G94-P547-A00 - GDDR3, DVI/VGA + DVI/VGA + HDTV/SDTV-Out

SKU	VARIANT	NVPN	ASSEMBLY
B	BASE	600-10547-base-000	P547 BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
1	sku0011	600-10547-0011-000	G94-400 650MHz/900MHz 512MB 16Mx32 BGA136 GDDR3, DVI-I-DL+DVI-I-DL
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ASSEMBLY	
PAGE DETAIL	Overview

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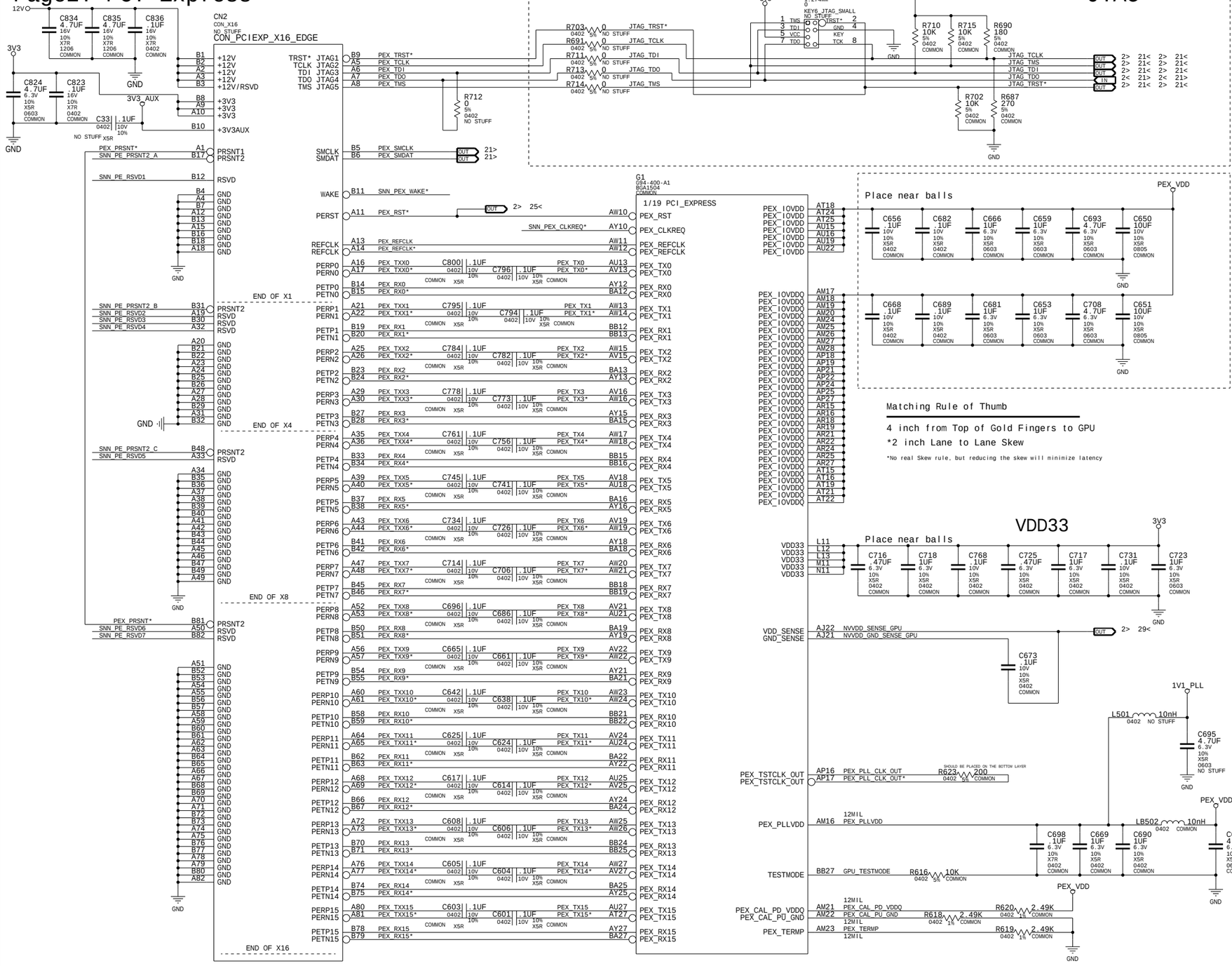
Page2: PCI Express



NET	NV_CRITICAL	NV_IMPEDANCE	DIFFPAIR
PEX_REFCLK	1	90DIFF	PEX_REFCLK
PEX_REFCLK*	1	90DIFF	PEX_REFCLK
PEX_TX0	1	90DIFF	PEX_TX0
PEX_TX0*	1	90DIFF	PEX_TX0
PEX_TX1	1	90DIFF	PEX_TX1
PEX_TX1*	1	90DIFF	PEX_TX1
PEX_TX2	1	90DIFF	PEX_TX2
PEX_TX2*	1	90DIFF	PEX_TX2
PEX_TX3	1	90DIFF	PEX_TX3
PEX_TX3*	1	90DIFF	PEX_TX3
PEX_TX4	1	90DIFF	PEX_TX4
PEX_TX4*	1	90DIFF	PEX_TX4
PEX_TX5	1	90DIFF	PEX_TX5
PEX_TX5*	1	90DIFF	PEX_TX5
PEX_TX6	1	90DIFF	PEX_TX6
PEX_TX6*	1	90DIFF	PEX_TX6
PEX_TX7	1	90DIFF	PEX_TX7
PEX_TX7*	1	90DIFF	PEX_TX7
PEX_TX8	1	90DIFF	PEX_TX8
PEX_TX8*	1	90DIFF	PEX_TX8
PEX_TX9	1	90DIFF	PEX_TX9
PEX_TX9*	1	90DIFF	PEX_TX9
PEX_TX10	1	90DIFF	PEX_TX10
PEX_TX10*	1	90DIFF	PEX_TX10
PEX_TX11	1	90DIFF	PEX_TX11
PEX_TX11*	1	90DIFF	PEX_TX11
PEX_TX12	1	90DIFF	PEX_TX12
PEX_TX12*	1	90DIFF	PEX_TX12
PEX_TX13	1	90DIFF	PEX_TX13
PEX_TX13*	1	90DIFF	PEX_TX13
PEX_TX14	1	90DIFF	PEX_TX14
PEX_TX14*	1	90DIFF	PEX_TX14
PEX_TX15	1	90DIFF	PEX_TX15
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PEX_RX0*	1	90DIFF	PEX_RX0
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PEX_RX2	1	90DIFF	PEX_RX2
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PEX_TX2	1	90DIFF	PEX_TX2
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PEX_TX3	1	90DIFF	PEX_TX3
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PEX_TX4	1	90DIFF	PEX_TX4
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PEX_TX6*	1	90DIFF	PEX_TX6
PEX_TX7	1	90DIFF	PEX_TX7
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PEX_TX8	1	90DIFF	PEX_TX8
PEX_TX8*	1	90DIFF	PEX_TX8
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PEX_TX14*	1	90DIFF	PEX_TX14
PEX_TX15	1	90DIFF	PEX_TX15
PEX_TX15*	1	90DIFF	PEX_TX15
PEX_PLL_CLK_OUT	1	90DIFF	PEX_PLL_CLK_OUT
PEX_PLL_CLK_OUT*	1	90DIFF	PEX_PLL_CLK_OUT
PEX_RST*	3	50OHM	
PEX_PRSNT*	3	50OHM	
GPU_TESTMODE	3	50OHM	
NVDD_SENSE_GPU			

NET	VOLTAGE	MAX_CURRENT	MIN_WIDTH
PEX_PLLVDD	1.1V	0.16A	12MIL

ASSEMBLY	
PAGE DETAIL	PCI Express

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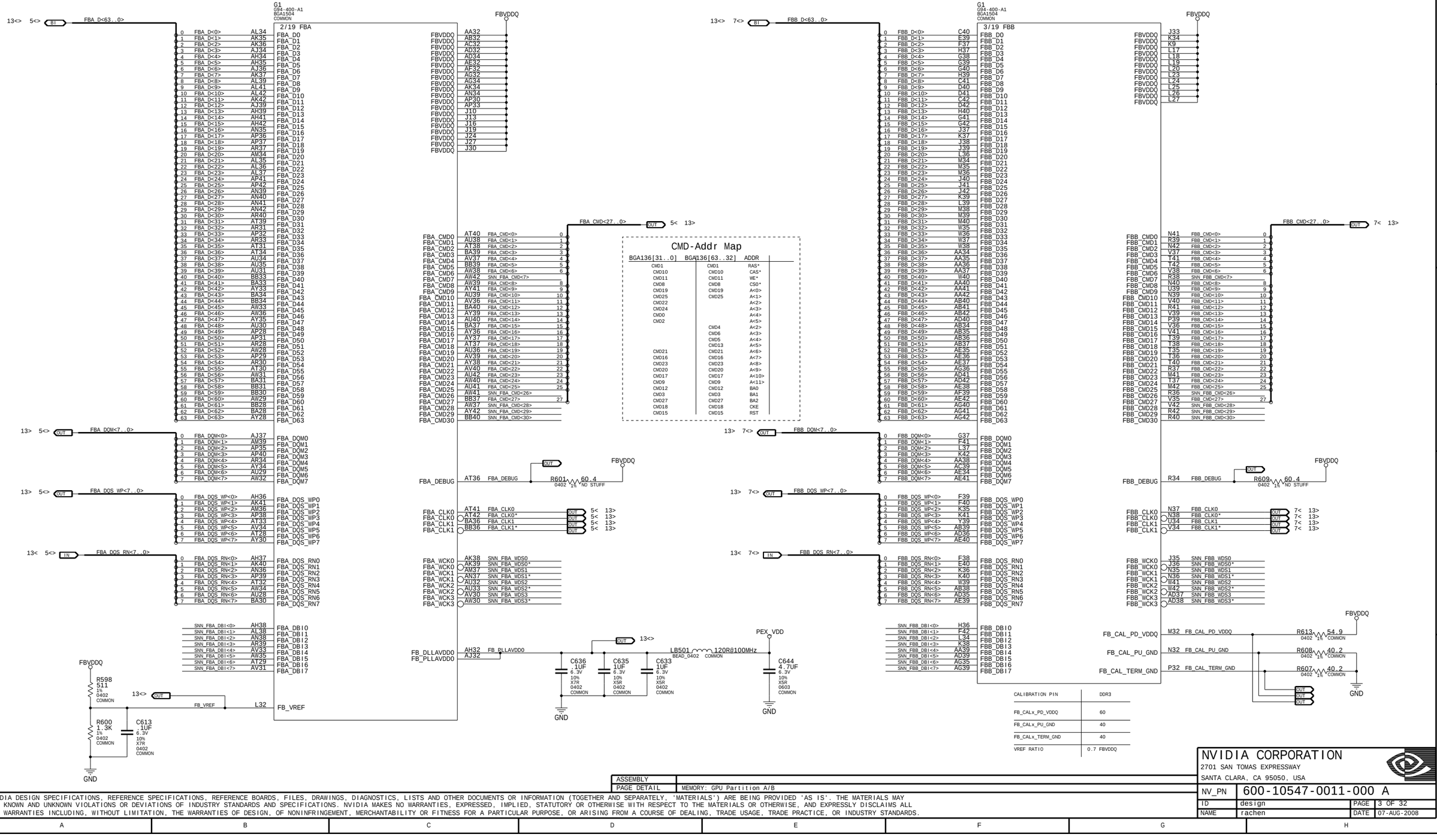
Page3: MEMORY: GPU Partition A/B



ASSEMBLY	
PAGE DETAIL	MEMORY: GPU Partition A/B

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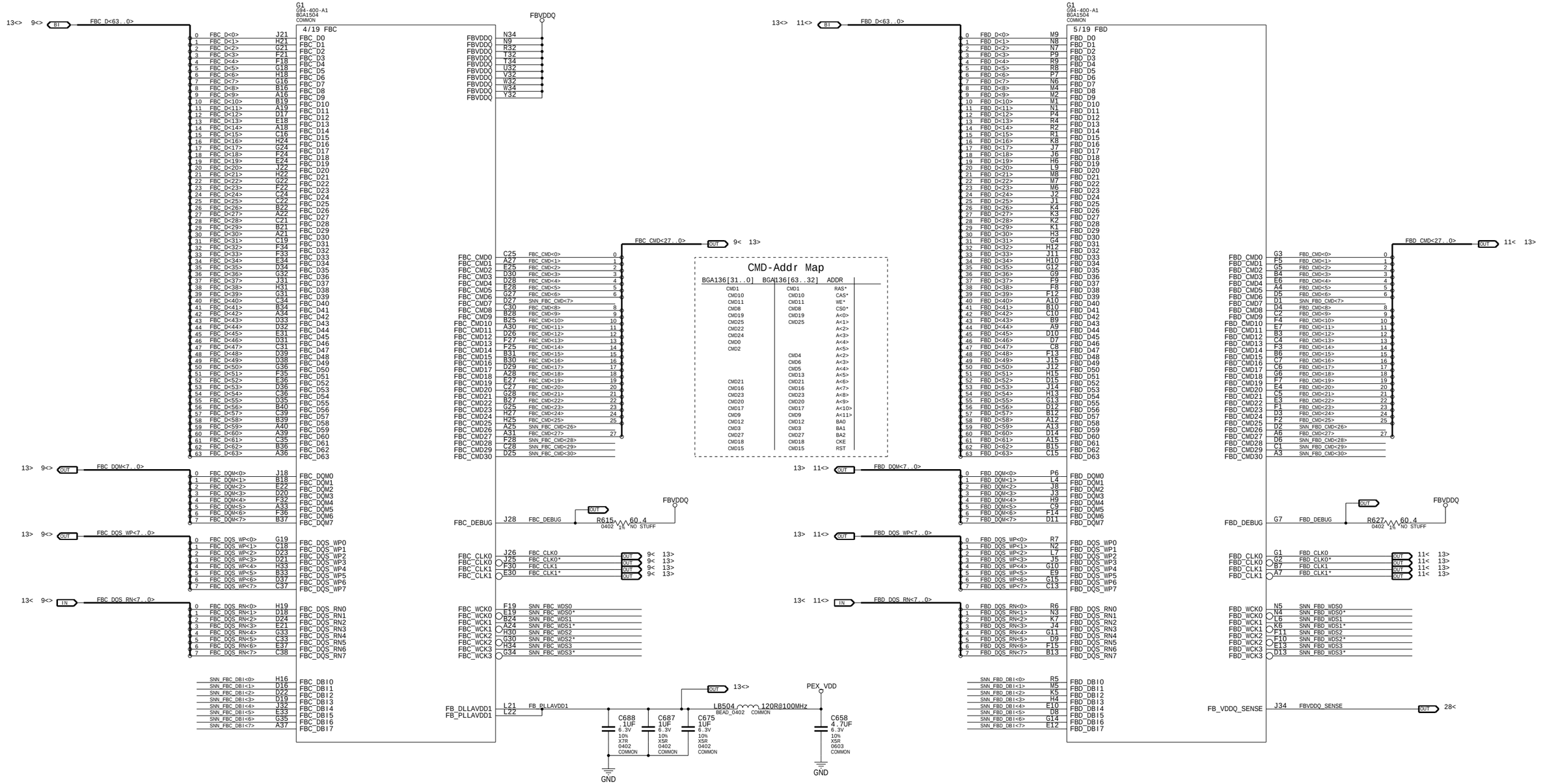
Page4: MEMORY: GPU Partition C/D



ASSEMBLY	
PAGE DETAIL	MEMORY: GPU Partition C/D

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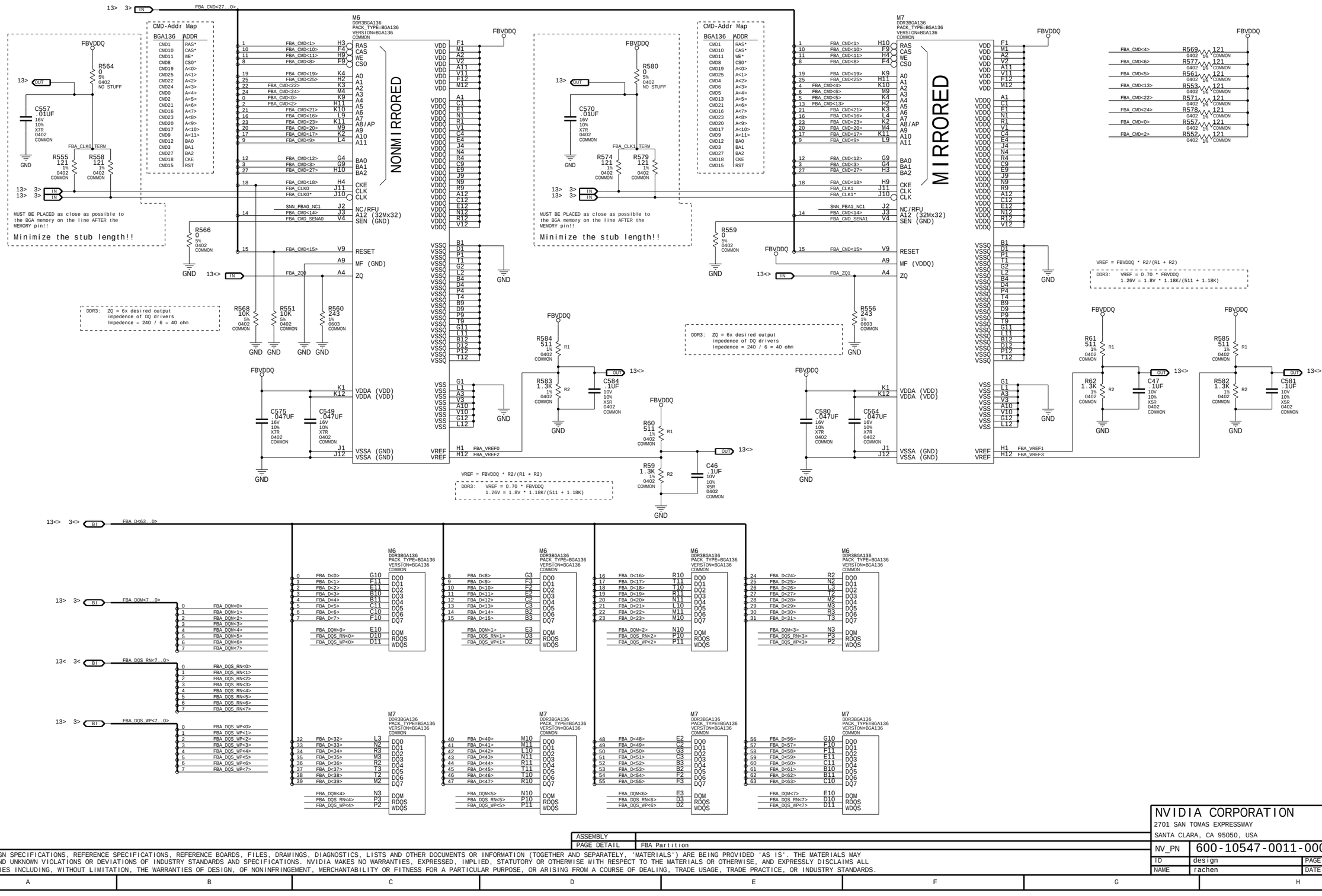
Page5: FBA Partition



ASSEMBLY	
PAGE DETAIL	FBA Partition

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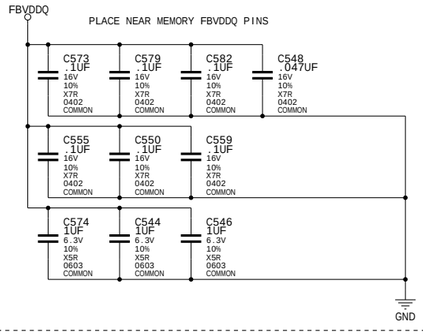
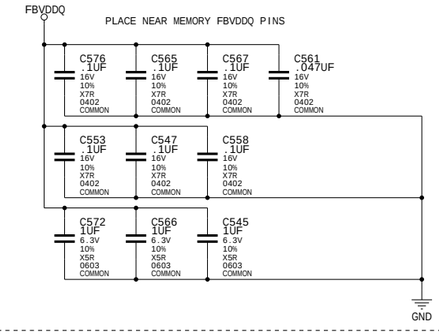
Page6: FBA Partition Decoupling

Decoupling for FBA 31..0



Decoupling for FBA 63..32



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ASSEMBLY	
PAGE DETAIL	FBA Partition Decoupling

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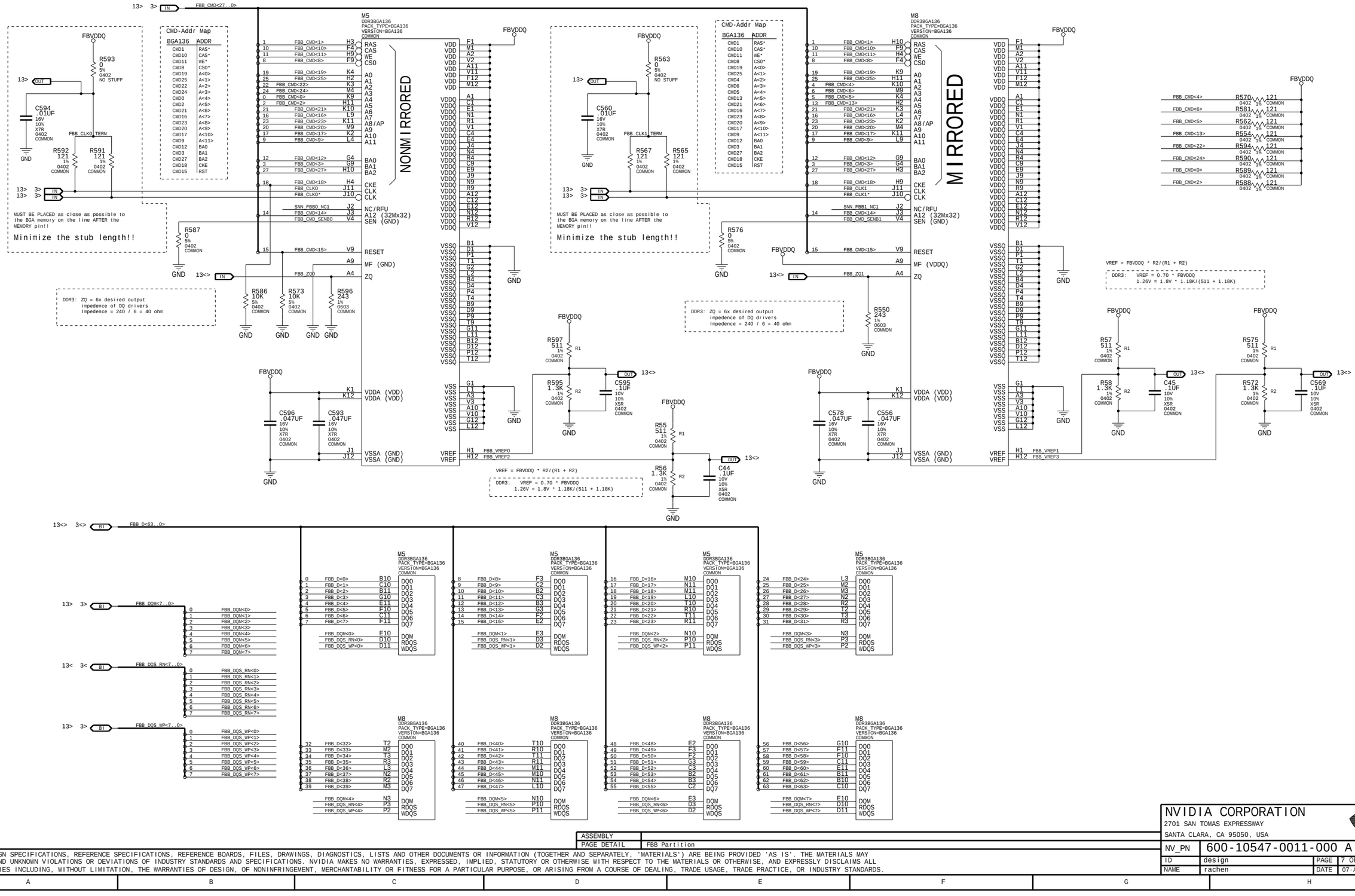
Page7: FBB Partition



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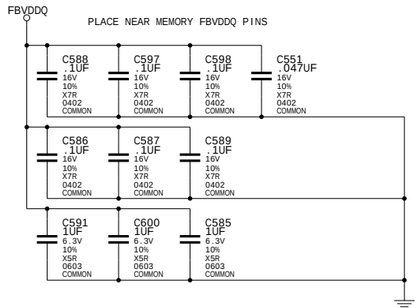
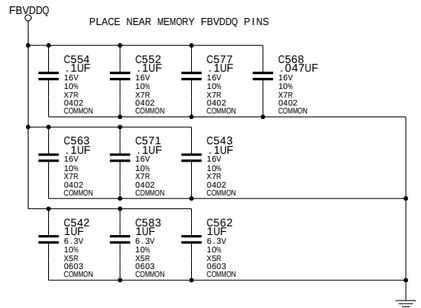
Page8: FBB Partition Decoupling

Decoupling for FBB 31..0



Decoupling for FBB 63..32



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ASSEMBLY	
PAGE DETAIL	FBB Partion Decoupling

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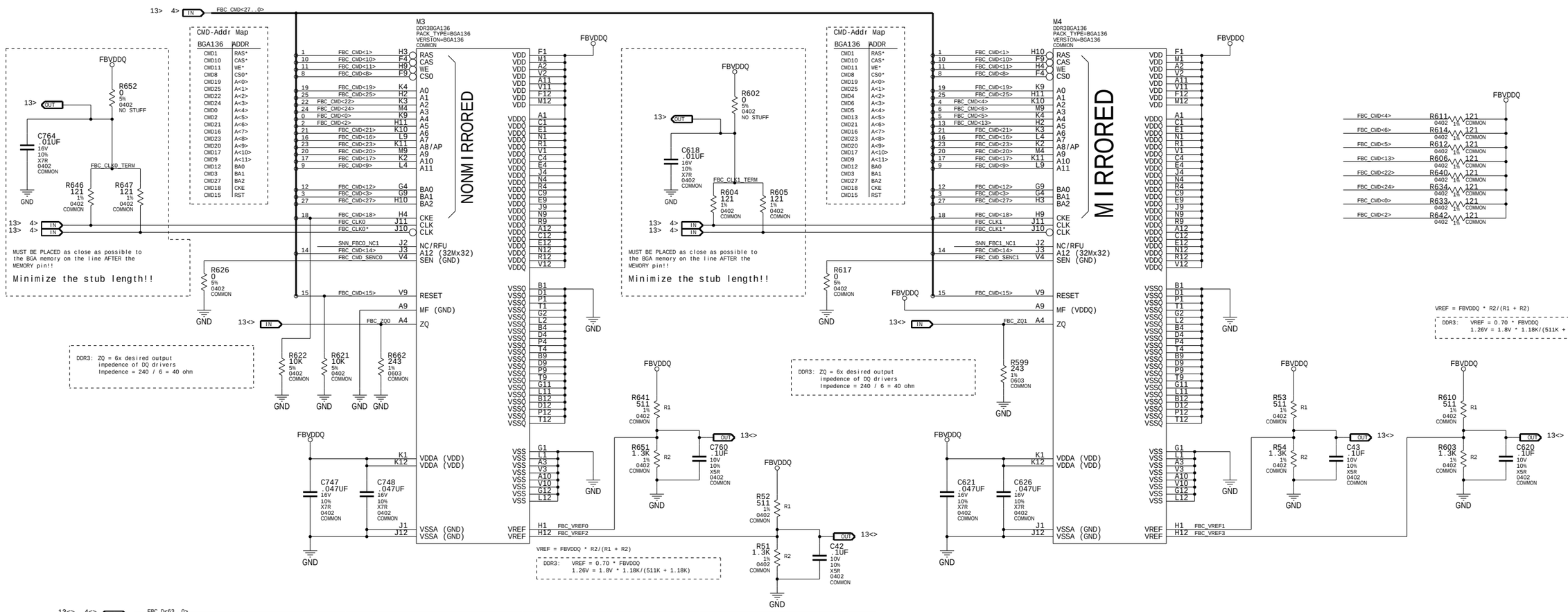
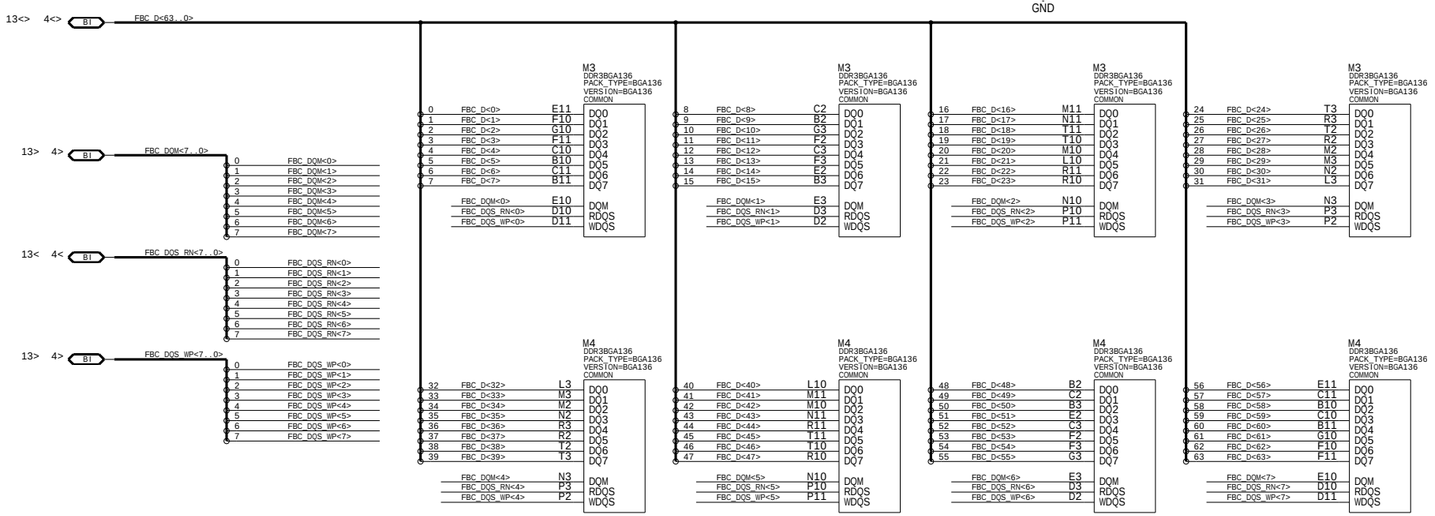
Page9: FBC Partition





ASSEMBLY	
PAGE DETAIL	FBC Partition

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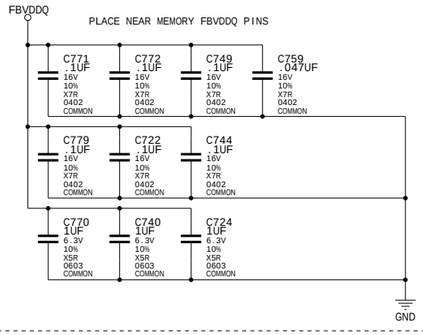
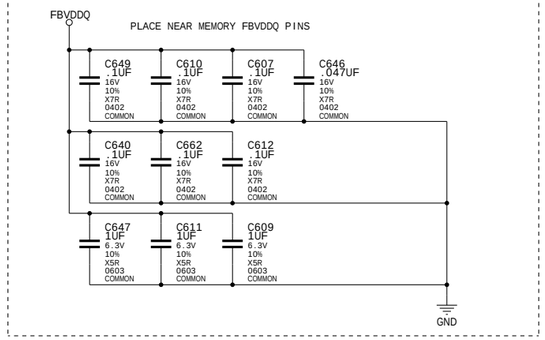
Page10: FBC Partition

Decoupling for FBC 31..0



Decoupling for FBC 63..32



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ASSEMBLY	
PAGE DETAIL	FBC Partition Decoupling

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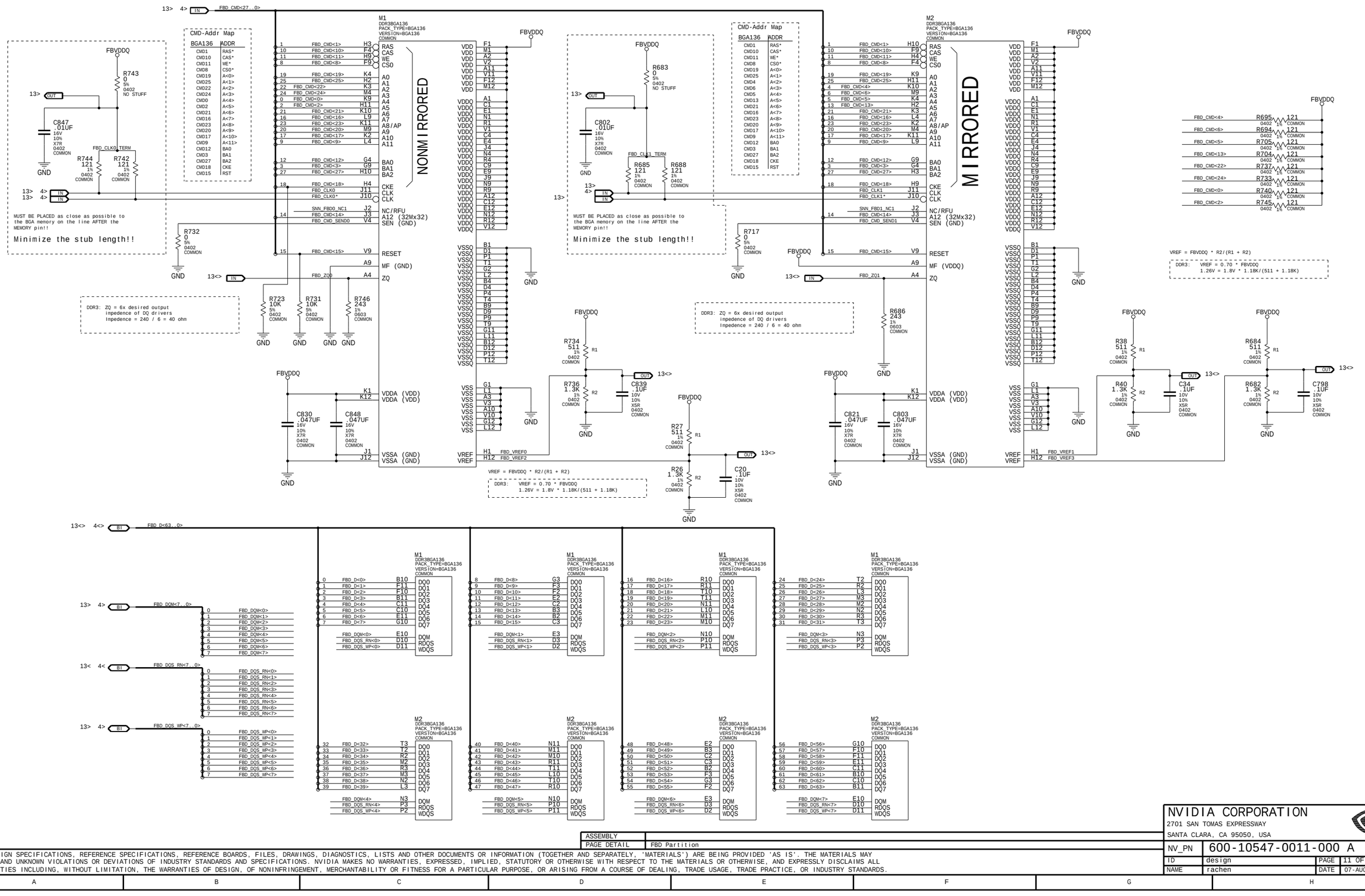
NAME	rachen	DATE	07-AUG-2008

Page11: FBD Partition



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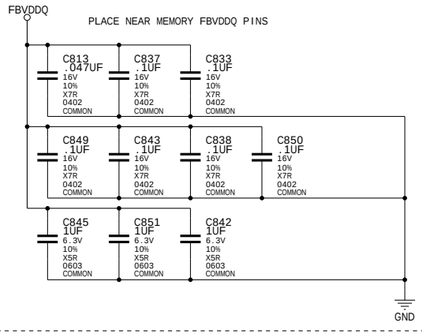
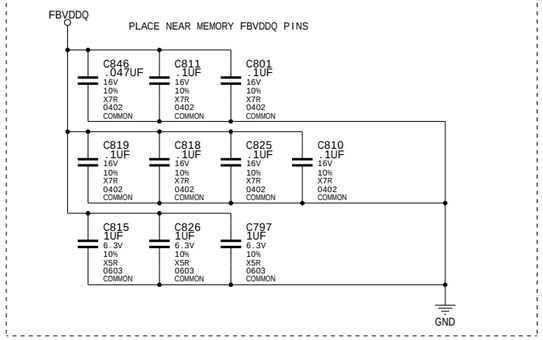
Page12: FBD Partition Decoupling

Decoupling for FBD 31..0



Decoupling for FBD 63..32



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ASSEMBLY	
PAGE DETAIL	FBD Partition Decoupling

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Page13: FB Net Properties

NET RULES for FBA and FBB

	NET	NV_CRITICAL_NET	IMPEDANCE	DIFFPAIR
5< 3> OUT	FBA_CLK0	1	80DIFF	FBA_CLK0
5< 3> OUT	FBA_CLK0*	1	80DIFF	FBA_CLK0
5> OUT	FBA_CLK0_TERM	1	40OHM	
5< 3> OUT	FBA_CLK1	1	80DIFF	FBA_CLK1
5< 3> OUT	FBA_CLK1*	1	80DIFF	FBA_CLK1
5> OUT	FBA_CLK1_TERM	1	40OHM	

	NET	NV_CRITICAL_NET	IMPEDANCE
5< 3> OUT	FBA_CMD<27..0>	1	40OHM
5<> 3> OUT	FBA_DQS_WP<7..0>	1	40OHM
5<> 3< IN	FBA_DQS_RN<7..0>	1	40OHM
5<> 3> OUT	FBA_DQM<7..0>	1	40OHM
5<> 3<> BI	FBA_D<63..0>	1	40OHM

	NET	NV_CRITICAL_NET	IMPEDANCE	DIFFPAIR
7< 3> OUT	FBB_CLK0	1	80DIFF	FBB_CLK0
7< 3> OUT	FBB_CLK0*	1	80DIFF	FBB_CLK0
7> OUT	FBB_CLK0_TERM	1	40OHM	
7< 3> OUT	FBB_CLK1	1	80DIFF	FBB_CLK1
7< 3> OUT	FBB_CLK1*	1	80DIFF	FBB_CLK1
7> OUT	FBB_CLK1_TERM	1	40OHM	

	NET	NV_CRITICAL_NET	IMPEDANCE
7< 3> OUT	FBB_CMD<27..0>	1	40OHM
7<> 3> OUT	FBB_DQS_WP<7..0>	1	40OHM
7<> 3< IN	FBB_DQS_RN<7..0>	1	40OHM
7<> 3> OUT	FBB_DQM<7..0>	1	40OHM
7<> 3<> BI	FBB_D<63..0>	1	40OHM

	NET	MIN_LINE_WIDTH	VOLTAGE	NV_NET_MAX_CURRENT
3> BI	FB_PLLAVDD0	12MIL	1.1V	0.04A
3> BI	FB_VREF	12MIL	1.26V	0.02A
5> BI	FBA_VREF0	12MIL	1.26V	0.02A
5> BI	FBA_VREF1	12MIL	1.26V	0.02A
5> BI	FBA_VREF2	12MIL	1.26V	0.02A
5> BI	FBA_VREF3	12MIL	1.26V	0.02A
5< BI	FBA_ZQ0	12MIL	1.26V	0.02A
5< BI	FBA_ZQ1	12MIL	1.26V	0.02A
7> BI	FBB_VREF0	12MIL	1.26V	0.02A
7> BI	FBB_VREF1	12MIL	1.26V	0.02A
7> BI	FBB_VREF2	12MIL	1.26V	0.02A
7> BI	FBB_VREF3	12MIL	1.26V	0.02A
7< BI	FBB_ZQ0	12MIL	1.26V	0.02A
7< BI	FBB_ZQ1	12MIL	1.26V	0.02A

NET RULES for FBC and FBD

	NET	NV_CRITICAL_NET	IMPEDANCE	DIFFPAIR
9< 4> OUT	FBC_CLK0	1	80DIFF	FBC_CLK0
9< 4> OUT	FBC_CLK0*	1	80DIFF	FBC_CLK0
9> OUT	FBC_CLK0_TERM	1	40OHM	
9< 4> OUT	FBC_CLK1	1	80DIFF	FBC_CLK1
9< 4> OUT	FBC_CLK1*	1	80DIFF	FBC_CLK1
9> OUT	FBC_CLK1_TERM	1	40OHM	

	NET	NV_CRITICAL_NET	IMPEDANCE
9< 4> OUT	FBC_CMD<27..0>	1	40OHM
9<> 4> OUT	FBC_DQS_WP<7..0>	1	40OHM
9<> 4< IN	FBC_DQS_RN<7..0>	1	40OHM
9<> 4> OUT	FBC_DQM<7..0>	1	40OHM
9<> 4<> BI	FBC_D<63..0>	1	40OHM

	NET	NV_CRITICAL_NET	IMPEDANCE	DIFFPAIR
11< 4> OUT	FBD_CLK0	1	80DIFF	FBD_CLK0
11< 4> OUT	FBD_CLK0*	1	80DIFF	FBD_CLK0
11> OUT	FBD_CLK0_TERM	1	40OHM	
11< 4> OUT	FBD_CLK1	1	80DIFF	FBD_CLK1
11< 4> OUT	FBD_CLK1*	1	80DIFF	FBD_CLK1
11> OUT	FBD_CLK1_TERM	1	40OHM	

	NET	NV_CRITICAL_NET	IMPEDANCE
11< 4> OUT	FBD_CMD<27..0>	1	40OHM
11<> 4> OUT	FBD_DQS_WP<7..0>	1	40OHM
11<> 4< IN	FBD_DQS_RN<7..0>	1	40OHM
11<> 4> OUT	FBD_DQM<7..0>	1	40OHM
11<> 4<> BI	FBD_D<63..0>	1	40OHM

	NET	MIN_LINE_WIDTH	VOLTAGE	NV_NET_MAX_CURRENT
4> BI	FB_PLLAVDD1	12MIL	1.1V	0.04A
9> BI	FBC_VREF0	12MIL	1.26V	0.02A
9> BI	FBC_VREF1	12MIL	1.26V	0.02A
9> BI	FBC_VREF2	12MIL	1.26V	0.02A
9> BI	FBC_VREF3	12MIL	1.26V	0.02A
9< BI	FBC_ZQ0	12MIL	1.26V	0.02A
9< BI	FBC_ZQ1	12MIL	1.26V	0.02A
11> BI	FBD_VREF0	12MIL	1.26V	0.02A
11> BI	FBD_VREF1	12MIL	1.26V	0.02A
11> BI	FBD_VREF2	12MIL	1.26V	0.02A
11> BI	FBD_VREF3	12MIL	1.26V	0.02A
11< BI	FBD_ZQ0	12MIL	1.26V	0.02A
11< BI	FBD_ZQ1	12MIL	1.26V	0.02A

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ASSEMBLY	
PAGE DETAIL	FB Net Properties

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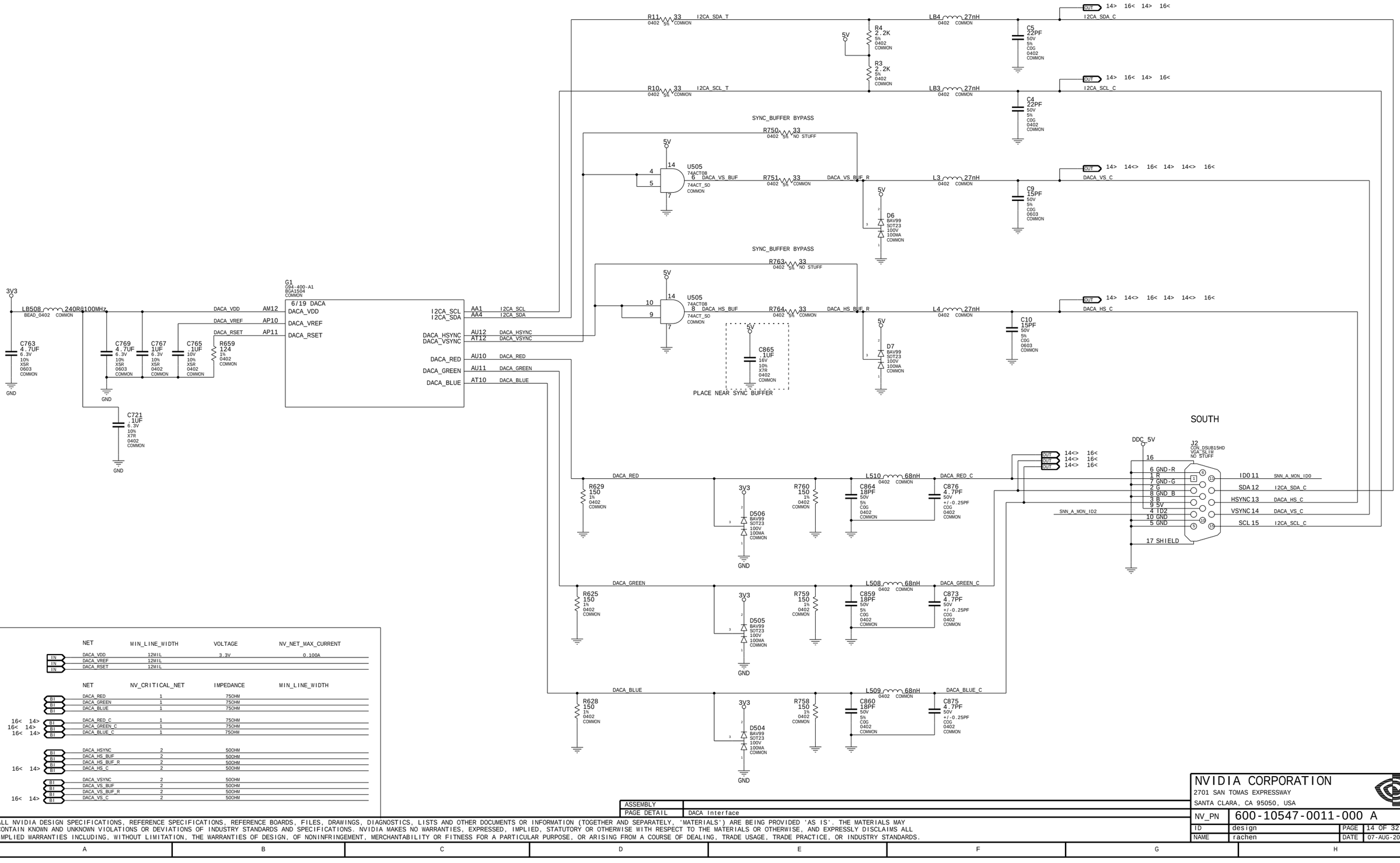
Page14: DACA Interface

DACA RGB-FILTER



	NET	MIN_LINE_WIDTH	VOLTAGE	NV_NET_MAX_CURRENT
IN	DACA_VDD	12MIL	3.3V	0.100A
IN	DACA_VREF	12MIL		
IN	DACA_RSET	12MIL		

	NET	NV_CRITICAL_NET	IMPEDANCE	MIN_LINE_WIDTH
BI	DACA_RED	1	75OHM	
BI	DACA_GREEN	1	75OHM	
BI	DACA_BLUE	1	75OHM	
16< 14> BI	DACA_RED_C	1	75OHM	
16< 14> BI	DACA_GREEN_C	1	75OHM	
16< 14> BI	DACA_BLUE_C	1	75OHM	
BI	DACA_HSYNC	2	50OHM	
BI	DACA_HS_BUF	2	50OHM	
BI	DACA_HS_BUF_R	2	50OHM	
16< 14> BI	DACA_HS_C	2	50OHM	
BI	DACA_VSYNC	2	50OHM	
BI	DACA_VS_BUF	2	50OHM	
BI	DACA_VS_BUF_R	2	50OHM	
16< 14> BI	DACA_VS_C	2	50OHM	

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ASSEMBLY	
PAGE_DETAIL	DACA Interface

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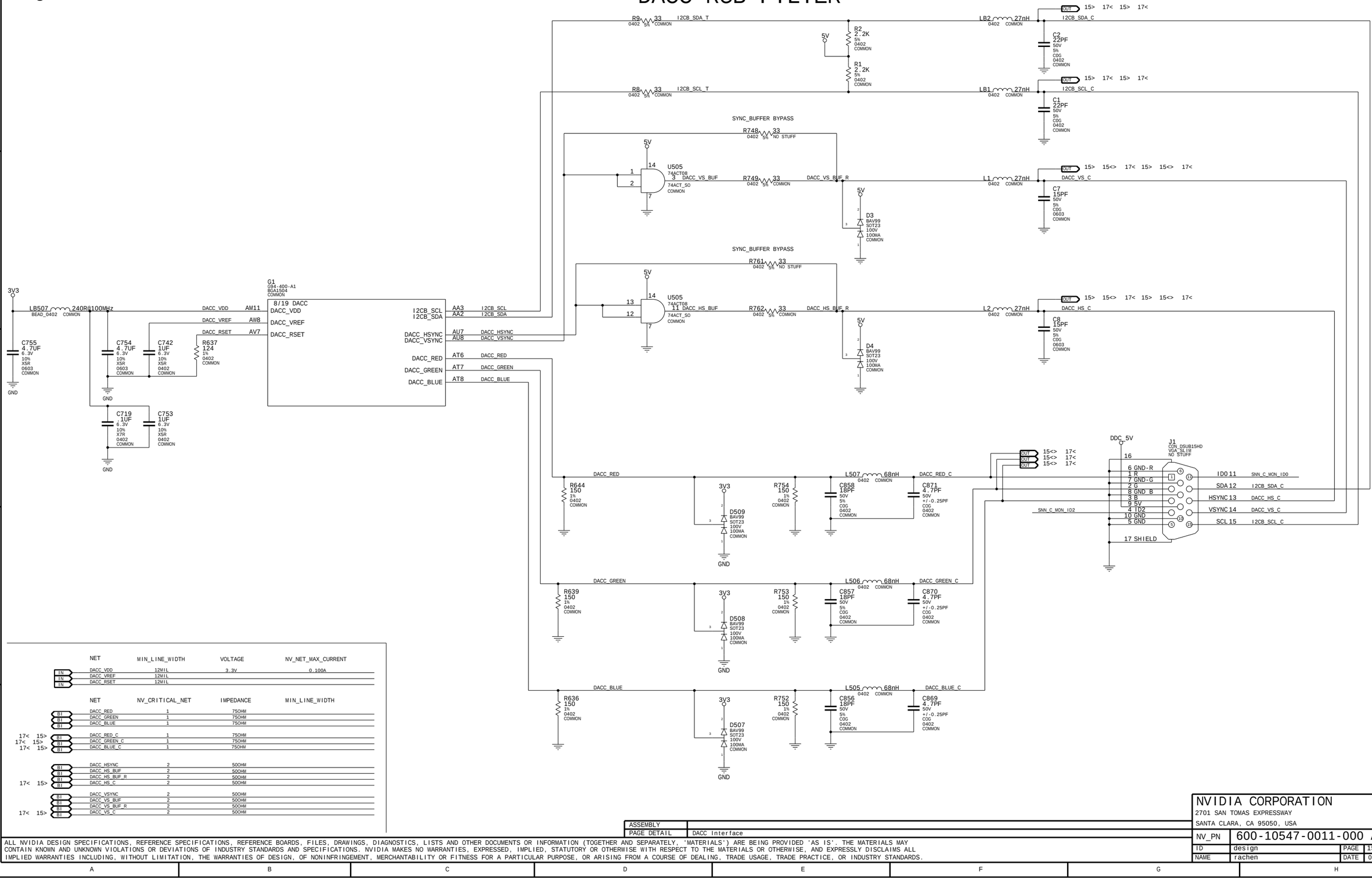
Page15: DACC Interface

DACC RGB-FILTER



	NET	MIN_LINE_WIDTH	VOLTAGE	NV_NET_MAX_CURRENT
IN	DACC_VDD	12MIL	3.3V	0.100A
IN	DACC_VREF	12MIL		
IN	DACC_RSET	12MIL		

	NET	NV_CRITICAL_NET	IMPEDANCE	MIN_LINE_WIDTH
BI	DACC_RED	1	75OHM	
BI	DACC_GREEN	1	75OHM	
BI	DACC_BLUE	1	75OHM	
17< 15> BI	DACC_RED_C	1	75OHM	
17< 15> BI	DACC_GREEN_C	1	75OHM	
17< 15> BI	DACC_BLUE_C	1	75OHM	
BI	DACC_HSYNC	2	50OHM	
BI	DACC_HS_BUF	2	50OHM	
BI	DACC_HS_BUF_R	2	50OHM	
17< 15> BI	DACC_HS_C	2	50OHM	
BI	DACC_VSYNC	2	50OHM	
BI	DACC_VS_BUF	2	50OHM	
BI	DACC_VS_BUF_R	2	50OHM	
17< 15> BI	DACC_VS_C	2	50OHM	

ASSEMBLY	
PAGE DETAIL	DACC Interface

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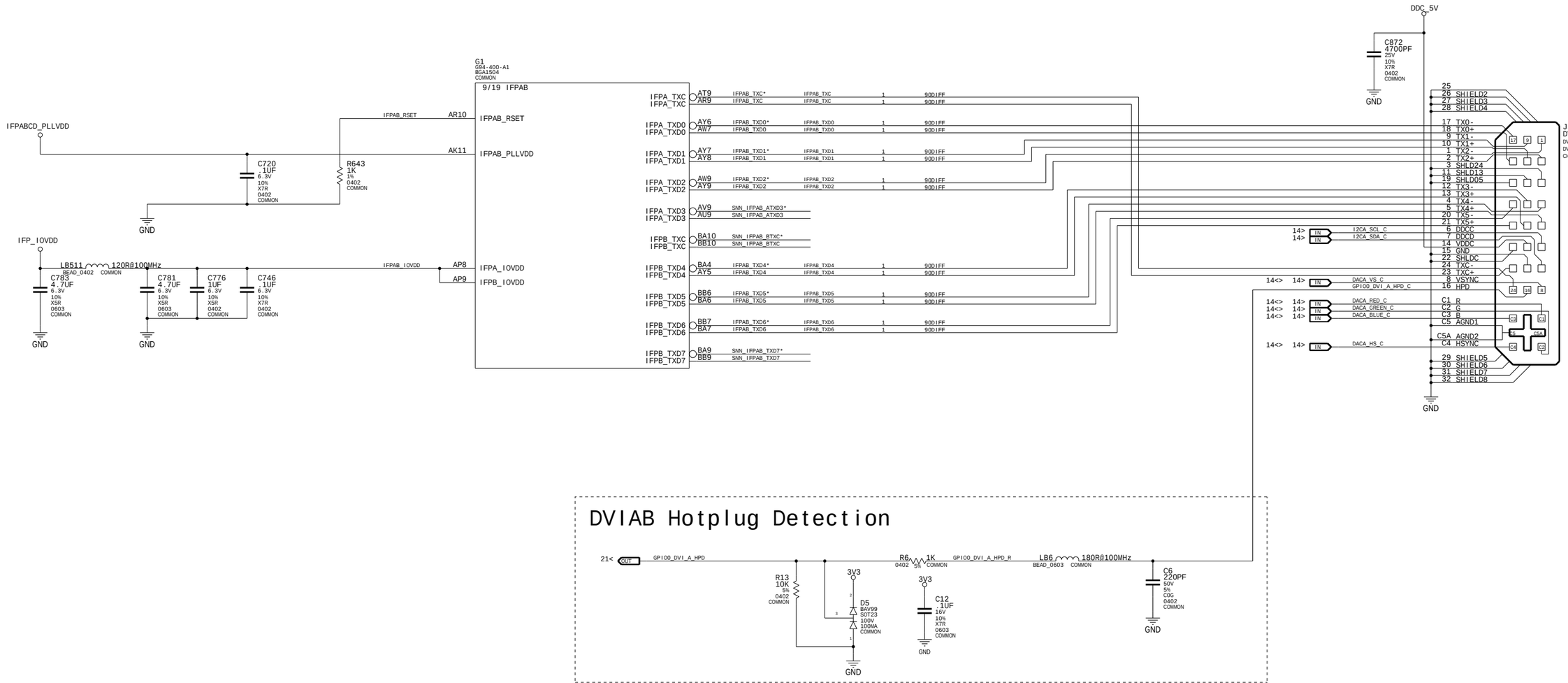
Page16: IFP A/B Interface -- DVI Connector South

NET	MIN_LINE_WIDTH	VOLTAGE	NV_NET_MAX_CURRENT
IFPAB_PLLVDD	12MIL	1.8V	0.035A
IFPAB_IOVDD	12MIL	3.3V	0.145A
IFPAB_RSET	12MIL		



DVIAB Hotplug Detection

ASSEMBLY	
PAGE DETAIL	IFP A/B Interface -- DVI Connector South

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Page17: IFP C/D Interface -- DVI Connector MID

NET	MIN_LINE_WIDTH	VOLTAGE	NV_NET_MAX_CURRENT
IFPCD_PLLVDD	12MIL	1.8V	0.035A
IFPCD_LOVDD	12MIL	1.1V	0.800A
IFPCD_RSET	12MIL		

DVI PULL DOWNS

IFPCD_TXC*	R671 499 0402 1% COMMON		
IFPCD_TXC	R672 499 0402 1% COMMON		
IFPCD_TXD0*	R674 499 0402 1% COMMON		
IFPCD_TXD0	R673 499 0402 1% COMMON		
IFPCD_TXD1*	R676 499 0402 1% COMMON		
IFPCD_TXD1	R675 499 0402 1% COMMON		
IFPCD_TXD2*	R677 499 0402 1% COMMON		
IFPCD_TXD2	R678 499 0402 1% COMMON		
IFPCD_TXD4*	R696 499 0402 1% COMMON		
IFPCD_TXD4	R697 499 0402 1% COMMON		
IFPCD_TXD5*	R698 499 0402 1% COMMON		
IFPCD_TXD5	R699 499 0402 1% COMMON		
IFPCD_TXD6*	R700 499 0402 1% COMMON		
IFPCD_TXD6	R701 499 0402 1% COMMON		

HDMI_PD → Q511 BSS138 SOT23_1G1D1S COMMON (MAX_VOLTAGE=50V, CONTINUOUS_CURRENT=0.22A@1V, 0.2A@2.5V, 0.1A@5V, MAX_CURRENT=0.88A, MAX_RATTRAGE=0.360@2V, V_BE_ON=1/2V) (D: 1G1D1S; G: 1 HDMI_PD_EN; S: GND)

3V3 → R718 1K 5% 0402 COMMON

C820 .1UF 6.3V 10% X7R 0402 COMMON → GND

DDC_5V → C874 4700PF 25V 10% X7R 0402 COMMON → GND

G1 G94-400-A1 BGA1504 COMMON

10/19 IFPCD

IFPC

AUX	AV6	SNN_IFPC_AUX*										
AUX	AU6	SNN_IFPC_AUX										
DPL3_TXC	AV3	IFPC_TXC*	IFPC_TXC	1	90DIFF	C786	.1UF COMMON	IFPCD_TXC*	IFPCD_TXC	1	90DIFF	
DPL3_TXC	AU4	IFPC_TXC	IFPC_TXC	1	90DIFF	C787	.1UF COMMON	IFPCD_TXC	IFPCD_TXC	1	90DIFF	
DPL2_TXD0	AW3	IFPC_TXD0*	IFPC_TXD0	1	90DIFF	C789	.1UF COMMON	IFPCD_TXD0*	IFPCD_TXD0	1	90DIFF	
DPL2_TXD0	AV4	IFPC_TXD0	IFPC_TXD0	1	90DIFF	C788	.1UF COMMON	IFPCD_TXD0	IFPCD_TXD0	1	90DIFF	
DPL1_TXD1	AY4	IFPC_TXD1*	IFPC_TXD1	1	90DIFF	C791	.1UF COMMON	IFPCD_TXD1*	IFPCD_TXD1	1	90DIFF	
DPL1_TXD1	AW4	IFPC_TXD1	IFPC_TXD1	1	90DIFF	C790	.1UF COMMON	IFPCD_TXD1	IFPCD_TXD1	1	90DIFF	
DPL0_TXD2	AW5	IFPC_TXD2*	IFPC_TXD2	1	90DIFF	C792	.1UF COMMON	IFPCD_TXD2*	IFPCD_TXD2	1	90DIFF	
DPL0_TXD2	AW6	IFPC_TXD2	IFPC_TXD2	1	90DIFF	C793	.1UF COMMON	IFPCD_TXD2	IFPCD_TXD2	1	90DIFF	

IFPD

AUX	AT5	SNN_IFPD_AUX*										
AUX	AU5	SNN_IFPD_AUX										
DPL3_TXC	AW2	SNN_IFPD_L3*										
DPL3_TXC	AW1	SNN_IFPD_L3										
DPL2_TXD0	AY1	IFPD_TXD4*	IFPD_TXD4	1	90DIFF	C804	.1UF COMMON	IFPCD_TXD4*	IFPCD_TXD4	1	90DIFF	
DPL2_TXD0	AY2	IFPD_TXD4	IFPD_TXD4	1	90DIFF	C805	.1UF COMMON	IFPCD_TXD4	IFPCD_TXD4	1	90DIFF	
DPL1_TXD1	AY3	IFPD_TXD5*	IFPD_TXD5	1	90DIFF	C806	.1UF COMMON	IFPCD_TXD5*	IFPCD_TXD5	1	90DIFF	
DPL1_TXD1	BA3	IFPD_TXD5	IFPD_TXD5	1	90DIFF	C807	.1UF COMMON	IFPCD_TXD5	IFPCD_TXD5	1	90DIFF	
DPL0_TXD2	BB3	IFPD_TXD6*	IFPD_TXD6	1	90DIFF	C808	.1UF COMMON	IFPCD_TXD6*	IFPCD_TXD6	1	90DIFF	
DPL0_TXD2	BB4	IFPD_TXD6	IFPD_TXD6	1	90DIFF	C809	.1UF COMMON	IFPCD_TXD6	IFPCD_TXD6	1	90DIFF	

IFP_PLLVDD → LB509 BEAD_0402 COMMON 180R@100MHZ → IFPABCD_PLLVDD → AJ11 IFPCD_PLLVDD

C777 4.7UF 6.3V 10% X5R 0603 COMMON → GND
C774 4.7UF 6.3V 10% X5R 0603 COMMON
C766 1UF 6.3V 10% X5R 0402 COMMON → GND
C739 .1UF 6.3V 10% X7R 0402 COMMON
R645 1K 1% 0402 COMMON
IFPABCD_PLLVDD_RC → R665 1 5% 0402 COMMON → GND

PEX_VDD → LB503 BEAD_0402 COMMON 120R@100MHz → IFPCD_IOVDD → AN8 IFPC_IOVDD, AN9 IFPD_IOVDD

C672 4.7UF 6.3V 10% X5R 0603 COMMON → GND
C679 4.7UF 6.3V 10% X5R 0603 COMMON → GND
C670 1UF 6.3V 10% X5R 0402 COMMON
C736 .1UF 6.3V 10% X7R 0402 COMMON

IFPCD_RSET → AN5 IFPCD_RSET

IFPCD_TXD4*, IFPCD_TXD4, IFPCD_TXD5*, IFPCD_TXD5, IFPCD_TXD6*, IFPCD_TXD6, I2CB_SCL_C, I2CB_SDA_C

15> IN I2CB_SCL_C
15> IN I2CB_SDA_C

15<> 15> IN DACC_VS_C → GPIO1_DVI_C_HPD_C
15<> 15> IN DACC_RED_C
15<> 15> IN DACC_GREEN_C
15<> 15> IN DACC_BLUE_C
15<> 15> IN DACC_HS_C

J4 DVI-I DVI_I_(SLIM_)SHLD_M DVI_I CHANGED

25			
26	SHIELD2		
27	SHIELD3		
28	SHIELD4		
17	TX0-	17	9
18	TX0+		
9	TX1-		
10	TX1+		
1	TX2-		
2	TX2+		
3	SHLD24		
11	SHLD13		
19	SHLD05		
12	TX3-		
13	TX3+		
4	TX4-		
5	TX4+		
20	TX5-		
21	TX5+		
6	DDCC		
7	DDCD		
14	VDDC		
15	GND		
22	SHLDC		
24	TXC-		
23	TXC+		
8	VSYNC		
16	HPD	24	16 8
C1	R	C1R	
C2	G	C2G	
C3	B	C3B	
C5	AGND1	C5	C5A
C5A	AGND2		
C4	HSYNC	C4	C2H
29	SHIELD5		
30	SHIELD6		
31	SHIELD7		
32	SHIELD8		

Hotplug Detection

21< OUT GPIO1_DVI_C_HPD → R5 1K 5% 0402 COMMON → GPIO1_DVI_C_HPD_R → LB5 BEAD_0603 COMMON 180R@100MHz → C3 220PF 50V 5% C0G 0402 COMMON → GND

R12 10K 5% 0402 COMMON → GND

3V3 → D2 BAV99 SOT23 100V 100MA COMMON → GND

3V3 → C13 .1UF 16V 10% X7R 0603 COMMON → GND

ASSEMBLY	
PAGE DETAIL	IFP C/D Interface -- DVI Connector MID

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NV_PN	600-10547-0011-000 A		
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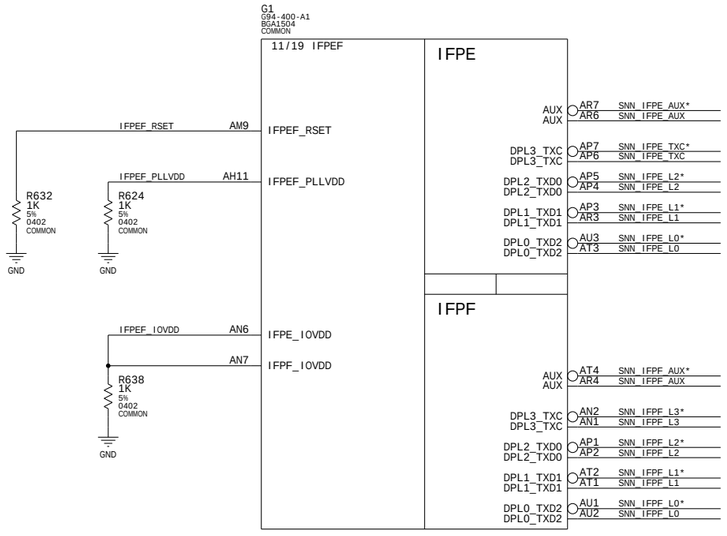
Page18: IFP E/F Interface -- Unused



NET	MIN_LINE_WIDTH	VOLTAGE	NV_NET_MAX_CURRENT
IFPEF_PLLVDD	12MIL		
IFPEF_IOVDD	12MIL		
IFPEF_RSET	12MIL		

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ASSEMBLY	
PAGE_DETAIL	IFP E/F Interface -- Unused

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Page19: DACB and HDTV/SDTV-Out

NET	NET	NV_CRITICAL_NET	IMPEDANCE
IN DACB_COUT		1	75OHM
IN DACB_COUT_C		1	75OHM
IN DACB_YOUT		1	75OHM
IN DACB_YOUT_C		1	75OHM
IN DACB_PBOUT		1	75OHM
IN DACB_PBOUT_C		1	75OHM

	NET	MIN_LINE_WIDTH	VOLTAGE	NV_NET_MAX_CURRENT
19< IN	DACB_VREF	12MIL	3.3V	0.100A
19< IN	DACB_VREF	12MIL		
IN	DACB_RSET	12MIL		

3V3
LB510 240R@100MHz BEAD_0402 NO STUFF
C785 4.7UF 6.3V 10% X5R 0603 NO STUFF
C780 4.7UF 6.3V 10% X5R 0603 NO STUFF
C775 0 6.3V 5% X5R 0402 CHANGED
C758 .1UF 10V 10% X5R 0402 NO STUFF
R666 124 1% 0402 NO STUFF
C730 .1UF 6.3V 10% X7R 0402 NO STUFF
GND

G1
G94-400-A1
BGA1504
COMMON
7/19 DACB(TV)

DACB_VDD		AL11
DACB_VREF		AN3
DACB_RSET		AL3
DACB_CSYNC	AK2 SNN_DACB_CSYNC	
DACB_RED	AK1 DACB_COUT	
DACB_GREEN	AL1 DACB_YOUT	
DACB_BLUE	AL2 DACB_PBOUT	

C861 8.2PF 0603 NO STUFF 50V +/-0.5PF NPO
L502 180R@100MHz BEAD_0603 NO STUFF
3V3
R661 150 1% 0402 NO STUFF
D501 BAV99 SOT23 100V 100MA NO STUFF
R755 150 1% 0402 NO STUFF
C852 82PF 50V 5% C0G 0402 NO STUFF
C866 82PF 50V 5% C0G 0402 NO STUFF
GND

C862 8.2PF 0603 NO STUFF 50V +/-0.5PF NPO
L503 180R@100MHz BEAD_0603 NO STUFF
R658 150 1% 0402 NO STUFF
D502 BAV99 SOT23 100V 100MA NO STUFF
R756 150 1% 0402 NO STUFF
C853 82PF 50V 5% C0G 0402 NO STUFF
C867 82PF 50V 5% C0G 0402 NO STUFF

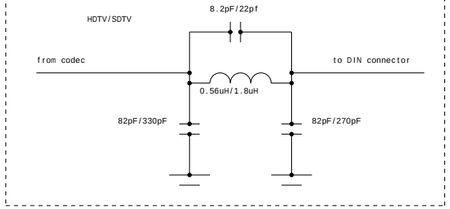
SNN_DACB_STEREO_C
DACB_PBOUT_C
DACB_COUT_C

J3
CON_MINIDIN_7
7P_COMP_10P
NO STUFF
7P_COMP_10P

7 NC		NC 5	SNN_DACB_TV_STEREO_C
6 Pb out			
4 C/Pr out		Y/CVBS out 3	DACB_YOUT_C
2 GND		GND 1	
8	9	10	

C863 8.2PF 0603 NO STUFF 50V +/-0.5PF NPO
L504 180R@100MHz BEAD_0603 NO STUFF
C868 82PF 50V 5% C0G 0402 NO STUFF
C854 82PF 50V 5% C0G 0402 NO STUFF
R757 150 1% 0402 NO STUFF
D503 BAV99 SOT23 100V 100MA NO STUFF
3V3
DACB_YOUT
R654 150 1% 0402 NO STUFF
GND

FILTER CIRCUIT



ASSEMBLY	
PAGE DETAIL	DACB and HDTV/SDTV-Out

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NV_PN	600-10547-0011-000 A		
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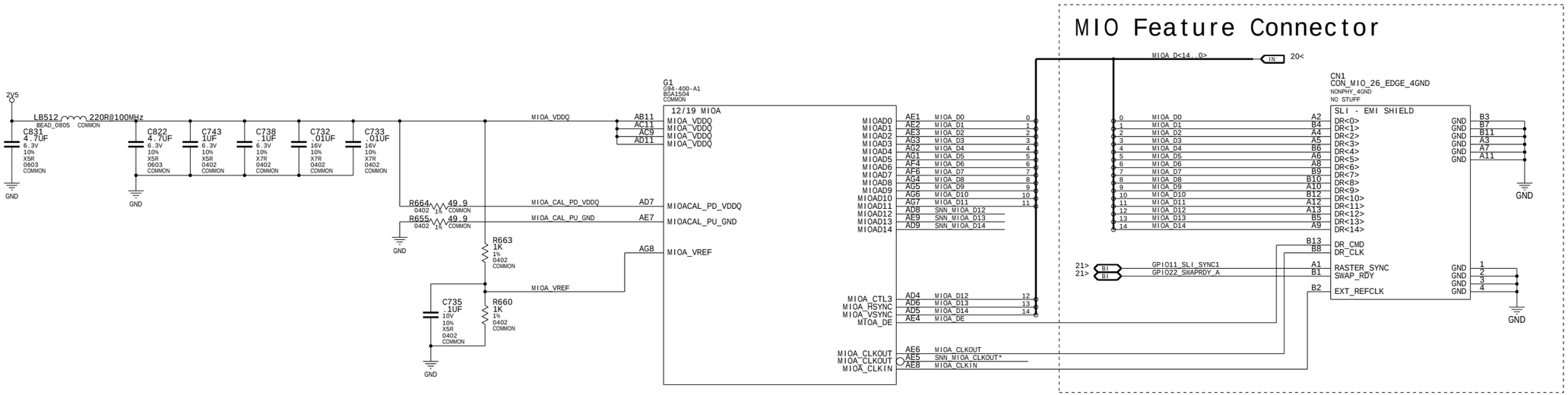
Page20: MIO A/B Interface



NET	NV_CRITICAL_NET	IMPEDANCE	DIFFPAIR
20< IN MIOA_D<14..0>	1	50OHM	
IN MIOA_CLKIN	1	50OHM	
IN MIOA_CLKOUT	1	50OHM	
IN MIOA_DE	1	50OHM	

NET	MIN_LINE_WIDTH	VOLTAGE	NV_NET_MAX_CURRENT
IN MIOA_VDDQ	16MIL	2.5V	0.80A
IN MIOA_VREF	12MIL	1.65V	
IN MIOA_CAL_PD_VDDQ	12MIL	2.5V	
IN MIOA_CAL_PU_GND	12MIL	0.0V	

ASSEMBLY	
PAGE DETAIL	MIO A/B Interface

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Page21: MISC: GPIO, I2C, ROM, HDCP, and XTAL

NET	NV_CRITICAL	NV_IMPEDANCE	DIFFPAIR
XTALSSIN	1	500HM	
XTALIN	1	500HM	
XTALOUT	1	500HM	
XTALOUTBUFF	1	500HM	

NET	VOLTAGE	MAX_CURRENT	MIN_WIDTH
GPU_PLLVDD	1.1V	0.03A	12MIL

GPIO TABLE

GPIO	I/O	Function
0	IN	DVI HOTPLUG DET A
1	IN	HDMI HOTPLUG DET E
2	N/A	SWAPREADY
3	N/A	NVVDD PHASE CONTROL
4	N/A	PWM TACH SIGNAL
5	OUT	VOLTAGE SELECT 0
6	OUT	VOLTAGE SELECT 1
7	N/A	FBVVDQ VOLTAGE CONTROL
8	IN	GPU_SLOW*
9	OUT	PWM FAN CONTROL
10	N/A	UNUSED
11	N/A	SLI_RASTERY_SYNC
12	IN	EXT_12V DETECT
13	OUT	UNUSED
14	IN	UNUSED
15	IN	UNUSED
16	IN	DP_MODE
17	IN	HDMI_EF
18	IN	UNUSED
19	IN	HDMI_CEC
20	IN	DP HOTPLUG DET F
21	IN	UNUSED
22	IN	SWAPREADY_A
23	OUT	UNUSED

Binary Production Strap Mode:

STRAP_CALPD_MIOB = 40.2K 1%

STRAP_CALPD_MISC = NO STUFF

ASSEMBLY	
PAGE DETAIL	MISC: GPIO, I2C, ROM, HDCP, and XTAL

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NV_PN	600-10547-0011-000 A		
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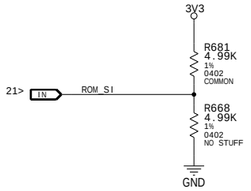
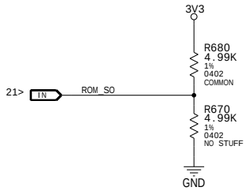
Page22: Strap Configuration

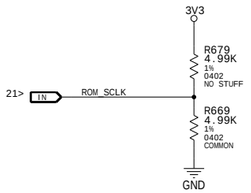


STRAP PIN	STRAP NAME
ROM_SI	PCI_DEVID_EXT

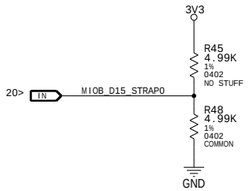
	3V3	GND
5K	1	0

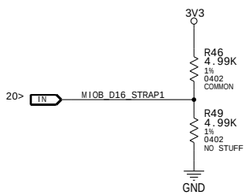


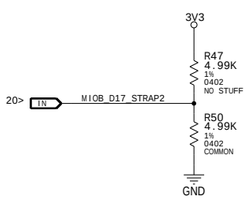
STRAP PIN	STRAP NAME
ROM_SO	SLOT_CLK_CFG



STRAP PIN	STRAP NAME
ROM_SCLK	PCI_DEVID[3]







STRAP PIN	STRAP NAME
STRAP0	RAMCFG0
STRAP1	RAMCFG1
STRAP2	RAMCFG2

* RAMCFG[2:0]

256MB (8Mx32)	512MB (16Mx32)	1024MB (32Mx32)
101 --- 256-bit Qimonda	001 --- 256-bit Qimonda	101 --- 256-bit Hynix
110 --- 256-bit Hynix	010 --- 256-bit Hynix	110 --- 256-bit Hynix
111 --- 256-bit Samsung	011 --- 256-bit Samsung	111 --- 256-bit Samsung

* VBIOS will be defined on a per SKU basis.

G1
G94-400-A1
BGA1504
COMMON

19/19 NC

SNN_NC<1>	AC34	NC
SNN_NC<2>	AC36	NC
SNN_NC<3>	AC37	NC
SNN_NC<4>	AC7	NC
SNN_NC<5>	AF34	NC
SNN_NC<6>	AF36	NC
SNN_NC<7>	AF37	NC
SNN_NC<8>	AF7	NC
SNN_NC<9>	AG37	NC
SNN_NC<10>	AG38	NC
SNN_NC<11>	AH40	NC
SNN_NC<12>	AJ7	NC
SNN_NC<13>	AK32	NC
SNN_NC<14>	AL32	NC
SNN_NC<15>	AL40	NC
SNN_NC<16>	AM29	NC
SNN_NC<17>	AM30	NC
SNN_NC<18>	AM31	NC
SNN_NC<19>	AM32	NC
SNN_NC<20>	AM7	NC
SNN_NC<21>	AP34	NC
SNN_NC<22>	AR36	NC
SNN_NC<23>	AT11	NC
SNN_NC<24>	AT13	NC
SNN_NC<25>	AT35	NC
SNN_NC<26>	AU14	NC
SNN_NC<27>	AU17	NC
SNN_NC<28>	AU20	NC
SNN_NC<29>	AU23	NC
SNN_NC<30>	AU26	NC
SNN_NC<31>	AV10	NC
SNN_NC<32>	AV12	NC
SNN_NC<33>	AV28	NC
SNN_NC<34>	AY31	NC
SNN_NC<35>	C12	NC
SNN_NC<36>	E15	NC
SNN_NC<37>	E16	NC
SNN_NC<38>	F16	NC
SNN_NC<39>	F17	NC
SNN_NC<40>	F20	NC
SNN_NC<41>	F23	NC
SNN_NC<42>	F31	NC
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SNN_NC<45>	G23	NC
SNN_NC<46>	G26	NC
SNN_NC<47>	G29	NC
SNN_NC<48>	G8	NC
SNN_NC<49>	H28	NC
SNN_NC<50>	H7	NC
SNN_NC<51>	J17	NC
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SNN_NC<54>	J29	NC
SNN_NC<55>	J9	NC
SNN_NC<56>	L14	NC
SNN_NC<57>	L16	NC
SNN_NC<58>	L28	NC
SNN_NC<59>	L29	NC
SNN_NC<60>	M3	NC
SNN_NC<61>	M37	NC
SNN_NC<62>	P11	NC
SNN_NC<63>	P34	NC
SNN_NC<64>	P36	NC
SNN_NC<65>	R11	NC
SNN_NC<66>	R3	NC
SNN_NC<67>	R35	NC
SNN_NC<68>	T11	NC
SNN_NC<69>	U11	NC
SNN_NC<70>	U36	NC
SNN_NC<71>	U7	NC
SNN_NC<72>	Y34	NC
SNN_NC<73>	Y36	NC
SNN_NC<74>	Y37	NC
SNN_NC<75>	Y7	NC

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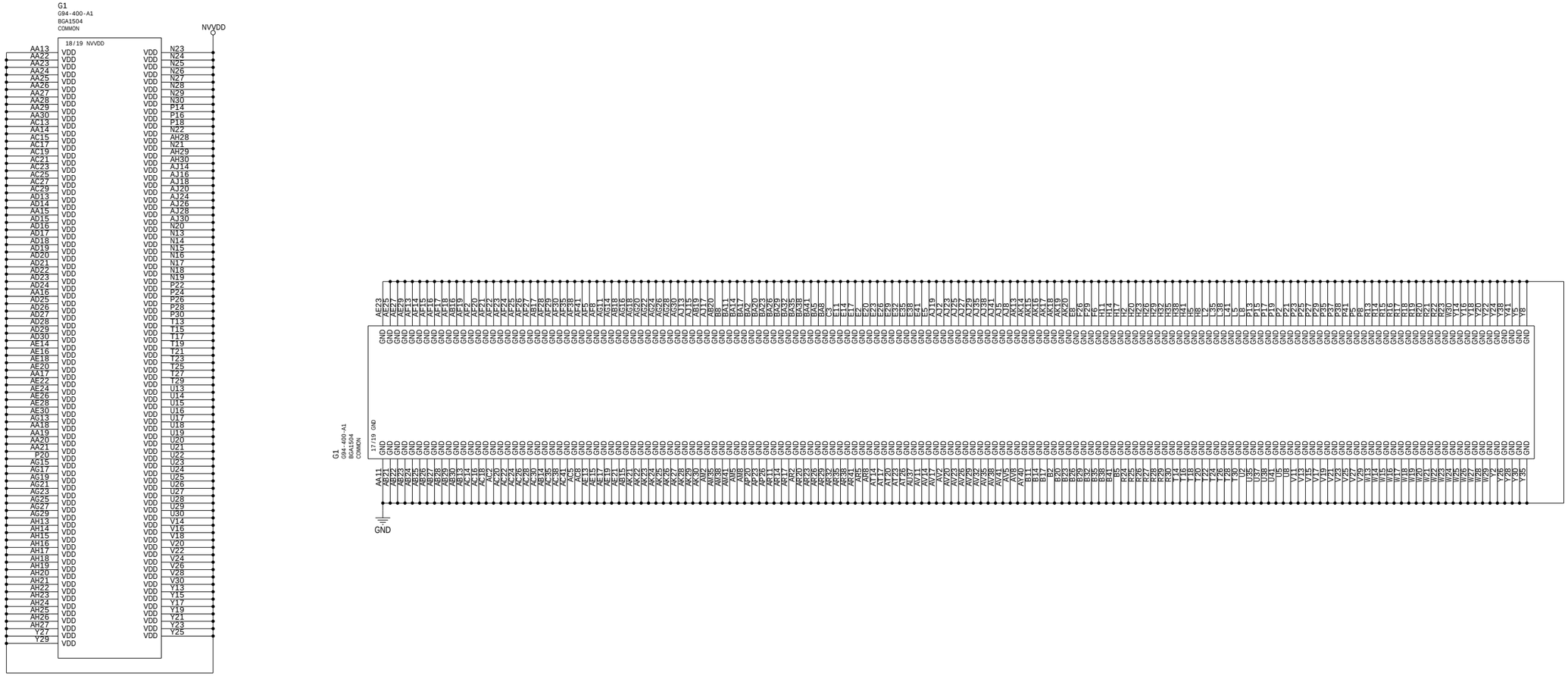
ASSEMBLY			
PAGE DETAIL	Strap Configuration		
NV_PN	600-10547-0011-000 A		
ID	design	PAGE	22 OF 32
NAME	rachen	DATE	07-AUG-2008

Page23: PWR and GND Signals



ASSEMBLY	
PAGE DETAIL	PWR and GND Signals

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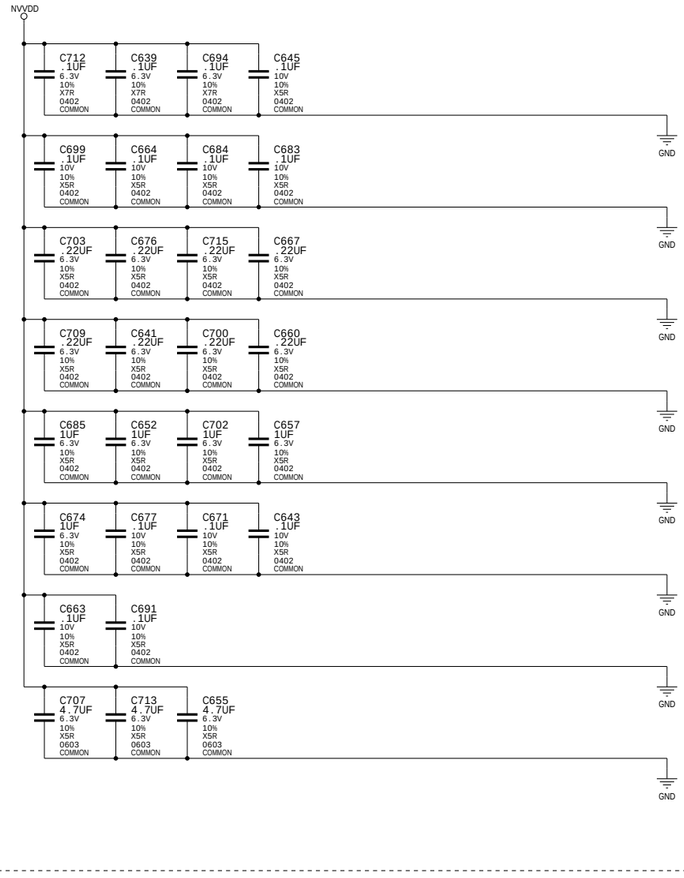
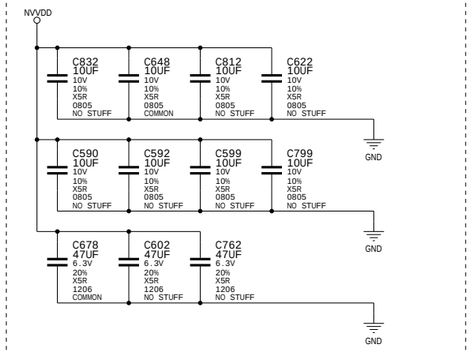
NV_PN	600-10547-0011-000 A		
ID	design	PAGE	23 OF 32
NAME	rachen	DATE	07-AUG-2008

Page24: NVVDD and FBVDDQ Decoupling

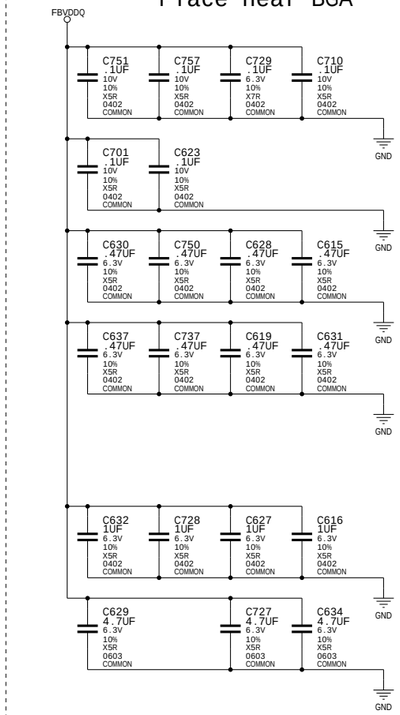
NVVDD
Place under GPU



NVVDD
Place close to GPU



FBVDDQ
Place near BGA



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ASSEMBLY	
PAGE DETAIL	NVVDD and FBVDDQ Decoupling

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NV_PN	600-10547-0011-000 A		
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NAME	rachen	DATE	07-AUG-2008

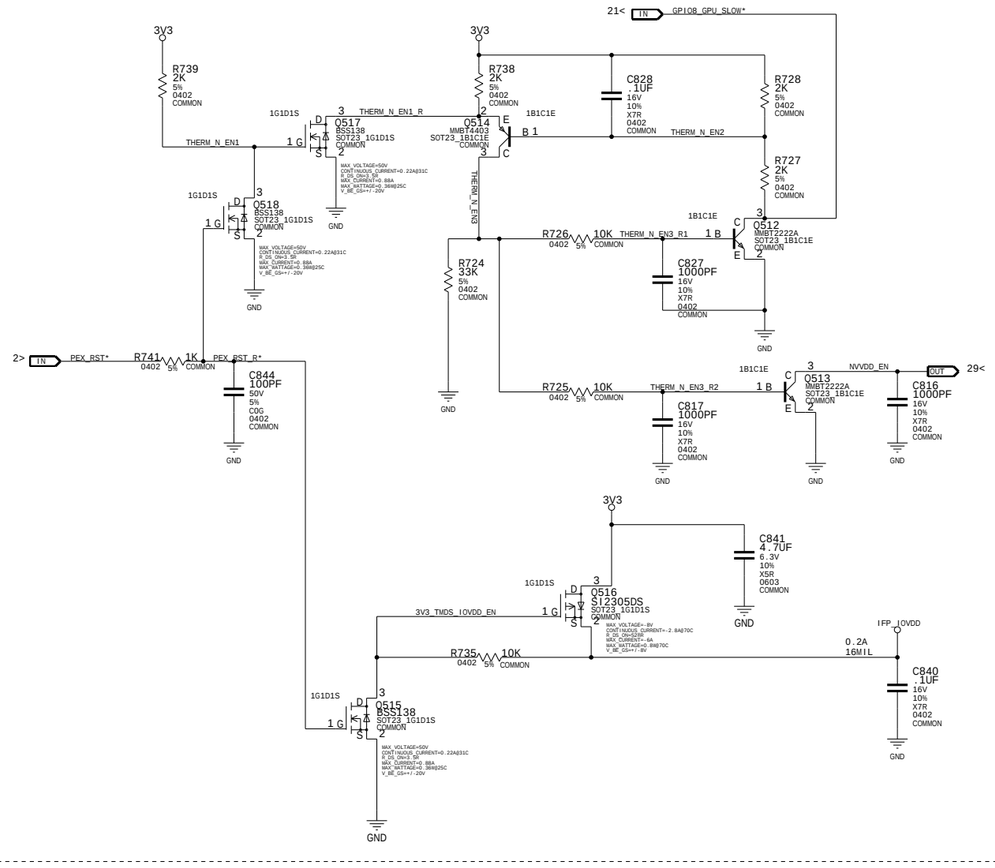
Page25: SPDIF Input, Thermal Protection, and IFP_IOVDD Power Supply

NET	IMPEDANCE	NV_CRITICAL_NET
SPDIF_IN_C	56OHM	1
SPDIF_IN_R	56OHM	1
SPDIF_IN_COMP2_D	56OHM	1
SPDIF_IN_COMP2_Q	56OHM	1
SPDIF_IN	75OHM	1
SPDIF	56OHM	1

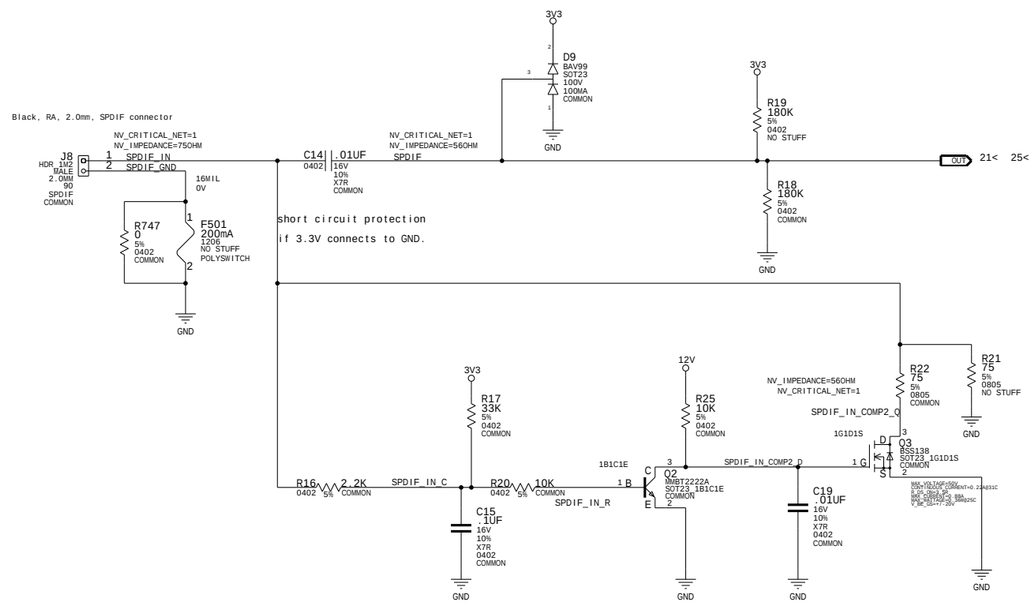
25> 21<

Thermal Protection

IFP_IOVDD Backdrive Prevention



SPDIF Input



ASSEMBLY	
PAGE DETAIL	SPDIF Input, Backdrive Protection, and IFP_IOVDD Power Supply

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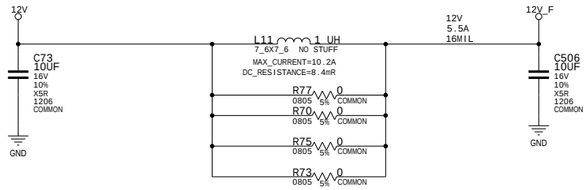
Page26: PS I: 3V3, 12V, and 12V_EXT Power Supply Filter

NET		VOLTAGE	MAX_CURRENT	MIN_WIDTH
12V_EXT	NV_SOURCE_POWER_NET	12V	6.25A	16MIL
12V	NV_SOURCE_POWER_NET	12V	5.5A	16MIL
GND	NV_SOURCE_POWER_NET	0V	28A	16MIL

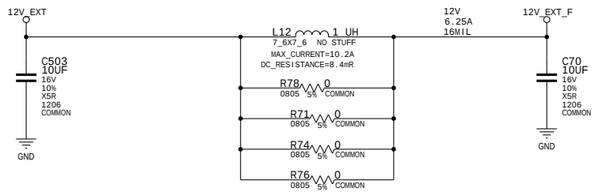
12V Power Supply Filter

12V_F = 12V @ 5.5A

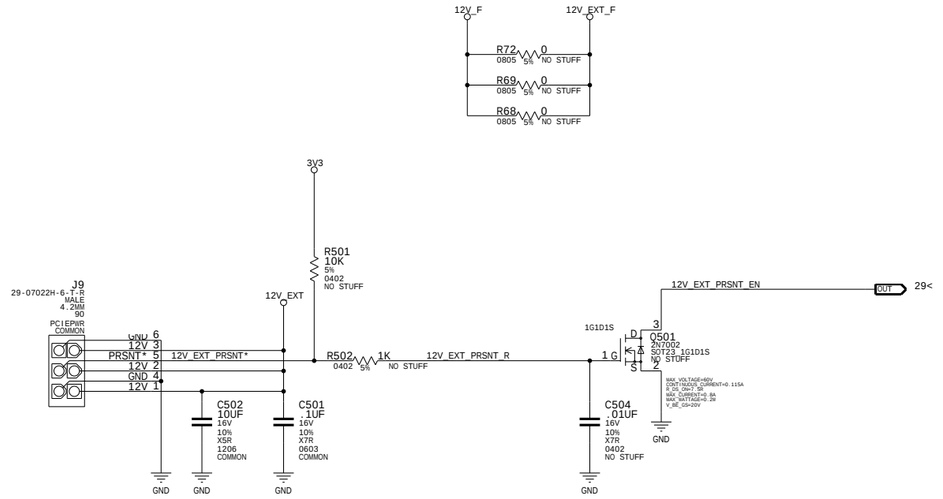


12V_EXT Power Supply Filter

12V_EXT_F = 12V @ 6.25A



INPUT POWER SELECTION for NVVDD



	GPIO12
EMERENCY MODE (12V_EXT present)	0
150W POWER MODE (12V_EXT NOT present)	1

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ASSEMBLY	
PAGE DETAIL	PS I: 3V3, 12V, and 12V_EXT Power Supply Filter
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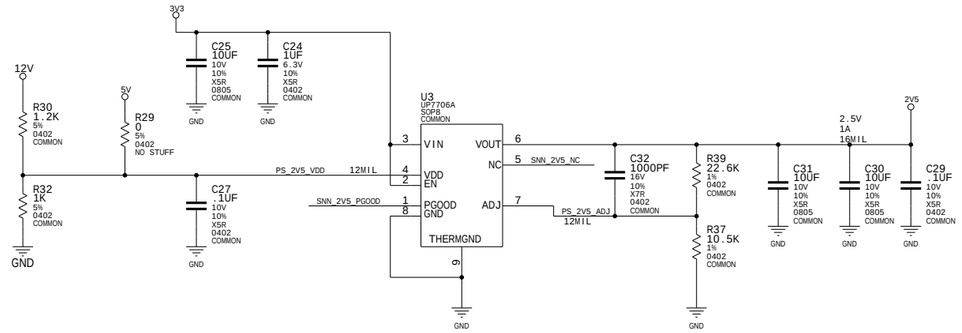
Page27: PS II: IFP_PLLVDD, 2V5, 5V, and DDC_5V Power Supply

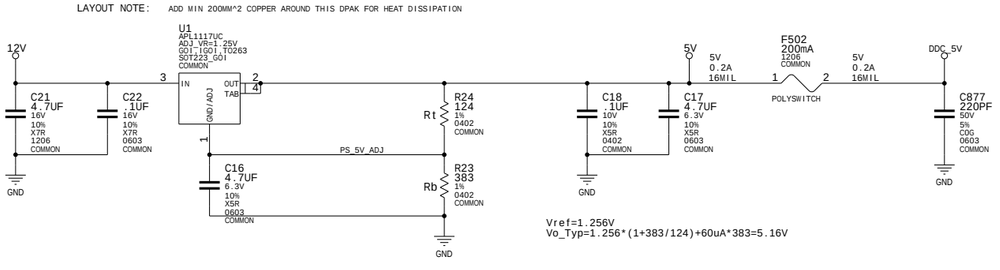
2V5 Power Supply



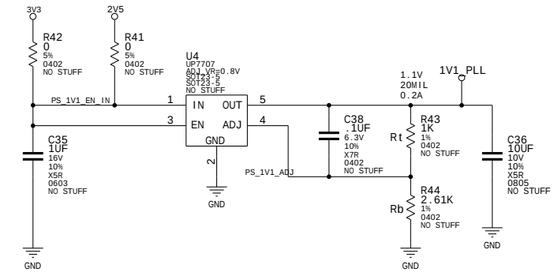
Vout=Vref*(1+Rt/Rb)
2.52=0.8*(1+22.6/10.5)

5V and DDC_5V Power Supply

DDC_5V = 5V @ 200mA



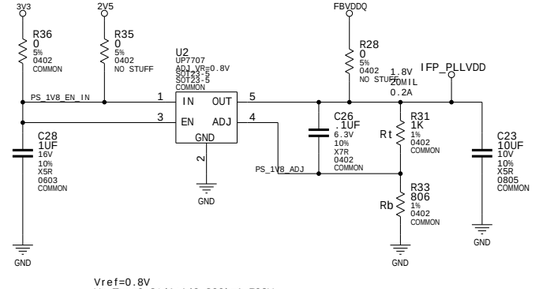
Vref=1.256V
Vo_Typ=1.256*(1+383/124)+60uA*383=5.16V



Vref=0.8V
Vo_Typ=0.8*(1+1/2.61)=1.106V

IFP_PLLVDD Power Supply

IFP_PLLVDD = 1.8V @ 200mA



Vref=0.8V
Vo_Typ=0.8*(1+1/0.806)=1.793V

ASSEMBLY	
PAGE DETAIL	PS II: IFP_PLLVDD, 2V5, 5V, and DDC_5V Power Supply

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Page28: PS III: FBVDDQ Power Supply

NET	MIN_LINE_WIDTH	VOLTAGE	NV_NET_MAX_CURRENT
FBVDDQ	20MIL	2.1V	16A
PS_FB_BOOT	16MIL		
PS_FB_UGATE	16MIL		
PS_FB_UGATE_R	16MIL		
PS_FB_PHASE	16MIL		16A
PS_FB_LGATE	16MIL		
PS_FB_COMP	16MIL		
PS_FB_FB	16MIL		
PS_FB_RC	16MIL		
PS_FB_RBOT	16MIL		
PS_FB_SNUB	16MIL		
FBVDDQ_SENSE_R	16MIL		
PEX_VDD	20MIL	1.1V	2A
PS_FB_PVCC5	16MIL		
PS_FB_VCC5	16MIL		
PS_1V1_DR	12MIL		
PS_1V1_FB	12MIL		
PS_1V1_CP	16MIL		
PS_FBVDDQ_FS	16MIL		

PEXVDD Power Supply

PEXVDD = 1.1V @ 3A

Vout = Vref * (1+Rtop/Rbot)

1.12V = 0.8V * (1+1.05k/2.61k)

80.6K ~400KHz
97.6K ~300KHz

FBVDDQ Power Supply

FBVDDQ = 1.8 - 2.0 V@ 10A

Irms = 5.3A @ 1.8V/15A

FBVDDQ = VREF * (1 + (Rtop / Rbot1))
2.06V = 0.8V * (1 + (1.58K/ 1K))

	GPIO7
FBVDDQ = 1.816V	0
FBVDDQ = 1.997V	1

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ASSEMBLY	
PAGE DETAIL	PS III: FBVDDQ Power Supply
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Page29: PS IV: NVVDD

NETNAME	MAX_CURRENT	MIN_LINE_WIDTH	VOLTAGE
NVVDD	50A	30MIL	1.1V

Irms = 10A @ 1.10V/50A/Two phase

IN	PS_NVVDD_VCC9	16MIL		
IN	PS_NVVDD_BOOT1	16MIL		
IN	PS_NVVDD_SUS	16MIL		
IN	PS_NVVDD_DRVH1	16MIL		
IN	PS_NVVDD_DRVH1_R	16MIL		
IN	PS_NVVDD_PH1	16MIL		25A
IN	PS_NVVDD_DRVL1	16MIL		
IN	PS_NVVDD_CP	16MIL		
IN	PS_NVVDD_RC_CP	16MIL		
IN	PS_NVVDD_FB	16MIL		
IN	PS1_NVVDD_FS	16MIL		
IN	PS1_NVVDD_SS	16MIL		
IN	PS1_NVVDD_VREF	16MIL		

IN	PS_NVVDD_PVCC9	16MIL		
IN	PS_NVVDD_VCC	16MIL	12V	0.1A
IN	PS_NVVDD_RC1	16MIL		
IN	PS_NVVDD_BOOT2	16MIL		
IN	PS_NVVDD_DRVH2	16MIL		
IN	PS_NVVDD_DRVH2_R	16MIL		
IN	PS_NVVDD_PH2	16MIL		25A
IN	PS_NVVDD_DRVL2	16MIL		
IN	PS_NVVDD_RC2	16MIL		

IN	PS_NVVDD_VSEN	16MIL	
IN	PS_NVVDD_RC	16MIL	

NVVDD Power Supply

NVVDD = 1.0-1.10V @ 50A

NVVDD ENABLE

NVVDD = 0.6 * (1 + Rtop/Rbot)
1.1745V = 0.6 * (1 + 1.13K/1.18K)

GPIO5	GPIO6	NVVDD
0	0	1.1745V (DEFAULT)
1	0	
1	1	

ASSEMBLY	
PAGE DETAIL	PS IV: NVVDDV

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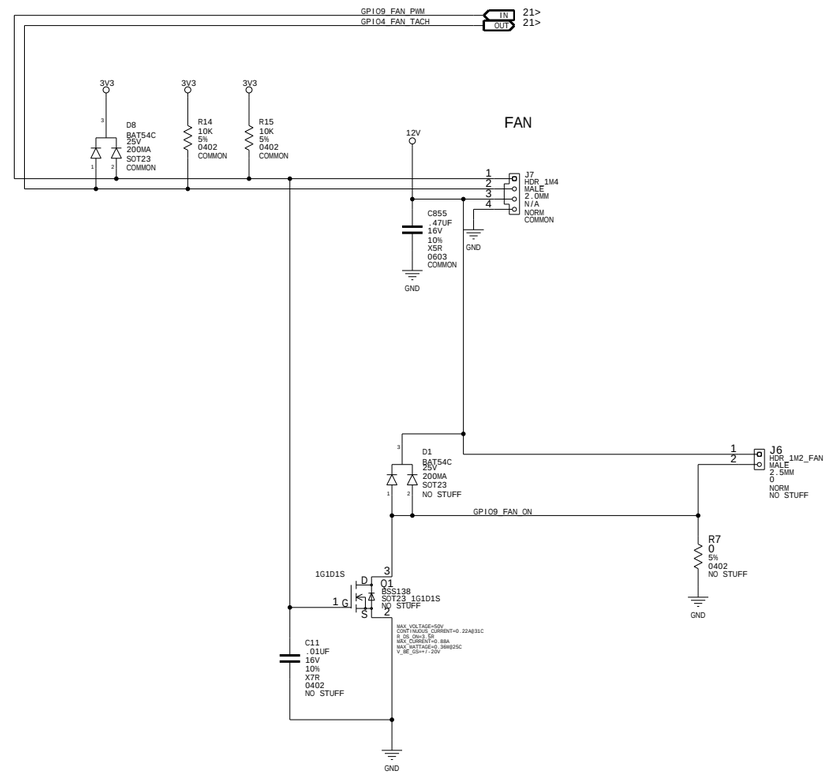
Page31: Fan Connector



ASSEMBLY	
PAGE DETAIL	Fan Connector

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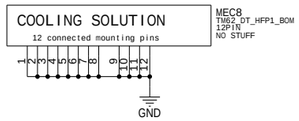
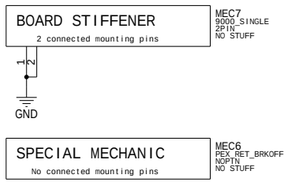
Page32: Thermal, Mechanical, and Bracket

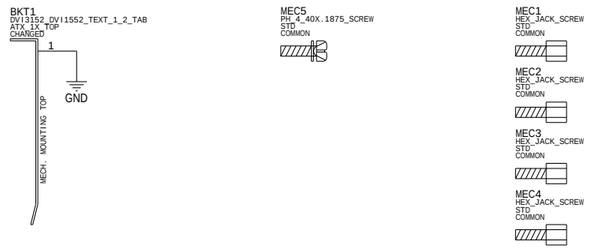
Thermal



Mechanical



Bracket



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ASSEMBLY	
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