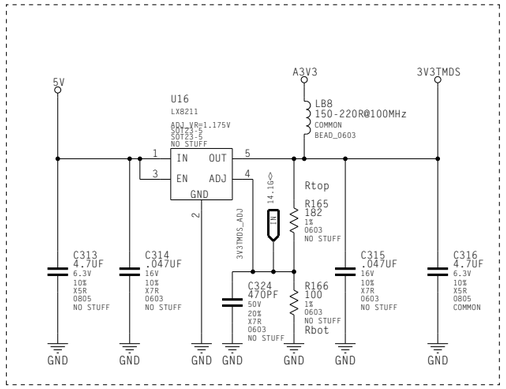
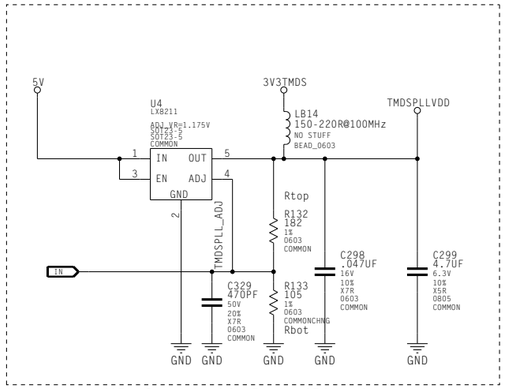
| | | | |
|---|---|---|---|
| DETAIL | DRAWING DETAIL CONTINUED... | | |
| ID | 34p162 | PAGE | 12 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

## TMDS IO Supply



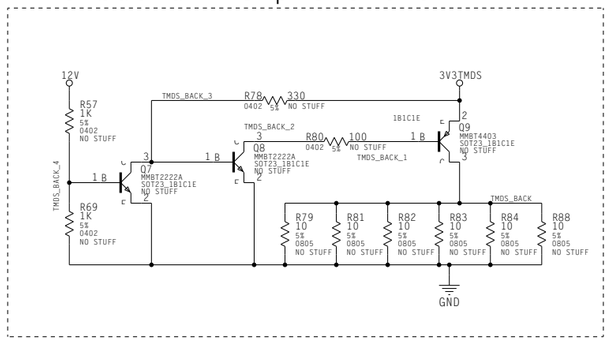

Vout = VRef * (1+Rtop/Rbot)
3.31V = 1.175V * (1+(182/100))

## TMDS PLL Supply




Vout = VRef * (1+Rtop/Rbot)
3.2V = 1.175V * (1+(182/105))

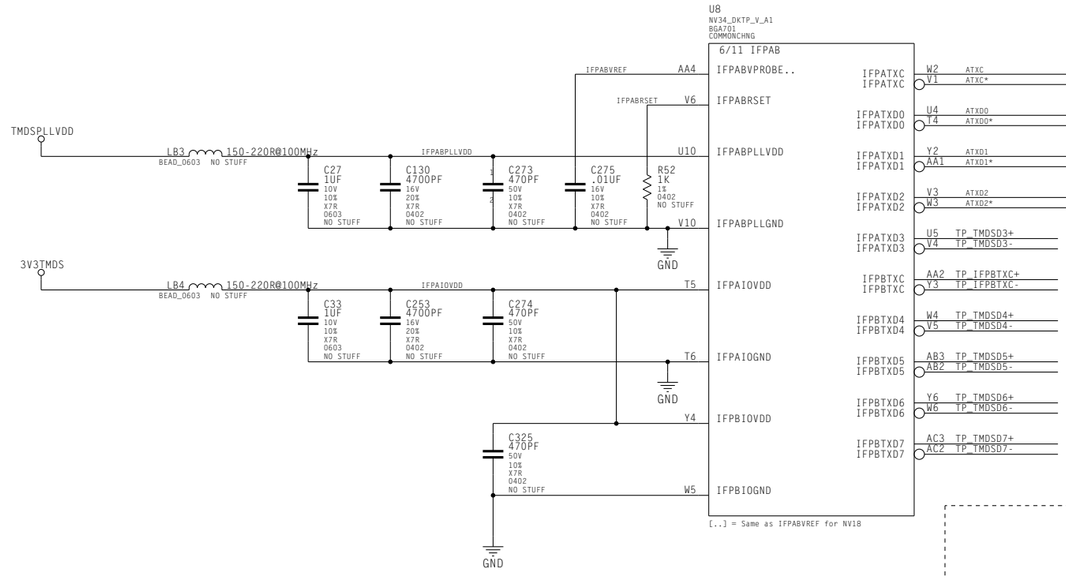
## TMDS backdrive prevention

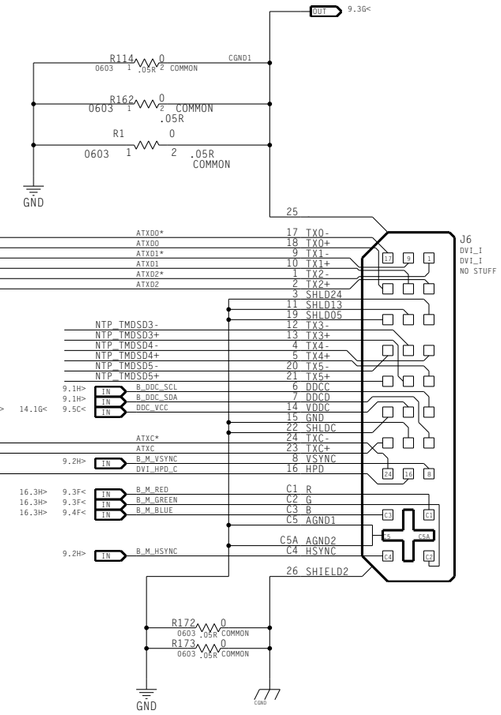



| | NET | NET_PHYSICAL_TYPE | VOLTAGE |
|---|---|---|---|
| B1 B1 | IFPABVREF | 12MIL_TRACE | 3.3V |
| B1 B1 | IFPABPLLVDD | 12MIL_TRACE | 3.3V |
| B1 B1 | IFPAIOVDD | 12MIL_TRACE | 3.3V |
| B1 B1 | IFPBIOVDD | 12MIL_TRACE | 3.3V |
| B1 B1 | IFPCVREF | 12MIL_TRACE | 3.3V |
| B1 B1 | IFPCPLLVDD | 12MIL_TRACE | 3.3V |
| B1 B1 | IFPCIOVDD | 12MIL_TRACE | 3.3V |
| B1 B1 | FAN_RETURN | 12MIL_TRACE | 3.3V |
| 15.3G< B1 B1 | TMDS_BACK | 12MIL_TRACE | 3.3V |

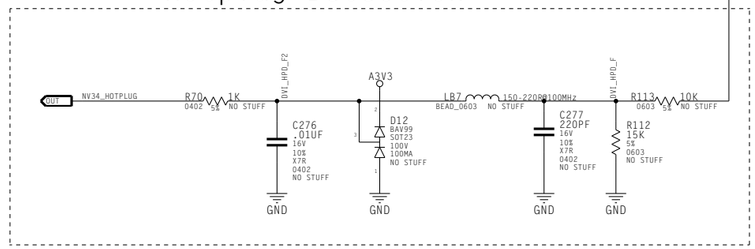
| | NET | Diffpair | NET_SPACING_RULE |
|---|---|---|---|
| B1 B1 | ATXD0 | ATX0 | 20MIL_G2G_30MIL |
| B1 B1 | ATXD0* | ATX0 | 20MIL_G2G_30MIL |
| B1 B1 | ATXD1 | ATX1 | 20MIL_G2G_30MIL |
| B1 B1 | ATXD1* | ATX1 | 20MIL_G2G_30MIL |
| B1 B1 | ATXD2 | ATX2 | 20MIL_G2G_30MIL |
| B1 B1 | ATXD2* | ATX2 | 20MIL_G2G_30MIL |
| B1 B1 | ATXC | ATXC | 20MIL_G2G_30MIL |
| B1 B1 | ATXC* | ATXC | 20MIL_G2G_30MIL |
| B1 B1 | BTXD4 | BTX4 | 20MIL_G2G_30MIL |
| B1 B1 | BTXD4* | BTX4 | 20MIL_G2G_30MIL |
| B1 B1 | BTXD5 | BTX5 | 20MIL_G2G_30MIL |
| B1 B1 | BTXD5* | BTX5 | 20MIL_G2G_30MIL |
| B1 B1 | BTXD6 | BTX6 | 20MIL_G2G_30MIL |
| B1 B1 | BTXD6* | BTX6 | 20MIL_G2G_30MIL |

## Single LinkA Transmitter




## Hotplug Detection

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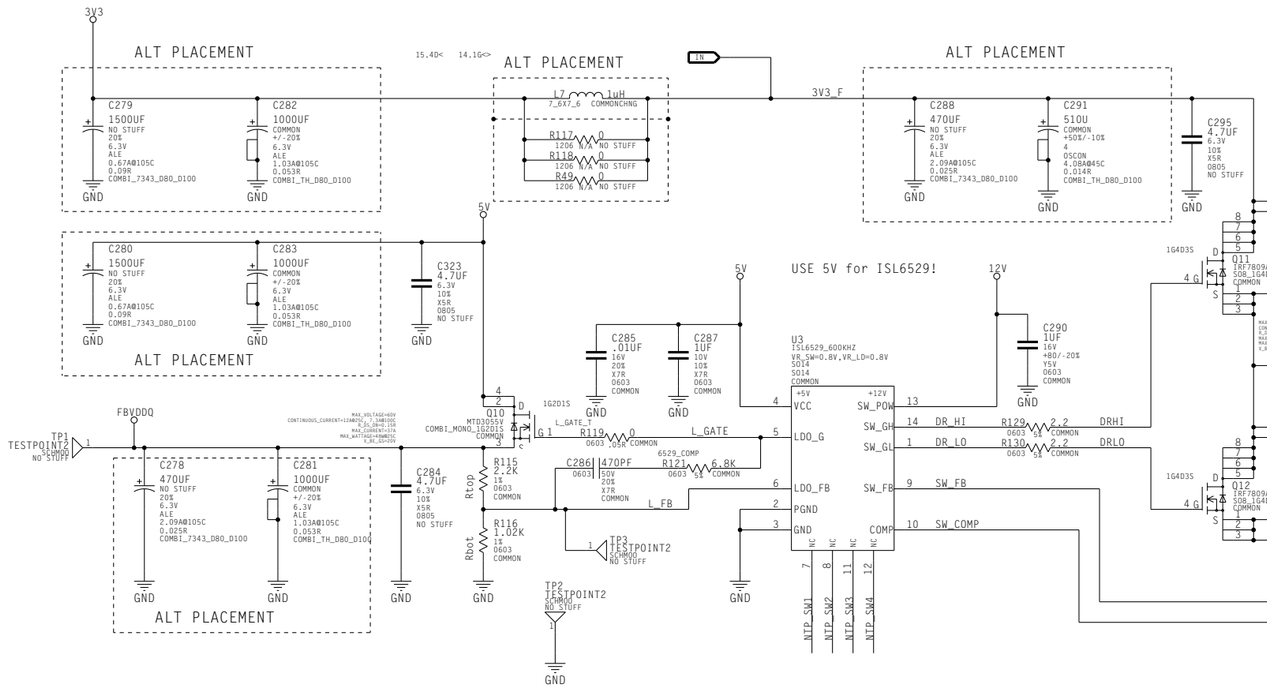
| | | | |
|---|---|---|---|
| DETAIL | Nv 31 Internal TMDS Trasmitter<br>DVI-Connector and Backdrive Prevention | | |
| ID | 34p162 | PAGE | 13 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

# NVVDD-SWITCHER / FBVDDQ-LDO CONTROLER ISL6529

| NET | NET_PHYSICAL_TYPE | VOLTAGE |
|---|---|---|
| 3V3 | 12MIL_TRACE | 3.3V |
| A3V3 | 12MIL_TRACE | 3.3V |
| 3V3TMDS | 12MIL_TRACE | 3.3V |
| FBVDD | 12MIL_TRACE | 2.5V |
| NVVDD | 12MIL_TRACE | 1.65V |
| 5V | 12MIL_TRACE | 5V |
| 12V | 12MIL_TRACE | 12V |
| 3V3_F | 12MIL_TRACE | 3.3V |
| 12V_F | 12MIL_TRACE | 12V |
| DDC_VCC | 12MIL_TRACE | 5V |
| SW_12V | 10MIL_TRACE | 12V |
| SW_5V | 10MIL_TRACE | 5V |
| DR_HI | 10MIL_TRACE | |
| DR_LO | 10MIL_TRACE | |
| DRHI | 10MIL_TRACE | |
| DRLO | 10MIL_TRACE | |
| SW_FB | 10MIL_TRACE | |
| SW_COMP | 10MIL_TRACE | |
| A3V3_ADJ | 10MIL_TRACE | |
| 3V3TMDS_ADJ | 10MIL_TRACE | |
| TMDSPLL_ADJ | 10MIL_TRACE | |
| TMDSPLLVDD | 12MIL_TRACE | 3.3V |




| GPU | Q6 | Q11/Q12 | C308 | C309 |
|---|---|---|---|---|
| NV18 | STUFF | NOSTUFF | STUFF | NOSTUFF |
| NV34 | NOSTUFF | STUFF | STUFF | STUFF |
| NV34 | NOSTUFF | STUFF | STUFF | STUFF |
| NV34 | NOSTUFF | STUFF | STUFF | STUFF |

FBVDDQ= VRef * (1+Rtop/ Rbot)

ISL6529 2.52V = 0.800V * (1+2.2k/1.02k)

| GPU | NVVDD = VRef * (1+Rtop/ Rbot) |
|---|---|
| NV18B | 1.60V = 0.800V * (1+1000/1000) |
| NV31 | 1.11V = 0.800V * (1+392/1020) |
| NV34 | 1.45V = 0.800V * (1+820/1000) |
| NV34 | 1.55V = 0.800V * (1+1500/1600) |

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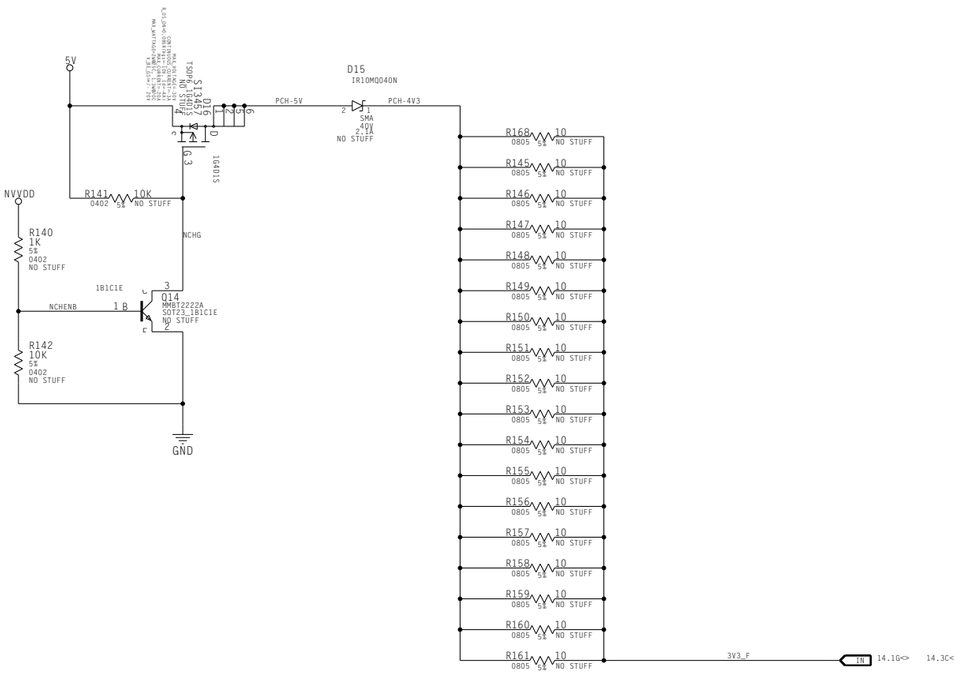
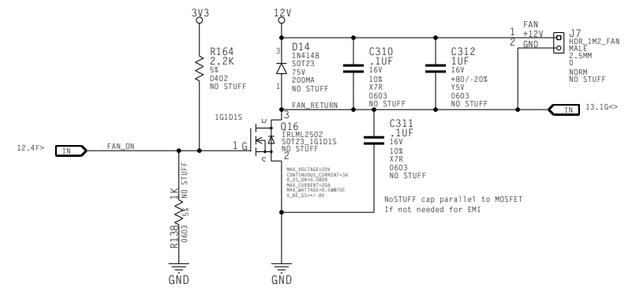
| | | | |
|---|---|---|---|
| DETAIL | Power Supplies: A3V3,TMDS3V3, TMDSPLLVDD, FBVDDQ, NVVDD | | |
| ID | 34p162 | PAGE | 14 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

# NVVDD Current Supplement.




Approx 1A (TBD after Qualification)

# FAN Control

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| | | | |
|---|---|---|---|
| DETAIL | DRAWING DETAIL CONTINUED... | | |
| ID | 34p162 | PAGE | 15 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

# NET RULES

## Power Nets:

| | NET_PHYSICAL_TYPE | NET_SPACING_TYPE | |
|---|---|---|---|
| GND | GND | 12MIL_TRACE | |
| 5V | 5V | 12MIL_TRACE | |
| A3V3 | A3V3 | 12MIL_TRACE | |
| 3V3 | 3V3 | 12MIL_TRACE | |
| | CGND | 12MIL_TRACE | |
| AGPVDDQ | AGPVDDQ | 12MIL_TRACE | |
| FBVDDQ | FBVDDQ | 12MIL_TRACE | |
| FBVDD | FBVDD | 12MIL_TRACE | |
| NVVDD | NVVDD | 12MIL_TRACE | |
| | DAC_A_VDD | 12MIL_TRACE | OUT 8.1B> |
| | DAC_B_VDD | 12MIL_TRACE | OUT 8.2B> |
| | PLLVDD | 12MIL_TRACE | OUT 12.1B> |
| | DDC_VCC | 12MIL_TRACE | OUT 9.5C< 13.4G< 14.1G< |
| | FBVREF | 12MIL_TRACE | OUT 3.5B> |

## RAM_DAC : impedance controlled by constraint manager

| | NET_PHYSICAL_TYPE | NET_SPACING_TYPE | NO_GLOSS | |
|---|---|---|---|---|
| | DAC_A_RED | 20MIL | TRUE | OUT 8.2D> 9.3A< |
| | DAC_A_GREEN | 20MIL | TRUE | OUT 8.2D> 9.4A< |
| | DAC_A_BLUE | 20MIL | TRUE | OUT 8.2D> 9.4A< |
| | FR | 20MIL | TRUE | OUT 9.3B< |
| | FG | 20MIL | TRUE | OUT 9.3B< |
| | FB | 20MIL | TRUE | OUT 9.4B< |
| | M_RED | 20MIL | TRUE | OUT 9.3B< |
| | M_GREEN | 20MIL | TRUE | OUT 9.3B< |
| | M_BLUE | 20MIL | TRUE | OUT 9.4B< |
| | DAC_B_RED | 20MIL | TRUE | OUT 8.3D> |
| | DAC_B_GREEN | 20MIL | TRUE | OUT 8.3D> |
| | DAC_B_BLUE | 20MIL | TRUE | OUT 8.3D> |
| | DAC_B_YOUT | 20MIL | TRUE | OUT 8.2E> |
| | DAC_B_COUT | 20MIL | TRUE | OUT 8.1E> |
| | CVBS_YOUT | 20MIL | TRUE | OUT 8.2G> |
| | COUT | 20MIL | TRUE | OUT 8.1F> |
| | DAC_B_RD | 20MIL | TRUE | OUT 8.3E> 9.3E< |
| | DAC_B_GN | 20MIL | TRUE | OUT 8.3E> 9.4E< |
| | DAC_B_BL | 20MIL | TRUE | OUT 8.4E> 9.4E< |
| | B_FR | 20MIL | TRUE | OUT 9.3F< |
| | B_FG | 20MIL | TRUE | OUT 9.3F< |
| | B_FB | 20MIL | TRUE | OUT 9.4F< |
| | B_M_RED | 20MIL | TRUE | OUT 9.3F< 13.4G< |
| | B_M_GREEN | 20MIL | TRUE | OUT 9.3F< 13.4G< |
| | B_M_BLUE | 20MIL | TRUE | OUT 9.4F< 13.4G< |

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| | | | |
|---|---|---|---|
| DETAIL | DESIGN NET RULES | | |
| ID | 34p162 | PAGE | 16 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

*** Signal Cross-Reference for the entire design ***

| | |
|---|---|
| 3V3TMDS_ADJ | 13.1B< 14.1G<> |
| 3V3_F | 14.1G<> 14.3C< 15.4D< |
| 12V_F | 14.1G<> |
| A3V3_ADJ | 10.2D< 14.1G<> |
| AGPDBI_HI | 2.1G> |
| AGPDBI_LO | 2.1G> |
| AGPMBDET | 2.1F> |
| AGPRBF* | 2.1G> |
| AGPSTO | 2.1G> |
| AGPST1 | 2.1G> |
| AGPST2 | 2.1G> |
| AGPSTBO | 2.1F> |
| AGPSTBO* | 2.1F> |
| AGPSTB1 | 2.1F> |
| AGPSTB1* | 2.1F> |
| AGPSTOP | 2.1F> |
| AGPWBF* | 2.1G> |
| AGP_VREFCG | 2.1F> |
| AGP_VREFGC | 2.1F> |
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| ATXC* | 13.1G<> |
| ATXDO | 13.1G<> |
| ATXDO* | 13.1G<> |
| ATXD1 | 13.1G<> |
| ATXD1* | 13.1G<> |
| ATXD2 | 13.1G<> |
| ATXD2* | 13.1G<> |
| BTXD4 | 13.2G<> |
| BTXD4* | 13.2G<> |
| BTXD5 | 13.2G<> |
| BTXD5* | 13.2G<> |
| BTXD6 | 13.2G<> |
| BTXD6* | 13.2G<> |
| B_DDC_SCL | 9.1H> 13.4G< |
| B_DDC_SDA | 9.1H> 13.4G< |
| B_FB | 9.4F< 16.3H> |
| B_FG | 9.3F< 16.3H> |
| B_FR | 9.3F< 16.3H> |
| B_M_BLUE | 9.4F< 13.4G< 16.3H> |
| B_M_GREEN | 9.3F< 13.4G< 16.3H> |
| B_M_HSYNC | 9.2H> 13.4G< |
| B_M_RED | 9.3F< 13.4G< 16.3H> |
| B_M_VSYNC | 9.2H> 13.4G< |
| CGND1 | 9.3G< 13.2H> |
| COUT | 8.1F> 16.2H> |
| CVBS_YOUT | 8.2G> 16.2H> |
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| DAC_A_GREEN | 8.2D> 9.4A< 16.1H> |
| DAC_A_HS | 8.1D> 9.2A< 11.3D< |
| DAC_A_RED | 8.2D> 9.3A< 16.1H> |
| DAC_A_VDD | 8.1B> 16.2D> |
| DAC_A_VS | 8.1D> 9.2A< 11.3C< |
| DAC_B_BL | 8.4E> 9.4E< 16.3H> |
| DAC_B_BLUE | 8.3D> 16.2H> |
| DAC_B_COUT | 8.1E> 16.2H> |
| DAC_B_GN | 8.3E> 9.4E< 16.3H> |
| DAC_B_GREEN | 8.3D> 16.2H> |
| DAC_B_HS | 8.3D> 9.2E< 11.4D< |
| DAC_B_RD | 8.3E> 9.3E< 16.2H> |
| DAC_B_RED | 8.3D> 16.2H> |
| DAC_B_VDD | 8.2B> 16.2D> |
| DAC_B_VS | 8.3D> 9.2E< 11.4C< |
| DAC_B_YOUT | 8.2E> 16.2H> |
| DDC_VCC | 9.5C< 13.4G< 14.1G< 16.2D> |
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| DRLO | 14.1G<> |
| DR_HI | 14.1G<> |
| DR_LO | 14.1G<> |
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| DVDD<2> | 11.1F< 12.1G> 12.1H> |
| DVDD<3> | 11.1F< 12.1G> 12.1H> |
| DVDD<8> | 11.1F< 12.1G> 12.1H> |
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| DVDHSYNC | 11.1F< 11.4D> 12.1G> 12.2H> |
| DVDVSYNC | 11.2F< 12.1G> 12.2H> |
| FAN_ON | 12.4F> 15.3F< |
| FAN_RETURN | 13.1G<> 15.3G< |
| FB | 9.4B< 16.2H> |
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| FBACLKO | 3.5B> 4.2B< 4.2E< 4.5D< 5.1H> |
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| FBACLK1 | 3.5B> 5.1H> 5.2B< 5.2E< 5.5D< |
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| FBCCKE | 3.5E> 6.2B< 6.2E< 7.1H> 7.2B< 7.2E< |
| FBCCLKO | 3.5E> 6.2B< 6.2E< 6.5D< 7.1H> |
| FBCCLKO* | 3.5E> 6.2B< 6.2E< 6.5F< 7.1H> |
| FBCCLK1 | 3.5E> 7.1H> 7.2B< 7.2E< 7.5D< |
| FBCCLK1* | 3.5E> 7.1H> 7.2B< 7.2E< 7.5F< |
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| FBVREF | 3.5B> 16.3D> |
| FG | 9.3B< 16.2H> |
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| I2C_B_SCL | 8.2D> 9.1E< |
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| M_RED | 9.3B< 16.2H> |
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| PCIRST* | 2.1H> |
| PCISTOP* | 2.1H> |
| PCITRDY* | 2.1H> |
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| DETAIL | DRAWING DETAIL CONTINUED... | | |
| ID | 34p162 | PAGE | 17 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

*** Part Cross-Reference for the entire design ***

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| D8 | D_3PIN_AC | 9.3C |
| D9 | D_3PIN_AC | 9.2C |
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| D13 | D_SCHOTTKY | 14.4E |
| D14 | D | 15.3F |
| D15 | D_SCHOTTKY | 15.2B |
| D16 | Q_FET_P_ENH | 15.3B |
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| J2 | CON_DSUB15HD | 9.3H |
| J3 | CON_DSUB15HD | 9.3D |
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| J6 | CON_DVI_I | 13.3H |
| J7 | HDR_1X2 | 15.3G |
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| MEC5 | HEATSINK | 10.4D |
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| Q6 | Q_FET_N_ENH | 14.3E 14.4E |
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| Q8 | Q_NPN | 13.1E |
| Q9 | Q_PNP | 13.1F |
| Q10 | Q_FET_N_ENH | 14.4B |
| Q11 | Q_FET_N_ENH | 14.3E |
| Q12 | Q_FET_N_ENH | 14.4E |
| Q14 | Q_NPN | 15.3B |
| Q16 | Q_FET_N_ENH | 15.3F |
| R1 | R | 13.3G |
| R2 | R | 9.1F |
| R3 | R | 9.1F |
| R4 | R | 9.1B |
| R5 | R | 9.1B |
| R6 | R | 9.1E |
| R7 | R | 9.1E |
| R8 | R | 9.1B |
| R9 | R | 2.4G |
| R10 | R | 9.1B |
| R11 | R | 11.1B |
| R12 | R | 3.2G |
| R13 | R | 8.3B |
| R14 | R | 11.3C |
| R15 | R | 11.3C |
| R16 | R | 11.3D |
| R17 | R | 11.3C |
| R18 | R | 11.5C |
| R19 | R | 11.3D |
| R20 | R | 11.3D |
| R21 | R | 11.3D |
| R22 | R | 12.2H |
| R23 | R | 11.3D |
| R24 | R | 11.3D |
| R25 | R | 11.4D |
| R26 | R | 11.4C |
| R27 | R | 11.4D |
| R28 | R | 11.3D |
| R29 | R | 11.4C |
| R30 | R | 11.3D |
| R31 | R | 11.5C |
| R32 | R | 11.5C |
| R33 | R | 11.5C |
| R34 | R | 3.1H |
| R35 | R | 3.2H |
| R36 | R | 11.4D |
| R37 | R | 11.4D |
| R38 | R | 8.3A |
| R39 | R | 8.3B |
| R40 | R | 3.2G |
| R41 | R | 8.4F |
| R42 | R | 12.2H |
| R43 | R | 12.2E |
| R44 | R | 12.4E |
| R45 | R | 5.3D |
| R46 | R | 5.2D |
| R47 | R | 12.2E |
| R48 | R | 8.4G |
| R49 | R | 14.3C |
| R50 | R | 13.4C |
| R51 | R | 13.5C |
| R52 | R | 13.3C |
| R53 | R | 11.5C |
| R54 | R | 7.3D |
| R55 | R | 7.2D |
| R56 | R | 12.4E |
| R57 | R | 13.1E |
| R58 | R | 8.3G |
| R59 | R | 11.3C |
| R60 | R | 10.3D |
| R61 | R | 10.3D |
| R62 | R | 10.4D |
| R63 | R | 10.3D |
| R64 | R | 10.4D |
| R65 | R | 10.3D |
| R66 | R | 10.4D |
| R67 | R | 10.3D |
| R68 | R | 11.4D |
| R69 | R | 13.2E |
| R70 | R | 13.5E |
| R71 | R | 6.2D |
| R72 | R | 4.2D |
| R73 | R | 6.3D |
| R74 | R | 4.3D |
| R75 | R | 3.5A |
| R76 | R | 3.5E |
| R77 | R | 12.2F |
| R78 | R | 13.1E |
| R79 | R | 13.2E |
| R80 | R | 13.1F |
| R81 | R | 13.2F |
| R82 | R | 13.2F |
| R83 | R | 13.2F |
| R84 | R | 13.2F |
| R85 | R | 2.4A |
| R86 | R | 2.5B |
| R87 | R | 2.5C |
| R88 | R | 13.2F |
| R89 | R | 2.4F |
| R90 | R | 11.4D |

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| DETAIL | DRAWING DETAIL CONTINUED... | | |
| ID | 34p162 | PAGE | 18 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |

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|---|---|---|
| R91 | R | 2.4F |
| R92 | R | 2.4F |
| R93 | R | 2.5C |
| R94 | R | 2.5C |
| R95 | R | 3.5A |
| R96 | R | 3.5A |
| R97 | R | 8.2B |
| R98 | R | 8.4A |
| R99 | R | 8.5A |
| R100 | R | 8.2D |
| R101 | R | 2.5D |
| R102 | R | 11.4C |
| R103 | R | 2.4D |
| R104 | R | 2.5C |
| R105 | R | 11.4C |
| R106 | R | 11.4D |
| R107 | R | 11.4D |
| R108 | R | 13.3F |
| R109 | R | 13.4F |
| R110 | R | 13.3F |
| R111 | R | 13.4F |
| R112 | R | 13.5F |
| R113 | R | 13.5F |
| R114 | R | 13.3G |
| R115 | R | 14.4B |
| R116 | R | 14.4B |
| R117 | R | 14.3C |
| R118 | R | 14.3C |
| R119 | R | 14.4C |
| R120 | R | 8.3D |
| R121 | R | 14.4C |
| R122 | R | 12.2D |
| R124 | R | 12.4B |
| R125 | R | 12.4B |
| R126 | R | 12.2H |
| R127 | R | 12.2H |
| R128 | R | 12.2F |
| R129 | R | 14.4D |
| R130 | R | 14.4D |
| R131 | R | 14.5F |
| R132 | R | 13.1D |
| R133 | R | 13.2D |
| R134 | R | 14.4F |
| R135 | R | 14.5F |
| R136 | R | 14.4G |
| R137 | R | 14.4F |
| R138 | R | 15.3F |
| R140 | R | 15.3A |
| R141 | R | 15.3B |
| R142 | R | 15.3A |
| R143 | R | 8.2G |
| R144 | R | 11.4C |
| R145 | R | 15.3C |
| R146 | R | 15.3C |
| R147 | R | 15.3C |
| R148 | R | 15.3C |
| R149 | R | 15.3C |
| R150 | R | 15.3C |
| R151 | R | 15.3C |
| R152 | R | 15.3C |
| R153 | R | 15.3C |
| R154 | R | 15.4C |
| R155 | R | 15.4C |
| R156 | R | 15.4C |
| R157 | R | 15.4C |
| R158 | R | 15.4C |
| R159 | R | 15.4C |
| R160 | R | 15.4C |
| R161 | R | 15.4C |
| R162 | R | 13.3G |
| R163 | R | 9.3H |
| R164 | R | 15.3F |
| R165 | R | 13.1B |
| R166 | R | 13.2B |
| R167 | R | 12.4B |
| R168 | R | 15.3C |
| R169 | R | 12.4E |
| R170 | R | 12.4E |
| R171 | R | 12.4B |
| R172 | R | 13.4G |
| R173 | R | 13.5G |
| R253 | R | 2.4B |
| R257 | R | 8.4C |
| R258 | R | 8.4C |
| R501 | R | 4.5E |
| R502 | R | 4.5E |
| R504 | R | 4.5E |
| R505 | R | 5.5E |
| R506 | R | 5.5E |
| R508 | R | 5.5E |
| R517 | R | 2.4D |
| R520 | R | 6.5E |
| R521 | R | 6.5E |
| R523 | R | 6.5E |
| R524 | R | 2.4D |
| R525 | R | 2.4E |
| R526 | R | 12.2C |
| R527 | R | 8.2B |
| R528 | R | 12.4E |
| R529 | R | 12.4F |
| R533 | R | 11.5C |
| R534 | R | 2.4B |
| R536 | R | 7.5E |
| R537 | R | 7.5E |
| R538 | R | 7.5E |
| R540 | R | 11.4C |
| R541 | R | 11.4C |
| R542 | R | 11.4C |
| R544 | R | 11.3C |
| R547 | R | 2.4A |
| R548 | R | 11.4D |
| R549 | R | 11.4C |
| R550 | R | 11.4C |

| | | |
|---|---|---|
| R551 | R | 2.5D |
| R552 | R | 2.5D |
| R555 | R | 11.5D |
| R556 | R | 11.3C |
| R562 | R | 9.4A |
| R563 | R | 9.4A |
| R564 | R | 9.3A |
| R565 | R | 8.3F |
| R567 | R | 8.3F |
| R568 | R | 8.3F |
| R569 | R | 8.3F |
| R570 | R | 8.3F |
| R571 | R | 9.4A |
| R572 | R | 9.4A |
| R573 | R | 9.3A |
| R574 | R | 9.2B |
| R581 | R | 9.2B |
| R583 | R | 8.5F |
| R584 | R | 8.4G |
| R585 | R | 8.4G |
| R587 | R | 8.4G |
| R588 | R | 8.4G |
| R589 | R | 9.2F |
| R590 | R | 9.2F |
| R591 | R | 10.2D |
| R592 | R | 10.2D |
| R593 | R | 9.3H |
| R594 | R | 9.3H |
| R595 | R | 9.3D |
| R596 | R | 9.3D |
| R601 | R | 8.3A |
| R645 | R | 2.4A |
| R646 | R | 2.4A |
| R670 | R | 4.5E |
| R671 | R | 4.5E |
| R672 | R | 5.5E |
| R673 | R | 5.5E |
| R674 | R | 6.5E |
| R675 | R | 6.5E |
| R676 | R | 7.5E |
| R677 | R | 7.5E |
| R680 | R | 11.3A |
| R681 | R | 11.3A |
| R682 | R | 11.3B |
| R683 | R | 11.3B |
| R684 | R | 11.3C |
| R685 | R | 11.3C |
| R687 | R | 11.5D |
| R688 | R | 11.5D |
| R689 | R | 11.5D |
| R690 | R | 11.5D |
| R691 | R | 11.5D |
| R692 | R | 8.2G |
| R693 | R | 8.2H |
| RP1 | R_PAK | 5.2A |
| RP2 | R_PAK | 5.2A 5.3A 5.3A |
| RP3 | R_PAK | 5.3A |
| RP4 | R_PAK | 4.4A |
| RP5 | R_PAK | 5.4A |
| RP6 | R_PAK | 7.4A |
| RP7 | R_PAK | 7.3A 7.3A 7.4A |
| RP8 | R_PAK | 7.2A |
| RP9 | R_PAK | 5.5B |
| RP10 | R_PAK | 7.5B |
| RP11 | R_PAK | 5.5B |
| RP501 | R_PAK | 4.4A |
| RP502 | R_PAK | 5.4A |
| RP503 | R_PAK | 4.5B |
| RP504 | R_PAK | 5.3A |
| RP505 | R_PAK | 4.3A |
| RP506 | R_PAK | 6.3A |
| RP507 | R_PAK | 6.3A |
| RP508 | R_PAK | 6.5B |
| RP509 | R_PAK | 6.4A |
| RP510 | R_PAK | 5.4A |
| RP511 | R_PAK | 6.4A |
| RP512 | R_PAK | 5.3A 5.3A 5.4A |
| RP513 | R_PAK | 4.3A |
| RP514 | R_PAK | 4.3A 4.4A |
| RP515 | R_PAK | 4.5B |
| RP516 | R_PAK | 4.2A 4.3A |
| RP517 | R_PAK | 4.2A |
| RP518 | R_PAK | 4.4A |
| RP519 | R_PAK | 7.2A 7.3A 7.3A |
| RP520 | R_PAK | 7.3A |
| RP521 | R_PAK | 7.3A |
| RP522 | R_PAK | 7.5B |
| RP523 | R_PAK | 7.4A |
| RP524 | R_PAK | 7.4A |
| RP525 | R_PAK | 6.2A |
| RP526 | R_PAK | 6.2A 6.3A 6.3A |
| RP527 | R_PAK | 6.5B |
| RP528 | R_PAK | 6.3A 6.3A 6.4A |
| RP529 | R_PAK | 6.4A |
| TP1 | TESTPOINT | 14.4A |
| TP2 | TESTPOINT | 14.4B |
| TP3 | TESTPOINT | 14.4C |
| TP4 | TESTPOINT | 14.4F |
| TP5 | TESTPOINT | 14.5G |
| TP6 | TESTPOINT | 14.4H |
| U1 | U_VREG_3PIN | 10.2D |
| U2 | U_MEM_FL_SER_128KX8 | 11.1B |
| U3 | U_SWREG_ISL6529 | 14.4C |
| U4 | U_VREG_5PIN | 13.1C |
| U5 | U_MEM_EP_OTP_64KX8 | 11.1G |
| U6 | U_MEM_SD_DDR_4_8MX16 | 6.4C 6.4E 7.2E |
| U7 | U_MEM_SD_DDR_4_8MX16 | 6.3C 6.3E 7.2C |
| U8 | U_GPU_DDR2M64X2_V1 | 2.1E 3.1B 3.1F 8.1B 8.2B 8.4B 12.1C 12.1F 12.4C 13.3C |
| U9 | U_MEM_SD_DDR_4_8MX16 | 6.2E 7.4D 7.4E |
| U10 | U_MEM_SD_DDR_4_8MX16 | 6.2C 7.3D 7.3E |
| U11 | U_MEM_SD_DDR_4_8MX16 | 4.4C 4.4E 5.2E |
| U12 | U_MEM_SD_DDR_4_8MX16 | 4.3C 4.3E 5.2C |

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|---|---|---|
| U13 | U_MEM_SD_DDR_4_8MX16 | 4.2E 5.4D 5.4E |
| U14 | U_MEM_SD_DDR_4_8MX16 | 4.2C 5.3D 5.3E |
| U16 | U_VREG_5PIN | 13.1A |
| U17 | U_MEM_FL_SER_128KX8 | 11.1D |
| U502 | U_SW_ANA_3257 | 8.3F 8.4F 8.5F |
| U503 | U_AND_2IN | 9.2B 9.2F 9.2F |
| Y1 | XTAL | 12.2C |

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| DETAIL | DRAWING DETAIL CONTINUED... | | |
| ID | 34p162 | PAGE | 19 OF 19 |
| NAME | mlao | DATE | SEP 03 2001 |