V034-10 NV44 128 MB DDR2, VGA, DVI-I, SD/HDTV

REV HISTORY

A01

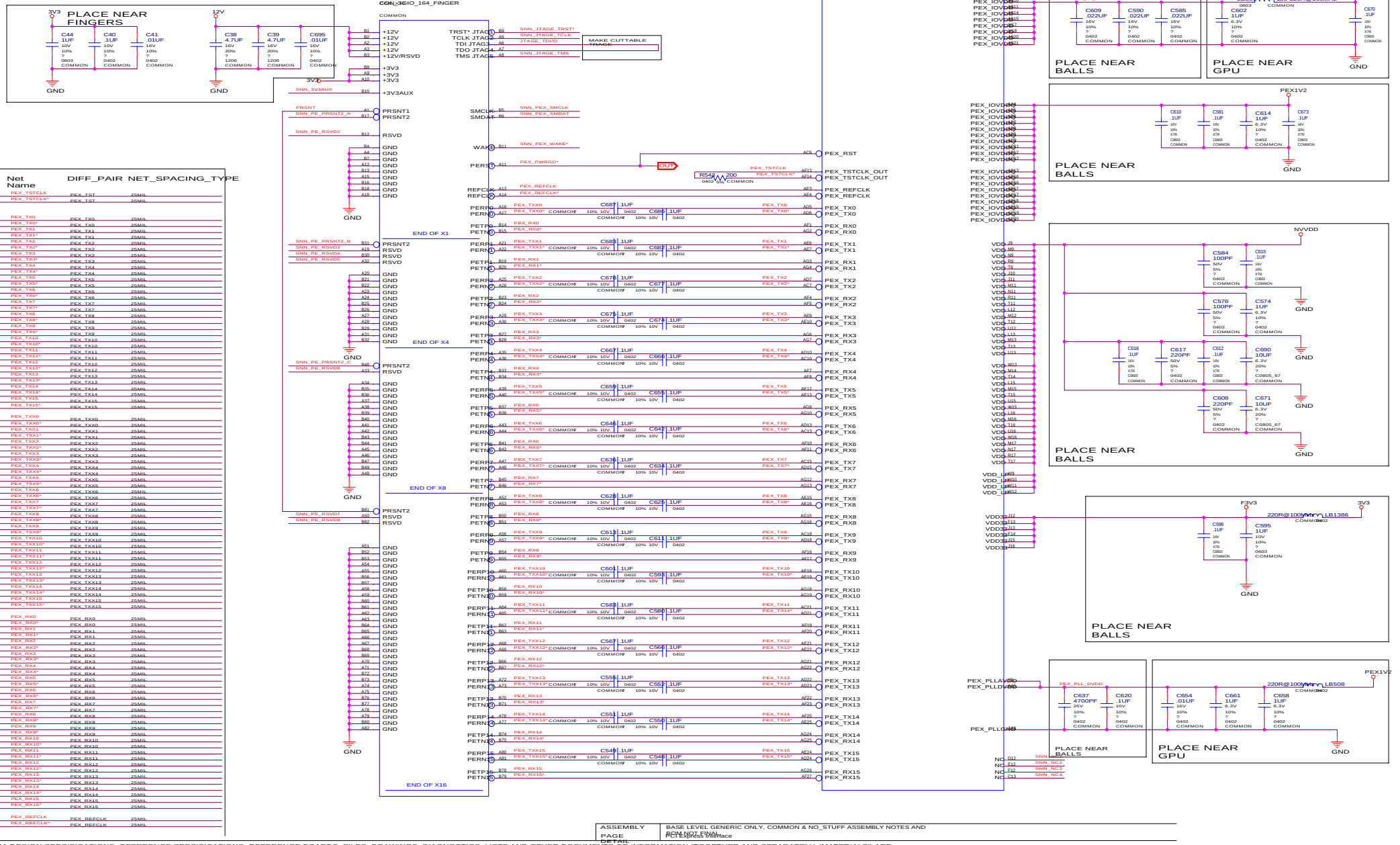
- 9/22/2004:
  - Changed TMDS_PLLVDD to F1_VDD
  - Added bead option to PLLVDD rail of NV44
  - Changed RSET values for DACA and DACB
  - Changed DACB RSET FET to a dual package with GPIO11 control-Macrovision
  - Added F3V3 bypass to PLLVDD linear regulator
  - Changed location of R62

SKU	VARIANT	NVPN	ASSEMBLY
B	BASE	600-f0ppp-xxxx-vvv	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
1	0000	600-10262-0000-000	<UNDEFINED>
2	0001	600-10262-0001-000	<UNDEFINED>
3	0002	600-10262-0002-000	<UNDEFINED>
4	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
5	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
6	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
7	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
8	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
9	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
10	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
11	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
12	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
13	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
14	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
15	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>

ASSEMBLY	BASE LEVEL GENERIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Overview

V034

PEX-Interface



Net Name	DIFF_PAIR	NET_SPACING_TYPE
PEX_TSTCLK	PEX_TST	25MIL
PEX_TSTCLK*	PEX_TST	25MIL
PEX_TX0	PEX_TX0	25MIL
PEX_TX0*	PEX_TX0	25MIL
PEX_TX1	PEX_TX1	25MIL
PEX_TX1*	PEX_TX1	25MIL
PEX_TX2	PEX_TX2	25MIL
PEX_TX2*	PEX_TX2	25MIL
PEX_TX3	PEX_TX3	25MIL
PEX_TX3*	PEX_TX3	25MIL
PEX_TX4	PEX_TX4	25MIL
PEX_TX4*	PEX_TX4	25MIL
PEX_TX5	PEX_TX5	25MIL
PEX_TX5*	PEX_TX5	25MIL
PEX_TX6	PEX_TX6	25MIL
PEX_TX6*	PEX_TX6	25MIL
PEX_TX7	PEX_TX7	25MIL
PEX_TX7*	PEX_TX7	25MIL
PEX_TX8	PEX_TX8	25MIL
PEX_TX8*	PEX_TX8	25MIL
PEX_TX9	PEX_TX9	25MIL
PEX_TX9*	PEX_TX9	25MIL
PEX_TX10	PEX_TX10	25MIL
PEX_TX10*	PEX_TX10	25MIL
PEX_TX11	PEX_TX11	25MIL
PEX_TX11*	PEX_TX11	25MIL
PEX_TX12	PEX_TX12	25MIL
PEX_TX12*	PEX_TX12	25MIL
PEX_TX13	PEX_TX13	25MIL
PEX_TX13*	PEX_TX13	25MIL
PEX_TX14	PEX_TX14	25MIL
PEX_TX14*	PEX_TX14	25MIL
PEX_TX15	PEX_TX15	25MIL
PEX_TX15*	PEX_TX15	25MIL
PEX_TXX0	PEX_TXX0	25MIL
PEX_TXX0*	PEX_TXX0	25MIL
PEX_TXX1	PEX_TXX1	25MIL
PEX_TXX1*	PEX_TXX1	25MIL
PEX_TXX2	PEX_TXX2	25MIL
PEX_TXX2*	PEX_TXX2	25MIL
PEX_TXX3	PEX_TXX3	25MIL
PEX_TXX3*	PEX_TXX3	25MIL
PEX_TXX4	PEX_TXX4	25MIL
PEX_TXX4*	PEX_TXX4	25MIL
PEX_TXX5	PEX_TXX5	25MIL
PEX_TXX5*	PEX_TXX5	25MIL
PEX_TXX6	PEX_TXX6	25MIL
PEX_TXX6*	PEX_TXX6	25MIL
PEX_TXX7	PEX_TXX7	25MIL
PEX_TXX7*	PEX_TXX7	25MIL
PEX_TXX8	PEX_TXX8	25MIL
PEX_TXX8*	PEX_TXX8	25MIL
PEX_TXX9	PEX_TXX9	25MIL
PEX_TXX9*	PEX_TXX9	25MIL
PEX_TXX10	PEX_TXX10	25MIL
PEX_TXX10*	PEX_TXX10	25MIL
PEX_TXX11	PEX_TXX11	25MIL
PEX_TXX11*	PEX_TXX11	25MIL
PEX_TXX12	PEX_TXX12	25MIL
PEX_TXX12*	PEX_TXX12	25MIL
PEX_TXX13	PEX_TXX13	25MIL
PEX_TXX13*	PEX_TXX13	25MIL
PEX_TXX14	PEX_TXX14	25MIL
PEX_TXX14*	PEX_TXX14	25MIL
PEX_TXX15	PEX_TXX15	25MIL
PEX_TXX15*	PEX_TXX15	25MIL
PEX_RX0	PEX_RX0	25MIL
PEX_RX0*	PEX_RX0	25MIL
PEX_RX1	PEX_RX1	25MIL
PEX_RX1*	PEX_RX1	25MIL
PEX_RX2	PEX_RX2	25MIL
PEX_RX2*	PEX_RX2	25MIL
PEX_RX3	PEX_RX3	25MIL
PEX_RX3*	PEX_RX3	25MIL
PEX_RX4	PEX_RX4	25MIL
PEX_RX4*	PEX_RX4	25MIL
PEX_RX5	PEX_RX5	25MIL
PEX_RX5*	PEX_RX5	25MIL
PEX_RX6	PEX_RX6	25MIL
PEX_RX6*	PEX_RX6	25MIL
PEX_RX7	PEX_RX7	25MIL
PEX_RX7*	PEX_RX7	25MIL
PEX_RX8	PEX_RX8	25MIL
PEX_RX8*	PEX_RX8	25MIL
PEX_RX9	PEX_RX9	25MIL
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PEX_RX10	PEX_RX10	25MIL
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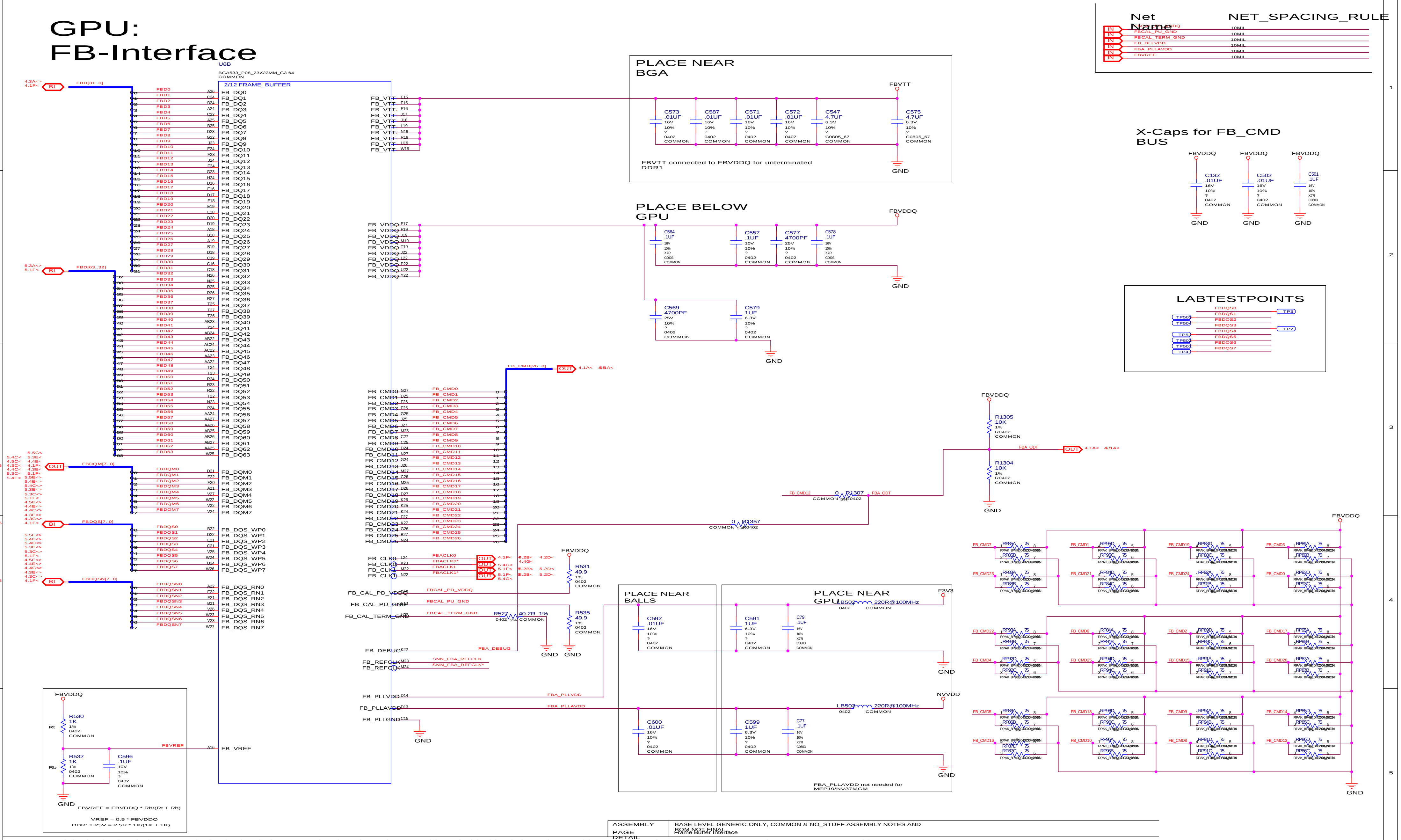
PEX_RX12	PEX_RX12	25MIL
PEX_RX12*	PEX_RX12	25MIL
PEX_RX13	PEX_RX13	25MIL
PEX_RX13*	PEX_RX13	25MIL
PEX_RX14	PEX_RX14	25MIL
PEX_RX14*	PEX_RX14	25MIL
PEX_RX15	PEX_RX15	25MIL
PEX_RX15*	PEX_RX15	25MIL
PEX_REFCLK	PEX_REFCLK	25MIL
PEX_REFCLK*	PEX_REFCLK	25MIL

ASSEMBLY	BASE LEVEL GENERIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND
PAGE	BOM NOT FINAL
DETAIL	PCI Express Interface

GPU: FB-Interface

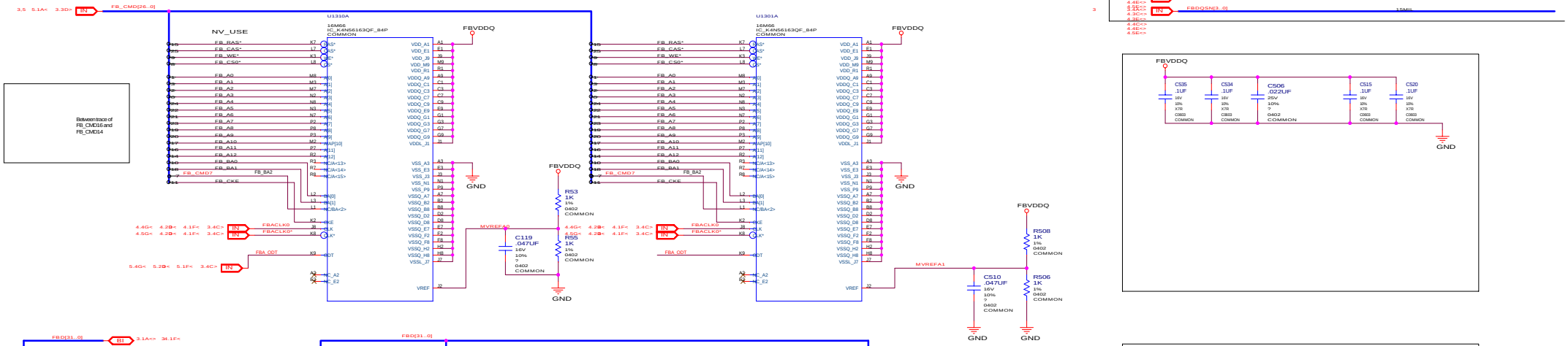


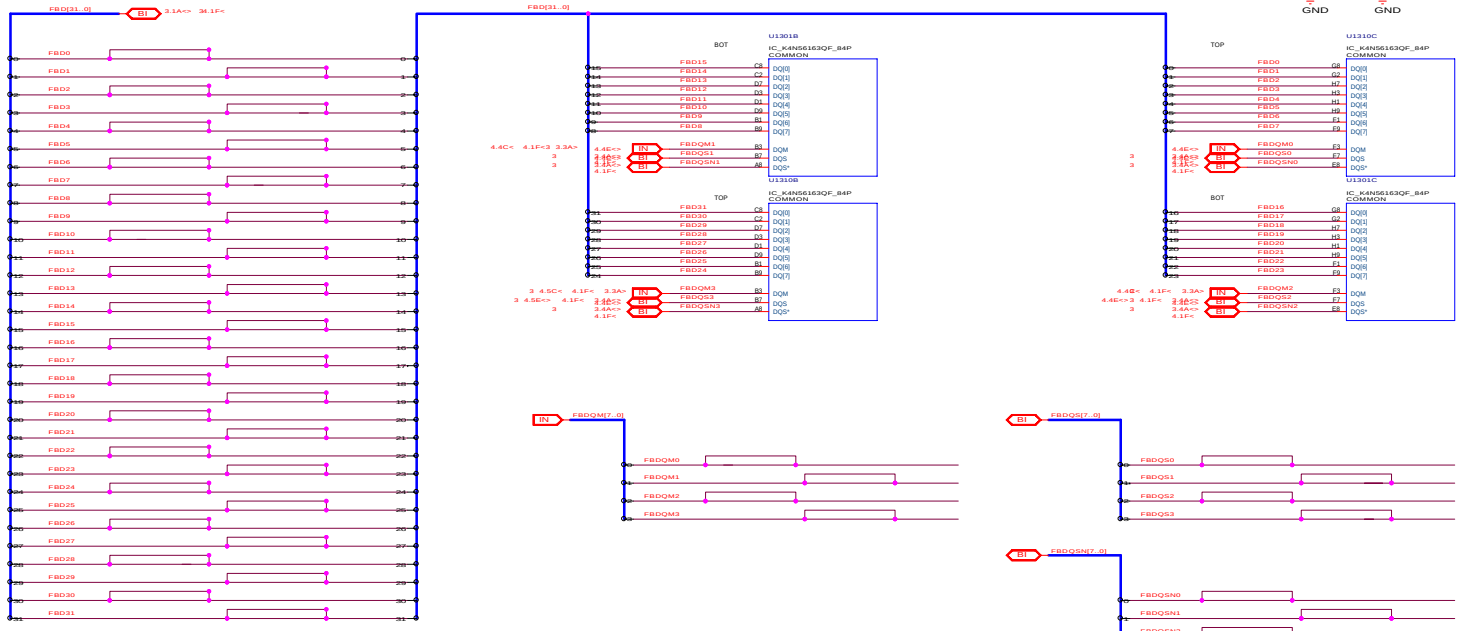
ASSEMBLY: BASE LEVEL GENERIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL

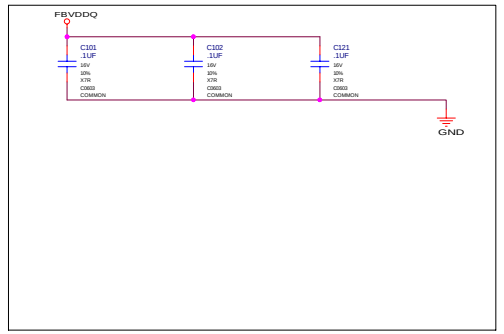
PAGE DETAIL: Frame Buffer Interface

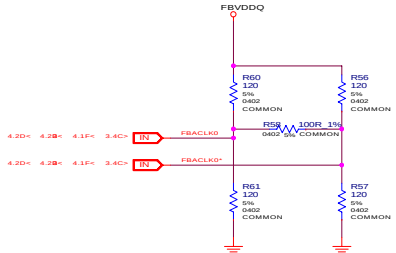
Memory
Bit 0..31

Net Name	Diffpair	NET_SPACING_RULE
FBACLK0	FBACLK0	25MIL
FBACLK0*	FBACLK0*	25MIL
FBD[31..0]		10MIL
FBDQM[3..0]		15MIL
FBDQS[3..0]		15MIL
FBCMD[26..0]		10MIL
FBDQSN[3..0]		15MIL







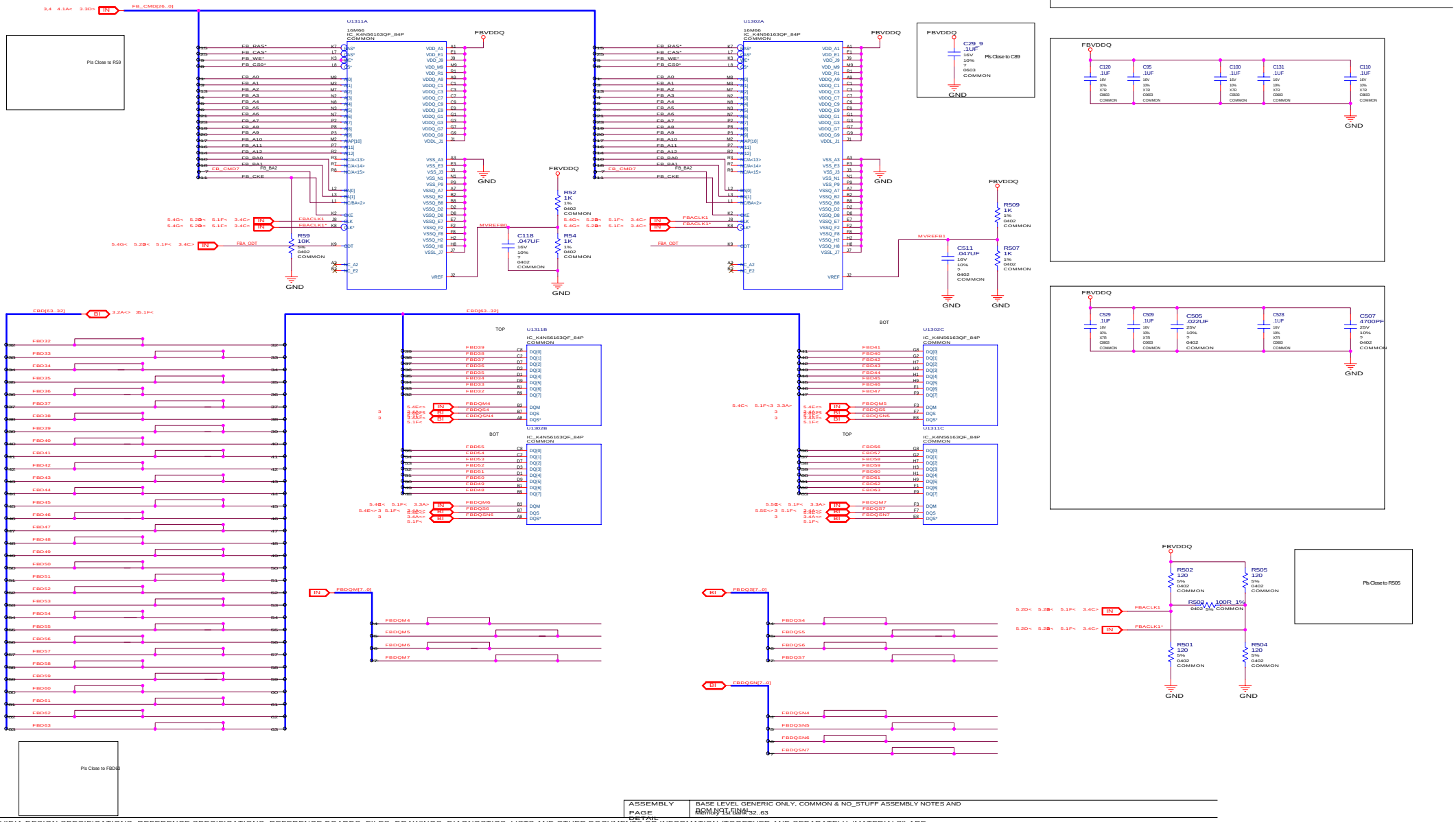


Pls put on right side of R58

ASSEMBLY	BASE LEVEL GENERIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND
PAGE DETAIL	BOM NOT FINAL Memory 1a Bank 0..31

Memory
Bit 32..63

Net Name	Diffpair	NET_SPACING_RULE
FBACLK1	FBACLK1	25MIL
FBACLK1*	FBACLK1	25MIL
FBD[63..32]		10MIL
FBDQM[7..4]		15MIL
FBDQS[7..4]		15MIL
FBDQSN[7..4]		15MIL



ASSEMBLY	BASE LEVEL GENERIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND
PAGE	BOM NOTE(NA)
DETAIL	Memory 1a Bank 32..63

DAC-A, DB15 Connector

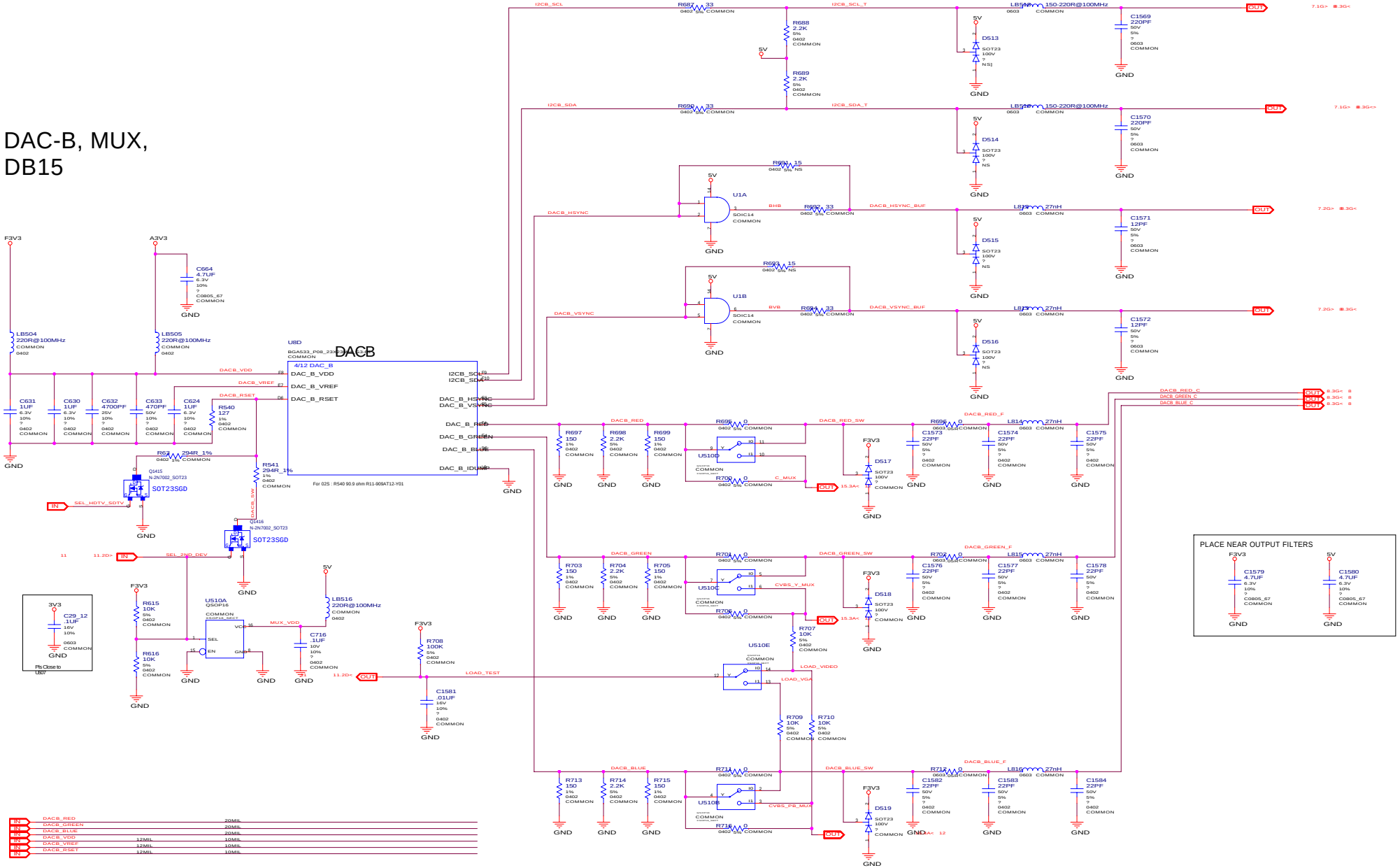
Net Name	MIN_LINE_WIDTH	NET_SPACING_TYPE
I2CA_SDA	12MIL	10MIL
DACA_HSYNC		10MIL
DACA_VSYNC		10MIL
DACA_RED		20MIL
DACA_GREEN		20MIL
DACA_BLUE		20MIL
DACA_VDD		10MIL
DACA_R_F		20MIL
DACA_G_F		20MIL
DACA_B_F		20MIL
DACA_RED_C		20MIL
DACA_GREEN_C		20MIL
DACA_BLUE_C		20MIL

CAP for Sync Buffer

PLACE NEAR OUTPUT FILTERS

ASSEMBLY	BASE LEVEL GENERIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	DACA, DACB, DACC, Sync Buffers

DAC-B, MUX, DB15

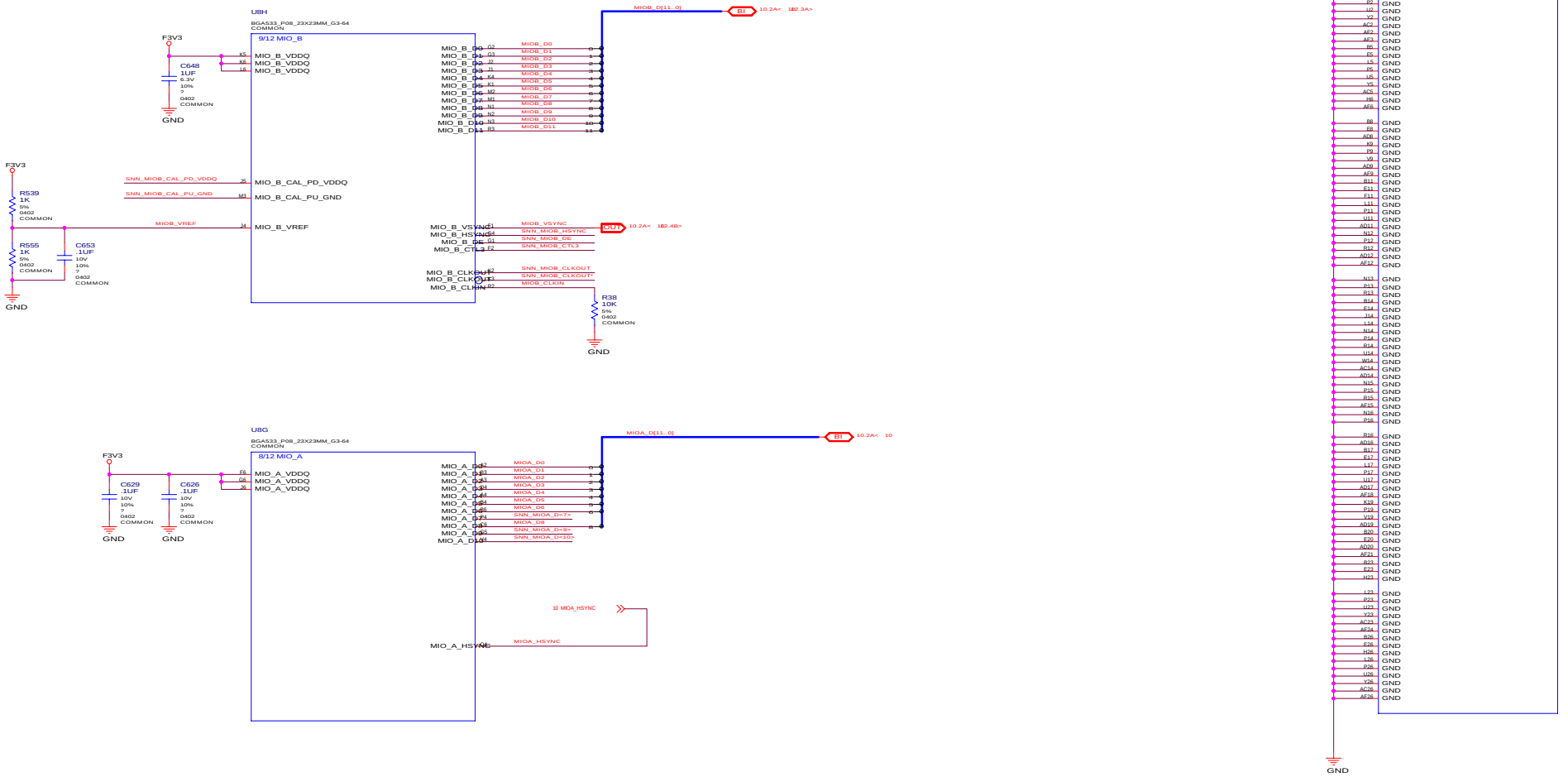


ASSEMBLY	BASE LEVEL GENERIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND
PAGE	BOM NOT FINAL
DETAIL	VGA Output, TV Out

Internal TMDS, DVI-Connector

ASSEMBLY	BASE LEVEL GENERIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND
PAGE	BOM NOT FINAL
DETAIL	TMDS Interface

MIOA, MIOB Interface, LPC-ROM



ASSEMBLY	LPC_ROM
PAGE	MIOA, MIOB Interface,
DETAIL	LPC-ROM

STRAPS, Mechanical Parts

NV44 STRAPS

F3V3

Bit	Signal	Values
00:	PCI_AD_SWAP	0 REVERSED 1 NORMAL
01:	SUB_VENDOR	0 VIA BIOS FROM BIOS 1 VIA SUBSYS
02:	RAM_CFG_0	0000 RSVD 0001 8Mx16DDR 0010 RSVD 0011 RSVD 0100 RSVD 0101 RSVD 0110 RSVD 0111 16Mx16DDR 1000 RSVD 1001 RSVD 1010 RSVD 1011 RSVD 1100 RSVD 1101 RSVD 1110 RSVD 1111 RFU
03:	RAM_CFG_1	
04:	RAM_CFG_2	
05:	RAM_CFG_3	
06:	CRYSTAL_0	00 13.500 MHz 01 14.31818 10 27.000 MHz 11 UNKNOWN
22:	CRYSTAL_1	
07:	TV_MODE_0	00 SECAM 01 NTSC 10 PAL 11 CRT
08:	TV_MODE_1	
09:	AGP_30_8x	0 AGP8x ENABLED 1 AGP3.0 DISABLED
10:	AGP_SBA	0 SBA ENABLED 1 SBA DISABLED
11:	AGP_FASTWR	0 FW ENABLED 1 FW DISABLED
12:	PCI_DEVID_0	1100 (default 0x00FC)
13:	PCI_DEVID_1	
20:	PCI_DEVID_2	
21:	PCI_DEVID_3	
14:	BUS_TYPE	0 PCI 1 AGP
15:	FP_IFACE	0 24Bit 1 12Bit (DEFAULT)
23:	FB_0	00 8M 01 16M 10 32M (DEFAULT) 11 512M
24:	FB_1	
25:	BR	0 BRIDGE DISABLED 1 BRIDGE ENABLED
26:	BR_128M	BR BITS IGNORED IF BRIDGE IS DISABLED
27:	BR_AGP	
28:	BR_IO	
29:	ROM_TYPE_0	00 PARALLEL 01 SERIAL_AT25F 10 SERIAL_SST45VF 11 LPC
30:	ROM_TYPE_1	
16:	USER_0	0000 (DEFAULT)
17:	USER_1	
18:	USER_2	
19:	USER_3	
	PEX_PLL_EN_TERM100	
	3GIO_PADCFG_LUT_ADDR[0]	
	3GIO_PADCFG_LUT_ADDR[1]	

R58? 1.8K 0402 5% COMMON — MIOA_D1 — R59? 1.8K 0402 5% COMMON
R62? 10K 0402 5% COMMON — MIOB_D0 — R626 10K 0402 5% COMMON
R62? 10K 0402 5% COMMON — MIOB_D1 — R63? 10K 0402 5% COMMON
R57? 10K 0402 5% COMMON — MIOB_D8 — R577 10K 0402 5% COMMON
R574 10K 0402 5% COMMON — MIOB_D9 — R578 10K 0402 5% COMMON
R632 1.8K 0402 5% COMMON — MIOB_D2 — R633 1.8K 0402 5% COMMON
R640 1.8K 0402 5% COMMON — MIOB_D6 — R641 1.8K 0402 5% COMMON

9.3E<5 — IN — MIOA_D[11..0]
9.1D<5 12.3A5 — IN — MIOB_D[11..0]

R63? 1.8K 0402 5% COMMON — MIOB_D4 — R63? 1.8K 0402 5% COMMON
R63? 1.8K 0402 5% COMMON — MIOB_D5 — R63? 1.8K 0402 5% COMMON
R634 1.8K 0402 5% COMMON — MIOB_D3 — R63? 1.8K 0402 5% COMMON
R57? 1.8K 0402 5% COMMON — MIOB_D11 — R58? 1.8K 0402 5% COMMON

12.4B> 9.2D5 — IN — MIOB_VSYNC

R57? 1.8K 0402 5% COMMON — MIOB_D10 — R57? 1.8K 0402 5% COMMON
R62? 1.8K 0402 5% COMMON — MIOB_VSYNC — R62? 1.8K 0402 5% COMMON
R58? 10K 0402 5% COMMON — MIOA_D2 — R59? 10K 0402 5% COMMON

R58? 1.8K 0402 5% COMMON — MIOA_D0 — R590 1.8K 0402 5% COMMON
R44 1.8K 0402 5% COMMON — MIOA_D6 — R47 1.8K 0402 5% COMMON
R41 1.8K 0402 5% COMMON — MIOA_D8 — R47 1.8K 0402 5% COMMON

9 MIOA_HSYNC — MIOA_HSYNC
R113 1.8K R0402 5% COMMON — MIOA_HSYNC — R1410 1.8K R0402 5% COMMON

GND

HEATSINK
HEATSINK 7120005100

CABLE
MEC_PH_4-40_SCREW COMMON

BKT
MEC_PH_4-40_SCREW COMMON

MT1
MT_Hole_0.136_in

PCB
MEC_PH_4-40_SCREW COMMON

MEC5
MEC_PH_4-40_SCREW COMMON

MEC3
MEC_HEX_JACK_SCREW COMMON

MEC4
MEC_HEX_JACK_SCREW COMMON

MEC1
MEC_HEX_JACK_SCREW COMMON

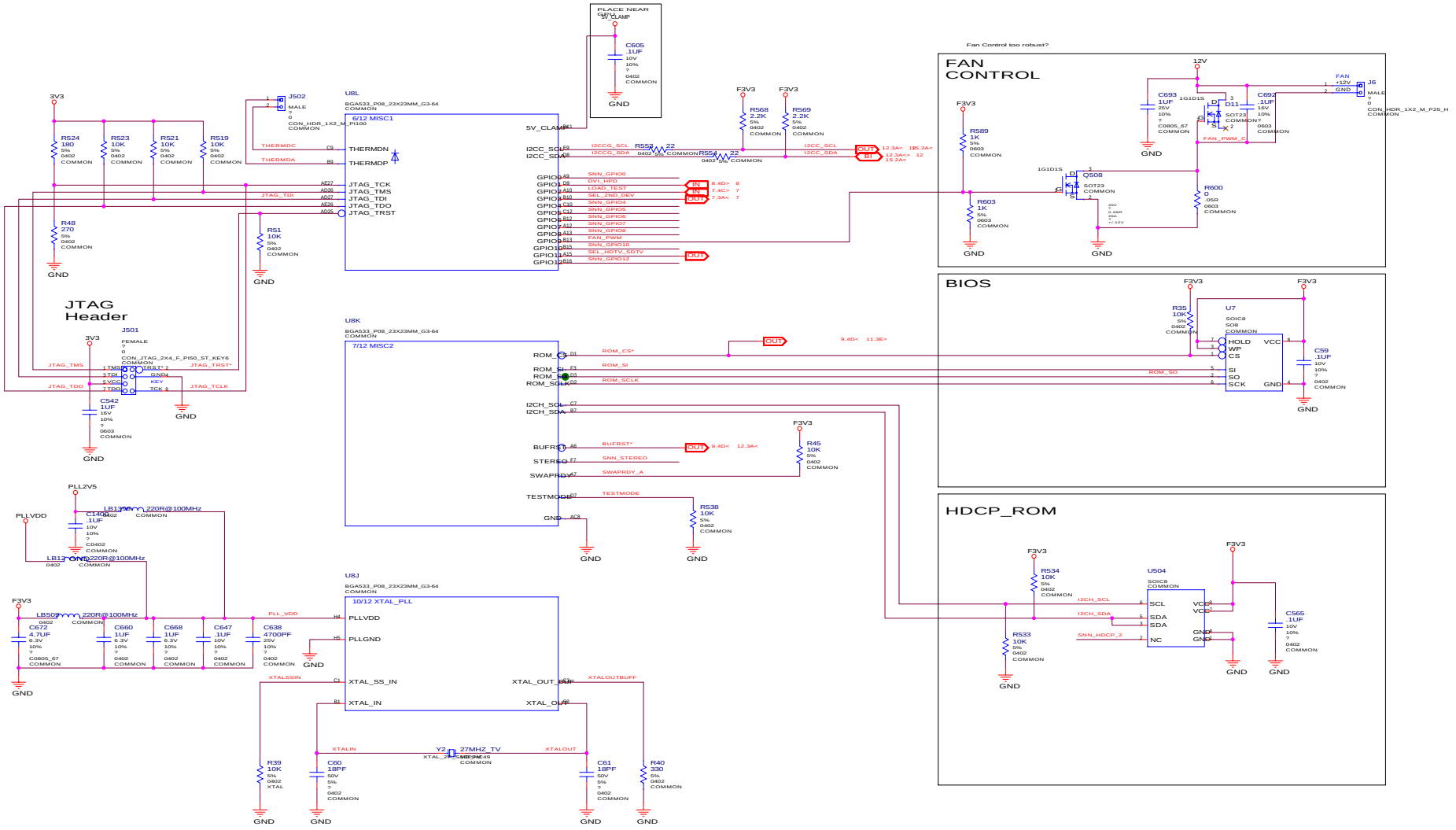
MEC2
MEC_HEX_JACK_SCREW COMMON

FM1 SW_FB NS
FM5 SW_FB NS
FM12 SW_FB NS
FM6 SW_FB NS
FM3 SW_FB NS
FM7 SW_FB NS
FM15 SW_FB NS
FM16 SW_FB NS

ASSEMBLY	BASE LEVEL GENERIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND
PAGE	STRAPS, Mechanical
DETAIL	Parts

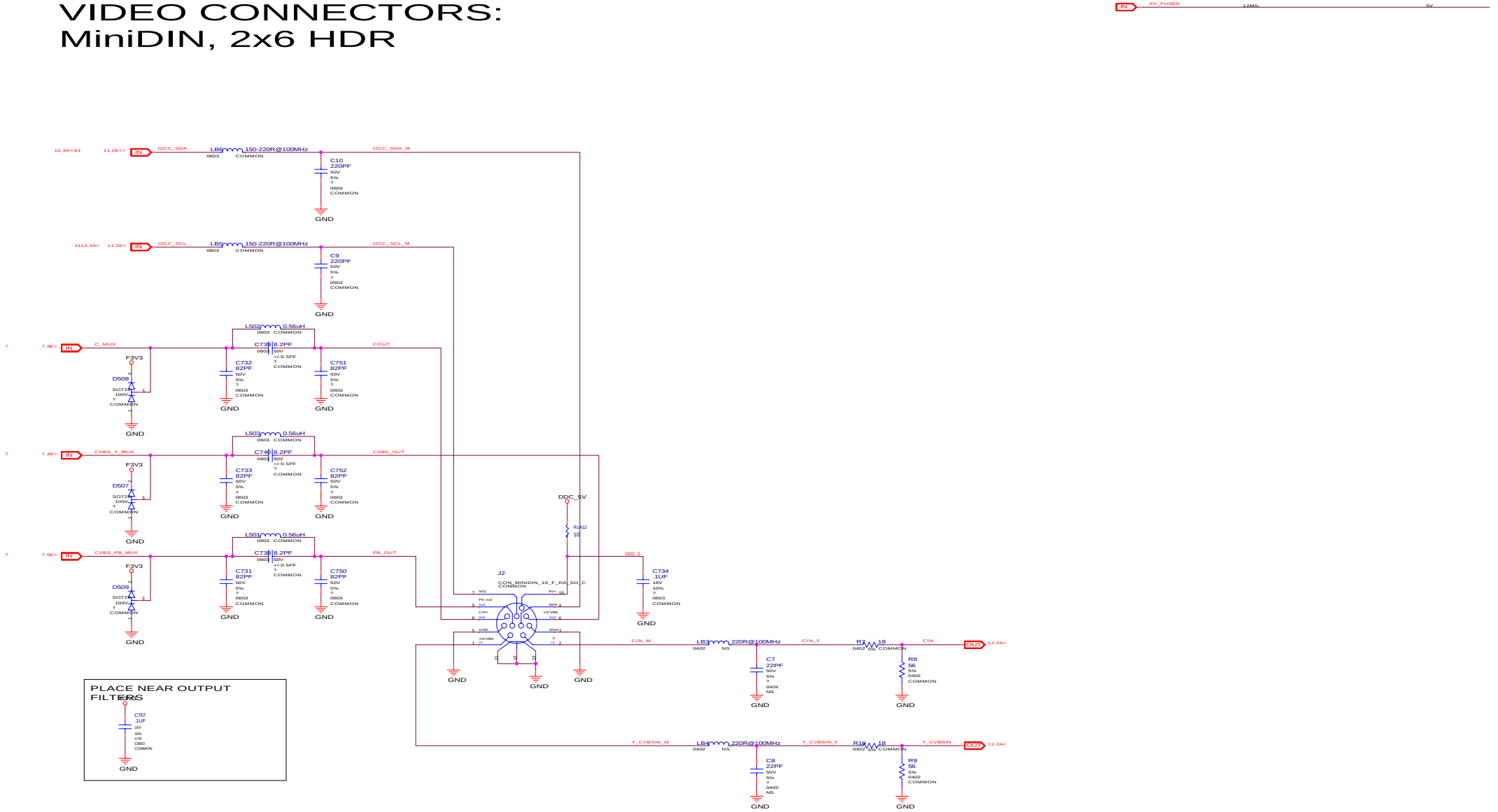
XTAL, GPIO, BIOS, Fan Control, JTAG Headers

Net Name	NET_PHYSICAL_TYPE	NET_SPACING_RULE
PLLVDD	XTALOUT	5MIL_TRACE	20MIL
	PLLVDD	5MIL_TRACE	20MIL
	DISP_PLLVDD	12MIL_TRACE	10MIL
		12MIL_TRACE	10MIL



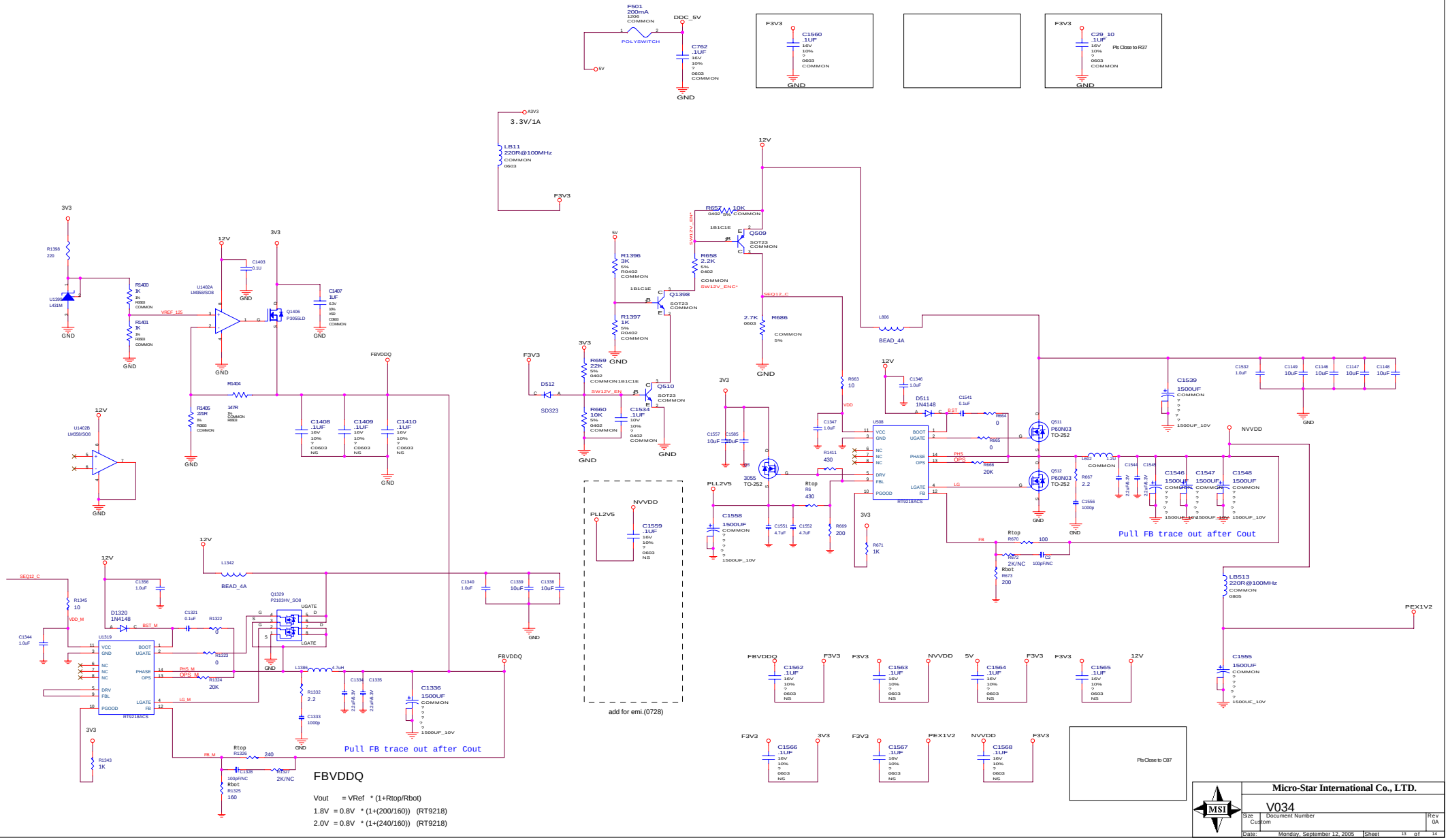
ASSEMBLY	BASE LEVEL GENERIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	XTAL, GPIO, BIOS, Fan Control, JTAG Headers

VIDEO CONNECTORS:
MiniDIN, 2x6 HDR

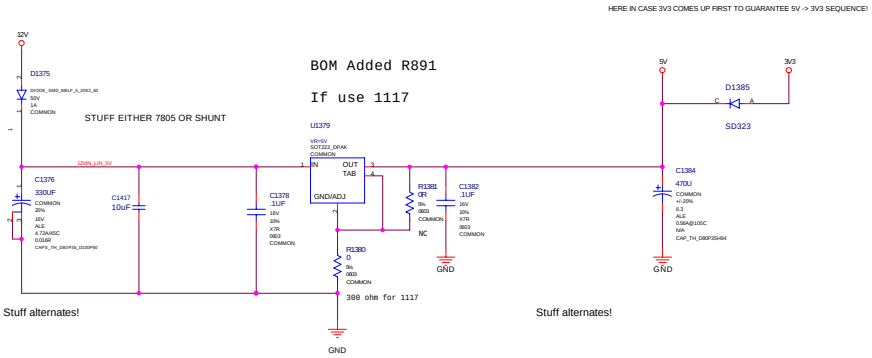


ASSEMBLY	BASE LEVEL GENERIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND
PAGE	BOM NOT FINAL
DETAIL	VIDEO CONNECTORS: MiniDIN, 2x6 HDR

PowerSupplyII: 5V, DDC5V, A3V3, F3V3, TMDS_PLLVDD

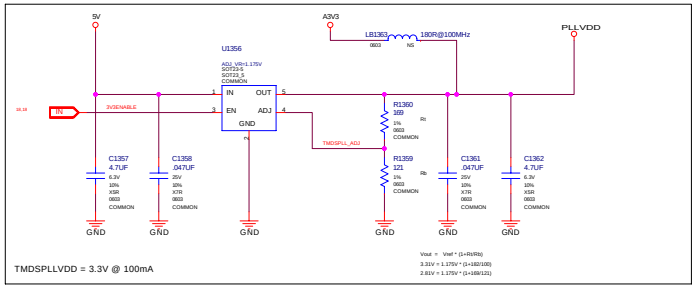


14 Others Power Supply (Linears)
5V,FBVDDQ,A3V3,3V3,TMDS_PLLVDD,TMDS_IOVDD,FBVTT

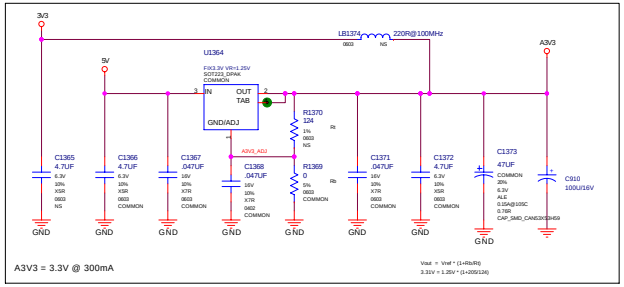


5V LOW COST REGULATOR

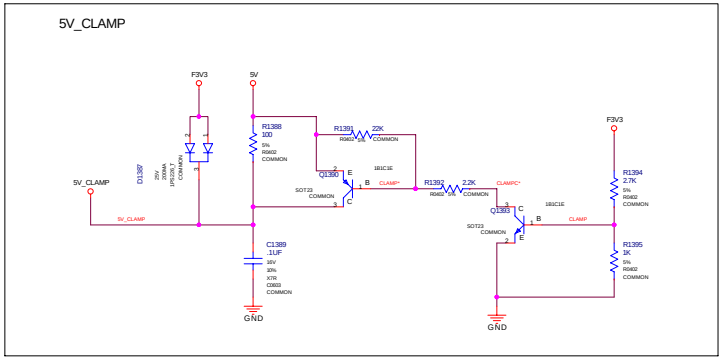
TMDS PLL Supply



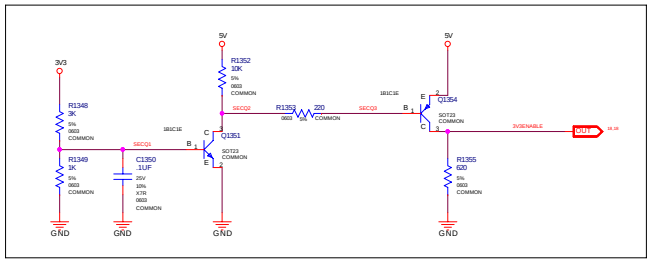
A3V3 Power Supply



5V_CLAMP



Power Sequencing



5V AND PEX3V3 UP .. ALL OTHER LINEARS UP

Micro-Star International Co., LTD.	
V034	
Size: Custom	Document Number:
Rev: 0A	
Date: Friday, September 09, 2005	Sheet 14 of 14