P164, NV34, 8Mx16(128)MB, VGA, VIDEO IN, TV OUT TUNER. (PAL)

Page Overview

HISTORY:

A00

X00: INITIAL VERSION
X01: First Review

A01

1. Increase A5V trace to 24 mil and add 2 more vias to the A5V plane, PCB change only
2. Use A3V3 only for CX25875 to fix the CX25875 noise problem.On page 20
3. Swap the net audio_out_L and audio_out_R to fix the net name error. On page 15
4. Add D9, C187, C188, C189 for SC2612 circuit, On page 19
5. Add Voltage select circuitto support silent run for NV31. On page 18
6. FBCLKs constraints changed, Change the FBCLK traces length. PCB change only
7. Remove U4 and R224 For not share the IRQ interrup with DVI_HPD. Change the net DVI_HPD, IRQ, SRESET1, and SRESET2.
8. Change FBVDD Vin from 12V to 5V to solve the 12V rail out of budget problemOn page 19
9. Add C18 and R12 On page 18
10. Add C190 and R94 On page 19
11. Change U8 to low drop voltage regulator and remove C18
12. Remove all ESD diodes of DACA and DACB VGA On page 9,10,11

SKU: 0005 Schematics

602-10164-0005-001

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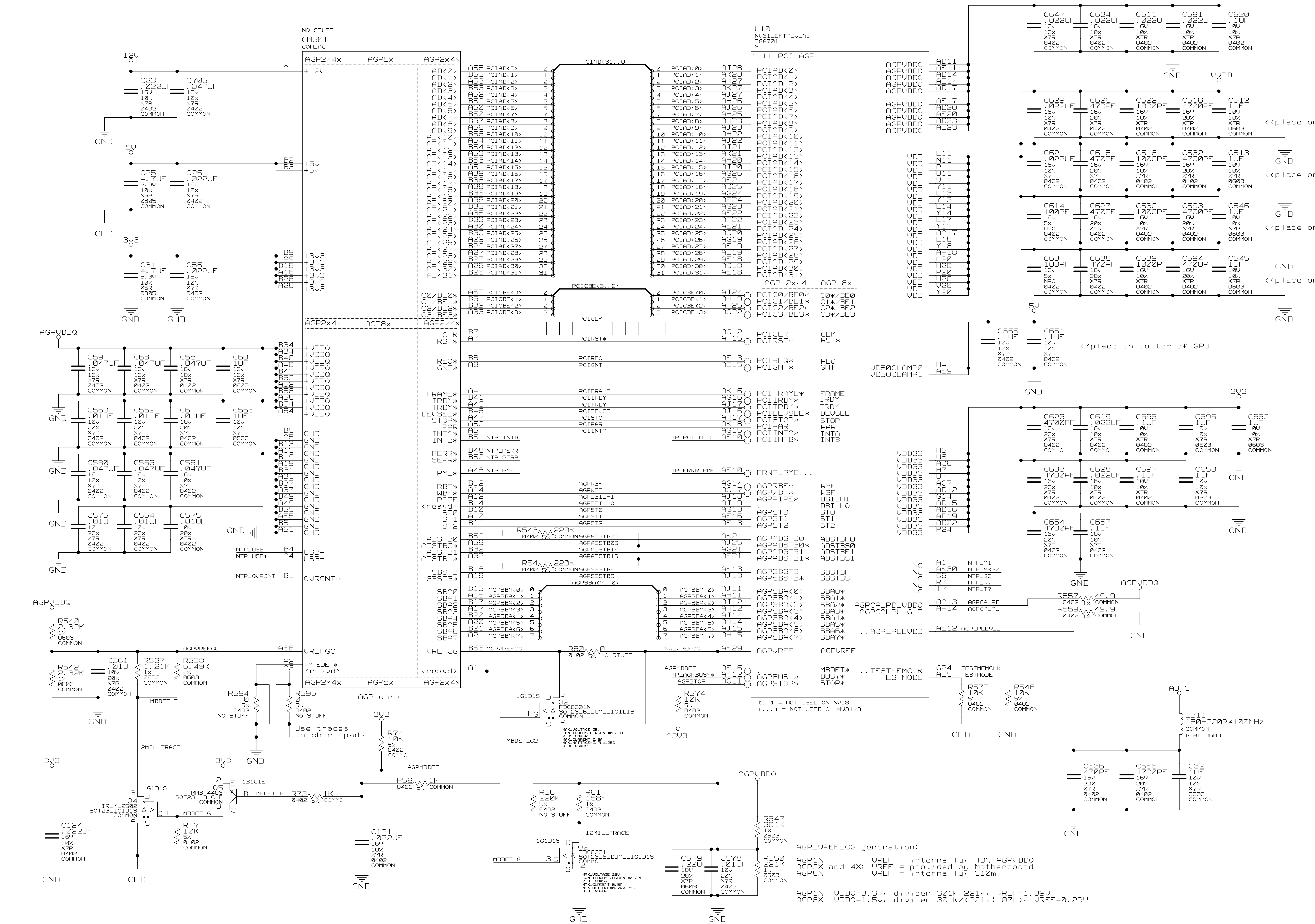
DETAIL	DRAWING DETAIL CONTINUED...		
ID	p164	PAGE	1 OF 24
NAME	Richard Li	DATE	Jan 31 2003

AGP CONNECTOR AND NV31 AGP SECTION



AGP rules

	Net Name	Net Spacing	Net Physical
BI	PCIAD<31..0>	20MIL	
BI	PCICBE<3..0>	20MIL	
BI	PCICLK	20MIL	
BI	PCIRST*	10MIL	
BI	PCIREQ	10MIL	
BI	PCIGNT	10MIL	
BI	PCIFRAME	10MIL	
BI	PCIIRDY	10MIL	
BI	PCITRDY	10MIL	
BI	PCISTOP	10MIL	
BI	PCIDEVSEL	10MIL	
BI	PCIPAR	10MIL	
BI	PCIINTA	10MIL	
BI	PCIINTB	10MIL	
BI	AGPRBF	10MIL	
BI	AGPWBF	10MIL	
BI	AGPDBI_HI	20MIL	
BI	AGPDBI_LO	20MIL	
BI	AGPST0	15MIL	
BI	AGPST1	15MIL	
BI	AGPST2	15MIL	
BI	AGPADSTB0F	25MIL	
BI	AGPADSTB0S	25MIL	
BI	AGPADSTB1F	25MIL	
BI	AGPADSTB1S	25MIL	
BI	AGPSBSTBF	25MIL	
BI	AGPSBSTBS	25MIL	
BI	AGPSBA<7..0>	20MIL	
BI	NV18_VREFCG	10MIL	12MIL_TRACE
BI	AGPVREFCG	10MIL	12MIL_TRACE
BI	AGPVREFGC	10MIL	12MIL_TRACE
BI	AGPMBDET	10MIL	
BI	AGPSTOP	10MIL	

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DETAIL	DRAWING DETAIL CONTINUED...		
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NAME	Richard Li	DATE	Jan 31 2003

NV31 Framebuffer Interface

U10
NV31_DKTP_V_A1
BGA701

2/11 MEM_A

5.1G‹› 5.1A‹› 4.1G‹› 4.1A‹› BI FBAD‹63..0›

0	FBAD‹0›	N25	FBAD‹0›	
1	FBAD‹1›	N27	FBAD‹1›	
2	FBAD‹2›	N26	FBAD‹2›	
3	FBAD‹3›	M25	FBAD‹3›	
4	FBAD‹4›	M26	FBAD‹4›	
5	FBAD‹5›	K27	FBAD‹5›	
6	FBAD‹6›	J27	FBAD‹6›	
7	FBAD‹7›	K26	FBAD‹7›	
8	FBAD‹8›	M29	FBAD‹8›	
9	FBAD‹9›	M29	FBAD‹9›	
10	FBAD‹10›	M28	FBAD‹10›	
11	FBAD‹11›	L26	FBAD‹11›	
12	FBAD‹12›	J26	FBAD‹12›	
13	FBAD‹13›	J28	FBAD‹13›	
14	FBAD‹14›	H29	FBAD‹14›	
15	FBAD‹15›	K30	FBAD‹15›	
16	FBAD‹16›	K25	FBAD‹16›	
17	FBAD‹17›	J26	FBAD‹17›	
18	FBAD‹18›	J25	FBAD‹18›	
19	FBAD‹19›	G26	FBAD‹19›	
20	FBAD‹20›	F28	FBAD‹20›	
21	FBAD‹21›	F26	FBAD‹21›	
22	FBAD‹22›	E27	FBAD‹22›	
23	FBAD‹23›	D27	FBAD‹23›	
24	FBAD‹24›	H28	FBAD‹24›	
25	FBAD‹25›	G29	FBAD‹25›	
26	FBAD‹26›	F29	FBAD‹26›	
27	FBAD‹27›	E28	FBAD‹27›	
28	FBAD‹28›	C30	FBAD‹28›	
29	FBAD‹29›	C29	FBAD‹29›	
30	FBAD‹30›	B30	FBAD‹30›	
31	FBAD‹31›	A30	FBAD‹31›	
32	FBAD‹32›	AJ29	FBAD‹32›	
33	FBAD‹33›	AJ30	FBAD‹33›	
34	FBAD‹34›	AH29	FBAD‹34›	
35	FBAD‹35›	AH30	FBAD‹35›	
36	FBAD‹36›	AF29	FBAD‹36›	
37	FBAD‹37›	AE29	FBAD‹37›	
38	FBAD‹38›	AD29	FBAD‹38›	
39	FBAD‹39›	AC28	FBAD‹39›	
40	FBAD‹40›	AG28	FBAD‹40›	
41	FBAD‹41›	AF27	FBAD‹41›	
42	FBAD‹42›	AE26	FBAD‹42›	
43	FBAD‹43›	AE28	FBAD‹43›	
44	FBAD‹44›	AD25	FBAD‹44›	
45	FBAD‹45›	AB29	FBAD‹45›	
46	FBAD‹46›	AB26	FBAD‹46›	
47	FBAD‹47›	AA25	FBAD‹47›	
48	FBAD‹48›	AD30	FBAD‹48›	
49	FBAD‹49›	AC28	FBAD‹49›	
50	FBAD‹50›	AB28	FBAD‹50›	
51	FBAD‹51›	AB29	FBAD‹51›	
52	FBAD‹52›	Y29	FBAD‹52›	
53	FBAD‹53›	W26	FBAD‹53›	
54	FBAD‹54›	W29	FBAD‹54›	
55	FBAD‹55›	V29	FBAD‹55›	
56	FBAD‹56›	AC27	FBAD‹56›	
57	FBAD‹57›	AB27	FBAD‹57›	
58	FBAD‹58›	AB27	FBAD‹58›	
59	FBAD‹59›	AA26	FBAD‹59›	
60	FBAD‹60›	W25	FBAD‹60›	
61	FBAD‹61›	V26	FBAD‹61›	
62	FBAD‹62›	V27	FBAD‹62›	
63	FBAD‹63›	V25	FBAD‹63›	

5.4A‹› 5.1G‹› 4.4A‹› 4.1G‹› OUT FBADQM‹63..0›

0	FBADQM‹0›	L27	FBADQM‹0›	
1	FBADQM‹1›	K29	FBADQM‹1›	
2	FBADQM‹2›	G25	FBADQM‹2›	
3	FBADQM‹3›	E28	FBADQM‹3›	
4	FBADQM‹4›	AF28	FBADQM‹4›	
5	FBADQM‹5›	AD27	FBADQM‹5›	
6	FBADQM‹6›	AA30	FBADQM‹6›	
7	FBADQM‹7›	Y27	FBADQM‹7›	

5.4A‹› 5.1G‹› 4.4A‹› 4.1G‹› BI FBADQS‹63..0›

0	FBADQS‹0›	M27	FBADQS‹0›	
1	FBADQS‹1›	K30	FBADQS‹1›	
2	FBADQS‹2›	G27	FBADQS‹2›	
3	FBADQS‹3›	H30	FBADQS‹3›	
4	FBADQS‹4›	AG30	FBADQS‹4›	
5	FBADQS‹5›	AD26	FBADQS‹5›	
6	FBADQS‹6›	AA29	FBADQS‹6›	
7	FBADQS‹7›	W27	FBADQS‹7›	

NTP_FBADQS‹0›*	M26	FBADQS‹0›...	
NTP_FBADQS‹1›*	L28	FBADQS‹1›...	
NTP_FBADQS‹2›*	K27	FBADQS‹2›...	
NTP_FBADQS‹3›*	H29	FBADQS‹3›...	
NTP_FBADQS‹4›*	AG29	FBADQS‹4›...	
NTP_FBADQS‹5›*	AE27	FBADQS‹5›...	
NTP_FBADQS‹6›*	Y28	FBADQS‹6›...	
NTP_FBADQS‹7›*	W25	FBADQS‹7›...	

5.3C‹ 5.1G‹› 4.3C‹ 4.1G‹› OUT FBAA‹63..0›

0	FBAA‹0›	V30	FBAA‹0›
1	FBAA‹1›	U28	FBAA‹1›
2	FBAA‹2›	U29	FBAA‹2›
3	FBAA‹3›	T28	FBAA‹3›
4	FBAA‹4›	T29	FBAA‹4›
5	FBAA‹5›	T27	FBAA‹5›
6	FBAA‹6›	T30	FBAA‹6›
7	FBAA‹7›	T26	FBAA‹7›
8	FBAA‹8›	T25	FBAA‹8›
9	FBAA‹9›	R27	FBAA‹9›
10	FBAA‹10›	R25	FBAA‹10›
11	FBAA‹11›	R30	FBAA‹11›
12	FBAA‹12›	U24	FBAA‹12›..

5.4C‹ 5.2G‹› 4.4C‹ 4.1G‹› OUT	FBABA0	R26	FBABA‹0›
5.4C‹ 5.2G‹› 4.4C‹ 4.2G‹› OUT	FBABA1	R29	FBABA‹1›
5.3C‹ 5.1G‹› 4.3C‹ 4.1G‹› OUT	FBARAS*	P28	FBARAS
5.3C‹ 5.1G‹› 4.3C‹ 4.1G‹› OUT	FBACAS*	P29	FBACAS
5.3C‹ 5.1G‹› 4.3C‹ 4.1G‹› OUT	FBAWE*	N29	FBAWE
5.3C‹ 5.1G‹› 4.3C‹ 4.1G‹› OUT	FBAC30*	U27	FBACS0
	TP_FBACS1*	P27	FBACS1
FBVDDQ 5.4C‹ 5.2G‹› 4.4C‹ 4.2G‹› OUT	FBACKE	N30	FBACKE
5.4C‹ 5.1G‹› 4.4A‹ 4.1G‹› OUT	FBACLK0	U21	FBACLK0
5.4C‹ 5.1G‹› 4.4A‹ 4.1G‹› OUT	FBACLK0*	V21	FBACLK0
5.4C‹ 5.1G‹› 4.4A‹ 4.1G‹› OUT	FBACLK1	N21	FBACLK1
4.4C‹ 4.1G‹› OUT	FBACLK1*	P21	FBACLK1

R552 1K 5% 0402 COMMON — FBVDDQ, GND
R553 1K 5% 0402 COMMON — GND
C582 .1UF 10V 10% X7R 0402 COMMON — GND
R68 10K 5% 0402 COMMON — GND
FB_VREF — C28 — FB_VREF

FBVDDQ	F8		
FBVDDQ	G8		
FBVDDQ	F11		
FBVDDQ	G11		
FBVDDQ	F14		
FBVDDQ	F17		
FBVDDQ	F20		
FBVDDQ	G20		
FBVDDQ	F23		
FBVDDQ	G23		
FBVDDQ	H24		
FBVDDQ	L24		
FBVDDQ	Y24		
FBVDDQ	AG24		
FBVDDQ	H25		
FBVDDQ	L25		
FBVDDQ	P25		
FBVDDQ	U25		
FBVDDQ	Y25		
FBVDDQ	AC25		
..FB_DLLVDD	C27		
GND	F1		
GND	G1		
GND	M1		
GND	T1		
GND	W1		
GND	AB1		
GND	AE1		
GND	C3		
GND	G3		
GND	K3		
GND	N3		
GND	AH3		
GND	D4		
GND	AG4		
GND	E5		
GND	K5		
GND	AA5		
GND	AF5		
GND	A6		
GND	F6		
GND	AE6		
GND	AK6		
GND	C7		
GND	J7		
GND	AH7		
GND	E8		
GND	L8		
GND	Y8		
GND	AF8		
GND	A9		
GND	AK9		
GND	C10		
GND	AH10		
GND	E11		
GND	H11		
GND	AC11		
GND	AF11		
GND	A12		
GND	AK12		
GND	C13		
GND	AH13		
GND	E14		
GND	AF14		
GND	AK15		
GND	AH15		
GND	E17		
GND	AF17		
GND	C18		
GND	AH18		
GND	A19		
GND	AK19		
GND	E20		
GND	H20		
GND	AC20		
GND	AF20		
GND	C21		
GND	AH21		
GND	A22		
GND	AK22		
GND	E23		
GND	L23		
GND	Y23		
GND	AF23		
GND	C24		
GND	AH24		
GND	A25		
GND	E25		
GND	AK25		
GND	H26		
GND	T26		
GND	B29		
GND	U26		
GND	Y26		
GND	AC26		
GND	AF26		
GND	AG27		
GND	D28		
GND	V28		
GND	N28		
GND	AA28		
GND	AD28		
GND	AH28		
GND	F30		
GND	J30		
GND	M30		
GND	W30		
GND	AB30		
GND	AE30		

[..] = NOT USED ON NV18
[...] = USED FOR DDR2 ONLY

FBVDDQ

C559 4700PF 16V 20% X7R 0402 COMMON — C648 .022UF 16V 10% X7R 0402 COMMON — C631 .1UF 10V 10% X7R 0402 COMMON — C625 .1UF 10V 10% X7R 0402 COMMON
C617 4700PF 16V 20% X7R 0402 COMMON — C598 .022UF 16V 10% X7R 0402 COMMON — C590 .1UF 10V 10% X7R 0402 COMMON — C587 .1UF 10V 10% X7R 0402 COMMON
C584 4700PF 16V 20% X7R 0402 COMMON — C586 .022UF 16V 10% X7R 0402 COMMON — C592 .1UF 10V 10% X7R 0402 COMMON
C588 4700PF 16V 20% X7R 0402 COMMON — C589 .022UF 16V 10% X7R 0402 COMMON — C585 .1UF 10V 10% X7R 0402 COMMON
C562 1UF 10V 10% X7R 0603 COMMON — C672 1UF 10V 10% X7R 0603 COMMON — C577 1UF 10V 10% X7R 0603 COMMON
GND

FB_DLLVDD

A3V3
LB501 150-220R@100MHz BEAD_0603
C565 4.7UF 6.3V 10% X5R 0805 COMMON — GND
FB_DLLVDD
C583 470PF 16V 20% X7R 0402 COMMON
C574 4700PF 16V 20% X7R 0402 COMMON
C557 4.7UF 6.3V 10% X5R 0805 COMMON
GND

FBA Clock Termination

FBACLK0 — R555 100 5% 0402 NO STUFF — FBACLK0*
FBACLK1 — R554 100 5% 0402 NO STUFF — FBACLK1*

7.1G‹› 7.1A‹› 6.1G‹› 6.1A‹› BI FBCD‹63..0›

U10
NV31_DKTP_V_A1
BGA701

3/11 MEM_C

0	FBCD‹0›	F13	FBCD‹0›	
1	FBCD‹1›	D13	FBCD‹1›	
2	FBCD‹2›	E13	FBCD‹2›	
3	FBCD‹3›	F12	FBCD‹3›	
4	FBCD‹4›	E10	FBCD‹4›	
5	FBCD‹5›	D10	FBCD‹5›	
6	FBCD‹6›	D9	FBCD‹6›	
7	FBCD‹7›	D8	FBCD‹7›	
8	FBCD‹8›	B13	FBCD‹8›	
9	FBCD‹9›	B12	FBCD‹9›	
10	FBCD‹10›	C12	FBCD‹10›	
11	FBCD‹11›	B11	FBCD‹11›	
12	FBCD‹12›	B9	FBCD‹12›	
13	FBCD‹13›	C9	FBCD‹13›	
14	FBCD‹14›	B8	FBCD‹14›	
15	FBCD‹15›	B7	FBCD‹15›	
16	FBCD‹16›	F10	FBCD‹16›	
17	FBCD‹17›	E9	FBCD‹17›	
18	FBCD‹18›	F9	FBCD‹18›	
19	FBCD‹19›	F7	FBCD‹19›	
20	FBCD‹20›	C6	FBCD‹20›	
21	FBCD‹21›	E6	FBCD‹21›	
22	FBCD‹22›	D5	FBCD‹22›	
23	FBCD‹23›	C4	FBCD‹23›	
24	FBCD‹24›	C8	FBCD‹24›	
25	FBCD‹25›	B7	FBCD‹25›	
26	FBCD‹26›	B6	FBCD‹26›	
27	FBCD‹27›	B5	FBCD‹27›	
28	FBCD‹28›	A3	FBCD‹28›	
29	FBCD‹29›	B3	FBCD‹29›	
30	FBCD‹30›	A2	FBCD‹30›	
31	FBCD‹31›	B2	FBCD‹31›	
32	FBCD‹32›	B29	FBCD‹32›	
33	FBCD‹33›	A29	FBCD‹33›	
34	FBCD‹34›	B28	FBCD‹34›	
35	FBCD‹35›	A28	FBCD‹35›	
36	FBCD‹36›	B26	FBCD‹36›	
37	FBCD‹37›	B25	FBCD‹37›	
38	FBCD‹38›	B24	FBCD‹38›	
39	FBCD‹39›	C23	FBCD‹39›	
40	FBCD‹40›	E26	FBCD‹40›	
41	FBCD‹41›	D26	FBCD‹41›	
42	FBCD‹42›	E25	FBCD‹42›	
43	FBCD‹43›	C25	FBCD‹43›	
44	FBCD‹44›	E24	FBCD‹44›	
45	FBCD‹45›	F22	FBCD‹45›	
46	FBCD‹46›	E22	FBCD‹46›	
47	FBCD‹47›	F21	FBCD‹47›	
48	FBCD‹48›	A24	FBCD‹48›	
49	FBCD‹49›	B23	FBCD‹49›	
50	FBCD‹50›	C22	FBCD‹50›	
51	FBCD‹51›	B22	FBCD‹51›	
52	FBCD‹52›	B20	FBCD‹52›	
53	FBCD‹53›	C19	FBCD‹53›	
54	FBCD‹54›	B19	FBCD‹54›	
55	FBCD‹55›	B18	FBCD‹55›	
56	FBCD‹56›	D23	FBCD‹56›	
57	FBCD‹57›	D22	FBCD‹57›	
58	FBCD‹58›	D21	FBCD‹58›	
59	FBCD‹59›	E21	FBCD‹59›	
60	FBCD‹60›	F18	FBCD‹60›	
61	FBCD‹61›	E18	FBCD‹61›	
62	FBCD‹62›	D18	FBCD‹62›	
63	FBCD‹63›	F18	FBCD‹63›	

7.4A‹ 7.1G‹› 6.4A‹ 6.1G‹› OUT FBCDQM‹63..0›

0	FBCDQM‹0›	D11	FBCDQM‹0›	
1	FBCDQM‹1›	B10	FBCDQM‹1›	
2	FBCDQM‹2›	D7	FBCDQM‹2›	
3	FBCDQM‹3›	C26	FBCDQM‹3›	
4	FBCDQM‹4›	C25	FBCDQM‹4›	
5	FBCDQM‹5›	F24	FBCDQM‹5›	
6	FBCDQM‹6›	B21	FBCDQM‹6›	
7	FBCDQM‹7›	D20	FBCDQM‹7›	

7.1G‹› 6.4A‹› 6.1G‹› 7.4A‹› BI FBCDQS‹63..0›

0	FBCDQS‹0›	D12	FBCDQS‹0›	
1	FBCDQS‹1›	A10	FBCDQS‹1›	
2	FBCDQS‹2›	E7	FBCDQS‹2›	
3	FBCDQS‹3›	A4	FBCDQS‹3›	
4	FBCDQS‹4›	A27	FBCDQS‹4›	
5	FBCDQS‹5›	D24	FBCDQS‹5›	
6	FBCDQS‹6›	A21	FBCDQS‹6›	
7	FBCDQS‹7›	D19	FBCDQS‹7›	

NTP_FBCDQS‹0›*	E12	FBCDQS‹8›...	
NTP_FBCDQS‹1›*	C11	FBCDQS‹9›...	
NTP_FBCDQS‹2›*	D6	FBCDQS‹10›...	
NTP_FBCDQS‹3›*	B4	FBCDQS‹11›...	
NTP_FBCDQS‹4›*	B27	FBCDQS‹12›...	
NTP_FBCDQS‹5›*	D25	FBCDQS‹13›...	
NTP_FBCDQS‹6›*	C20	FBCDQS‹14›...	
NTP_FBCDQS‹7›*	E19	FBCDQS‹15›...	

7.3C‹ 7.1G‹› 6.3C‹ 6.1G‹› OUT FBCA‹63..0›

0	FBCA‹0›	A18	FBCA‹0›
1	FBCA‹1›	C17	FBCA‹1›
2	FBCA‹2›	B17	FBCA‹2›
3	FBCA‹3›	C16	FBCA‹3›
4	FBCA‹4›	B16	FBCA‹4›
5	FBCA‹5›	D16	FBCA‹5›
6	FBCA‹6›	A16	FBCA‹6›
7	FBCA‹7›	E16	FBCA‹7›
8	FBCA‹8›	F15	FBCA‹8›
9	FBCA‹9›	D15	FBCA‹9›
10	FBCA‹10›	F15	FBCA‹10›
11	FBCA‹11›	A15	FBCA‹11›
12	FBCA‹12›	G17	FBCA‹12›..

7.4C‹ 7.1G‹› 6.4C‹ 6.1G‹› OUT	FBCBA0	E15	FBCBA‹0›
7.4C‹ 7.2G‹› 6.4C‹ 6.2G‹› OUT	FBCBA1	B15	FBCBA‹1›
7.3C‹ 7.1G‹› 6.3C‹ 6.1G‹› OUT	FBCRAS*	C14	FBCRAS
7.3C‹ 7.1G‹› 6.3C‹ 6.1G‹› OUT	FBCCAS*	B14	FBCCAS
7.3C‹ 7.1G‹› 6.3C‹ 6.1G‹› OUT	FBCWE*	C15	FBCWE
7.3C‹ 7.1G‹› 6.3C‹ 6.1G‹› OUT	FBCCS0*	D17	FBCCS0
	TP_FBCCS1*	D14	FBCCS1
7.4C‹ 7.2G‹› 6.4C‹ 6.2G‹› OUT	FBCCKE	A13	FBCCKE
7.4C‹ 7.1G‹› OUT	FBCCLK0	K18	FBCCLK0
7.4C‹ 7.1G‹› OUT	FBCCLK0*	K17	FBCCLK0
6.4C‹ 6.1G‹› OUT	FBCCLK1	K13	FBCCLK1
6.4C‹ 6.1G‹› OUT	FBCCLK1*	K14	FBCCLK1

R53 10K 5% 0402 COMMON — GND

[..] = NOT USED ON NV18
[...] = USED FOR DDR2 ONLY

...VTT G9 NTP_FBVTT_1
...VTT G12 NTP_FBVTT_2
...VTT G15 NTP_FBVTT_3
...VTT G18 NTP_FBVTT_4
...VTT G19 NTP_FBVTT_5
...VTT G22 NTP_FBVTT_6
...VTT J24 NTP_FBVTT_7
...VTT K24 NTP_FBVTT_8
...VTT R24 NTP_FBVTT_9
...VTT T24 NTP_FBVTT_10
...VTT W24 NTP_FBVTT_11
...VTT AB24 NTP_FBVTT_12

FBVDDQ
...FBCAL_PD_VDDQ — F5 FBCAL_PD — R571 49.9 0402 1% COMMON — GND
...FBCAL_PU_GND — E4 FBCAL_PU — R573 49.9 0402 1% COMMON — GND
...FBCAL_TERM_GND — D3 FBCAL_TERM — R570 0 0402 5% NO STUFF — GND
...FBCAL_CLK_GND — E3 FBCAL_CLK — R579 549 0402 1% NO STUFF — GND

PIN DESCRIPTION	NV18B	NV31	NV34
FBCAL_TERM_GND	NOT USED	TIE TO GND	NOT USED
FBCAL_CLK_GND	NOT USED	550 OHM 1% TO GND	NOT USED
FBCAL_PU_GND	NOT USED	50 OHM 1% TO GND	50 OHM 1% TO GND
FBCAL_PD_VDDQ	NOT USED	50 OHM 1% TO FBVDDQ	50 OHM 1% TO FBVDDQ

GND_THERMAL	M12		
GND_THERMAL	N12		
GND_THERMAL	P12		
GND_THERMAL	R12		
GND_THERMAL	T12		
GND_THERMAL	U12		
GND_THERMAL	V12		
GND_THERMAL	W12		
GND_THERMAL	M13		
GND_THERMAL	N13		
GND_THERMAL	P13		
GND_THERMAL	R13		
GND_THERMAL	T13		
GND_THERMAL	U13		
GND_THERMAL	V13		
GND_THERMAL	W13		
GND_THERMAL	M14		
GND_THERMAL	N14		
GND_THERMAL	P14		
GND_THERMAL	R14		
GND_THERMAL	T14		
GND_THERMAL	U14		
GND_THERMAL	V14		
GND_THERMAL	W14		
GND_THERMAL	M15		
GND_THERMAL	N15		
GND_THERMAL	P15		
GND_THERMAL	R15		
GND_THERMAL	T15		
GND_THERMAL	U15		
GND_THERMAL	V15		
GND_THERMAL	W15		
GND_THERMAL	M16		
GND_THERMAL	N16		
GND_THERMAL	P16		
GND_THERMAL	R16		
GND_THERMAL	T16		
GND_THERMAL	U16		
GND_THERMAL	V16		
GND_THERMAL	W16		
GND_THERMAL	M17		
GND_THERMAL	N17		
GND_THERMAL	P17		
GND_THERMAL	R17		
GND_THERMAL	T17		
GND_THERMAL	U17		
GND_THERMAL	V17		
GND_THERMAL	W17		
GND_THERMAL	M18		
GND_THERMAL	N18		
GND_THERMAL	P18		
GND_THERMAL	R18		
GND_THERMAL	T18		
GND_THERMAL	U18		
GND_THERMAL	V18		
GND_THERMAL	W18		
GND_THERMAL	M19		
GND_THERMAL	N19		
GND_THERMAL	P19		
GND_THERMAL	R19		
GND_THERMAL	T19		
GND_THERMAL	U19		
GND_THERMAL	V19		
GND_THERMAL	W19		

GND

FBC Clock Termination

FBCCLK0 — R556 100 5% 0402 NO STUFF — FBCCLK0*
FBCCLK1 — R558 100 5% 0402 NO STUFF — FBCCLK1*

Place CKE pull down at T-point!

NVIDIA CORPORATION
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050, USA

DETAIL	DRAWING DETAIL CONTINUED...		
ID	p164	PAGE	3 OF 24
NAME	Richard L.	DATE	Jan 31 2003

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

PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY!

NET	Diffpair	NET_SPACING_RULE
4.4C(3.5A) BI FBACLK1	FBACLK0	18MIL_G2G_25MIL
4.4C(3.5A) BI FBACLK1*	FBACLK0	18MIL_G2G_25MIL
4.1A(3.1A() BI FBAD(31..0)		10MIL
4.4A(3.3A) BI FBADQM(3..0)		10MIL
4.4A(3.3A() BI FBADQS(3..0)		15MIL
BI MFBAD(31..0)		10MIL
BI MFBADQM(3..0)		10MIL
BI MFBADQS(3..0)		15MIL
5.3C(5.1G() 4.3C(3.4A) BI FBAA(12..0)		10MIL
5.3C(5.1G() 4.3C(3.5A) BI FBARAS*		10MIL
5.3C(5.1G() 4.3C(3.5A) BI FBACAS*		10MIL
5.3C(5.1G() 4.3C(3.5A) BI FBAWE*		10MIL
5.3C(5.1G() 4.3C(3.5A) BI FBACS0*		10MIL
BI FBACS1*		10MIL
5.4C(5.2G() 4.4C(3.4A) BI FBABA0		10MIL
5.4C(5.2G() 4.4C(3.5A) BI FBABA1		10MIL
5.4C(5.2G() 4.4C(3.5A) BI FBACKE		10MIL

5.1A() 4.1G() 3.1A() 5.1G() BI FBAD(63..0)

MFBAD(63..0)

FBAD(0) RP505 0402X4 5% COMMON MFBAD(0)
FBAD(1) RP505 0402X4 5% COMMON MFBAD(1)
FBAD(2) RP505 0402X4 5% COMMON MFBAD(2)
FBAD(3) RP505 0402X4 5% COMMON MFBAD(3)
FBAD(4) RP504 0402X4 5% COMMON MFBAD(4)
FBAD(5) RP504 0402X4 5% COMMON MFBAD(5)
FBAD(6) RP504 0402X4 5% COMMON MFBAD(6)
FBAD(7) RP504 0402X4 5% COMMON MFBAD(7)
FBAD(8) RP15 0402X4 5% COMMON MFBAD(8)
FBAD(9) RP15 0402X4 5% COMMON MFBAD(9)
FBAD(10) RP15 0402X4 5% COMMON MFBAD(10)
FBAD(11) RP15 0402X4 5% COMMON MFBAD(11)
FBAD(12) RP14 0402X4 5% COMMON MFBAD(12)
FBAD(13) RP14 0402X4 5% COMMON MFBAD(13)
FBAD(14) RP14 0402X4 5% COMMON MFBAD(14)
FBAD(15) RP14 0402X4 5% COMMON MFBAD(15)
FBAD(16) RP502 0402X4 5% COMMON MFBAD(16)
FBAD(17) RP502 0402X4 5% COMMON MFBAD(17)
FBAD(18) RP502 0402X4 5% COMMON MFBAD(18)
FBAD(19) RP502 0402X4 5% COMMON MFBAD(19)
FBAD(20) RP501 0402X4 5% COMMON MFBAD(20)
FBAD(21) RP501 0402X4 5% COMMON MFBAD(21)
FBAD(22) RP501 0402X4 5% COMMON MFBAD(22)
FBAD(23) RP501 0402X4 5% COMMON MFBAD(23)
FBAD(24) RP12 0402X4 5% COMMON MFBAD(24)
FBAD(25) RP12 0402X4 5% COMMON MFBAD(25)
FBAD(26) RP12 0402X4 5% COMMON MFBAD(26)
FBAD(27) RP12 0402X4 5% COMMON MFBAD(27)
FBAD(28) RP11 0402X4 5% COMMON MFBAD(28)
FBAD(29) RP11 0402X4 5% COMMON MFBAD(29)
FBAD(30) RP11 0402X4 5% COMMON MFBAD(30)
FBAD(31) RP11 0402X4 5% COMMON MFBAD(31)

4.1G() 3.3A) IN FBADQM(0) RP503 0402X4 5% COMMON MFBADQM(0)
4.1G() 3.3A) IN FBADQM(1) RP13A 0402X4 5% COMMON MFBADQM(1)
4.1G() 3.3A) IN FBADQM(2) RP503 0402X4 5% COMMON MFBADQM(2)
4.1G() 3.3A) IN FBADQM(3) RP13A 0402X4 5% COMMON MFBADQM(3)

4.1G() 3.3A() BI FBADQS(0) RP503 0402X4 5% COMMON MFBADQS(0)
4.1G() 3.3A() BI FBADQS(1) RP13A 0402X4 5% COMMON MFBADQS(1)
4.1G() 3.3A() BI FBADQS(2) RP503 0402X4 5% COMMON MFBADQS(2)
4.1G() 3.3A() BI FBADQS(3) RP13A 0402X4 5% COMMON MFBADQS(3)

U504 8MX16DDR-3.6 16M66 COMMON

0	MFBAD(0)	55	DQ(0)
1	MFBAD(1)	53	DQ(1)
2	MFBAD(2)	52	DQ(2)
3	MFBAD(3)	50	DQ(3)
4	MFBAD(4)	49	DQ(4)
5	MFBAD(5)	47	DQ(5)
6	MFBAD(6)	46	DQ(6)
7	MFBAD(7)	44	DQ(7)
	MFBADQM(0)	47	DQM
	MFBADQS(0)	51	DQS

U12 8MX16DDR-3.6 16M66 COMMON

8	MFBAD(8)	2	DQ(0)
9	MFBAD(9)	4	DQ(1)
10	MFBAD(10)	5	DQ(2)
11	MFBAD(11)	7	DQ(3)
12	MFBAD(12)	8	DQ(4)
13	MFBAD(13)	10	DQ(5)
14	MFBAD(14)	11	DQ(6)
15	MFBAD(15)	13	DQ(7)
	MFBADQM(1)	20	DQM
	MFBADQS(1)	16	DQS

U504 8MX16DDR-3.6 16M66 COMMON

16	MFBAD(16)	13	DQ(0)
17	MFBAD(17)	11	DQ(1)
18	MFBAD(18)	10	DQ(2)
19	MFBAD(19)	8	DQ(3)
20	MFBAD(20)	7	DQ(4)
21	MFBAD(21)	5	DQ(5)
22	MFBAD(22)	4	DQ(6)
23	MFBAD(23)	2	DQ(7)
	MFBADQM(2)	20	DQM
	MFBADQS(2)	16	DQS

U12 8MX16DDR-3.6 16M66 COMMON

24	MFBAD(24)	54	DQ(0)
25	MFBAD(25)	56	DQ(1)
26	MFBAD(26)	57	DQ(2)
27	MFBAD(27)	59	DQ(3)
28	MFBAD(28)	60	DQ(4)
29	MFBAD(29)	62	DQ(5)
30	MFBAD(30)	63	DQ(6)
31	MFBAD(31)	65	DQ(7)
	MFBADQM(3)	47	DQM
	MFBADQS(3)	51	DQS

U12 8MX16DDR-3.6 16M66 16M66 COMMON

5.3C(5.1G() 4.1G() 3.5A) IN FBARAS* 23 RAS
5.3C(5.1G() 4.1G() 3.5A) IN FBACAS* 22 CAS
5.3C(5.1G() 4.1G() 3.5A) IN FBAWE* 21 WE
5.3C(5.1G() 4.1G() 3.5A) IN FBACS0* 24 CS

5.1G() 4.1G() 3.4A) 5.3C(IN FBAA(12..0)

0	FBAA(0)	29	A(0)
1	FBAA(1)	30	A(1)
2	FBAA(2)	31	A(2)
3	FBAA(3)	32	A(3)
4	FBAA(4)	35	A(4)
5	FBAA(5)	36	A(5)
6	FBAA(6)	37	A(6)
7	FBAA(7)	38	A(7)
8	FBAA(8)	39	A(8)
9	FBAA(9)	40	A(9)
10	FBAA(10)	28	AP/A(10)
11	FBAA(11)	41	A(11)
12	FBAA(12)	42	A(12)

5.4C(5.2G() 4.1G() 3.4A) IN FBABA0 26 BA(0)
5.4C(5.2G() 4.2G() 3.5A) IN FBABA1 27 BA(1)

5.4C(5.2G() 4.2G() 3.5A) IN FBACKE 44 CKE
4.1G() 3.5A) IN FBACLK1 45 CLK
4.1G() 3.5A) IN FBACLK1* 46 CLK

VDD 1 18 33
VDDQ 3 9 15 55 61
VSS 34 48 65
VSSQ 6 12 52 58 64
Vref 49 FB_VREF_M1
NC 14 17 19 25 43 50 53
NTP_M1_NC1 NTP_M1_NC2 NTP_M1_NC3 NTP_M1_NC4 NTP_M1_NC5 NTP_M1_NC6 NTP_M1_NC7

FBVDD
R529 200 5% 0402 COMMON
C115 .047UF 16V 10% X7R 0402 COMMON
GND

U504 8MX16DDR-3.6 16M66 16M66 COMMON

FBAA(12..0)

R69 200 5% 0402 COMMON
C529 .047UF 16V 10% X7R 0402 COMMON

FBVDD
C531 .022UF 16V 10% X7R 0402 COMMON
C557 4700PF 16V 20% X7R 0402 COMMON
C553 .022UF 16V 10% X7R 0402 COMMON
C517 4700PF 16V 20% X7R 0402 COMMON
C519 .022UF 16V 10% X7R 0402 COMMON
C526 4700PF 16V 20% X7R 0402 COMMON
C522 4.7UF 6.3V 10% X5R 0805 COMMON
GND

FBVDDQ
C537 220PF 16V 10% X7R 0402 COMMON
C543 220PF 16V 10% X7R 0402 COMMON
C533 220PF 16V 10% X7R 0402 COMMON
C549 220PF 16V 10% X7R 0402 COMMON
C546 220PF 16V 10% X7R 0402 COMMON
GND

FBVDDQ
C539 .047UF 16V 10% X7R 0402 COMMON
C541 4700PF 16V 20% X7R 0402 COMMON
C535 4700PF 16V 20% X7R 0402 COMMON
C545 4700PF 16V 20% X7R 0402 COMMON
C550 .047UF 16V 10% X7R 0402 COMMON
C555 4.7UF 6.3V 10% X5R 0805 COMMON
GND

FBVDD
C532 .022UF 16V 10% X7R 0402 COMMON
C558 4700PF 16V 20% X7R 0402 COMMON
C554 .022UF 16V 10% X7R 0402 COMMON
C518 4700PF 16V 20% X7R 0402 COMMON
C520 .022UF 16V 10% X7R 0402 COMMON
C527 4700PF 16V 20% X7R 0402 COMMON
C514 4.7UF 6.3V 10% X5R 0805 COMMON
GND

FBVDDQ
C534 220PF 16V 10% X7R 0402 COMMON
C538 220PF 16V 10% X7R 0402 COMMON
C548 220PF 16V 10% X7R 0402 COMMON
C551 220PF 16V 10% X7R 0402 COMMON
C544 220PF 16V 10% X7R 0402 COMMON
GND

FBVDDQ
C552 .047UF 16V 10% X7R 0402 COMMON
C542 4700PF 16V 20% X7R 0402 COMMON
C547 4700PF 16V 20% X7R 0402 COMMON
C536 4700PF 16V 20% X7R 0402 COMMON
C540 .047UF 16V 10% X7R 0402 COMMON
C556 4.7UF 6.3V 10% X5R 0805 COMMON
GND

Clock Termination

FBVDDQ
R71 240 5% 0402 NO STUFF
R66 240 5% 0402 NO STUFF
FBACLK1
FBACLK1*
R72 240 5% 0402 NO STUFF
R67 240 5% 0402 NO STUFF
GND

FB_VREF

FBVDDQ
R62 1K 1% 0402 COMMON
FB_VREF_M1
R64 1K 1% 0402 COMMON
GND

NVIDIA CORPORATION
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SANTA CLARA, CA 95050, USA

DETAIL	DRAWING DETAIL CONTINUED...		
ID	p164	PAGE	4 OF 24
NAME	Richard Li	DATE	Jan 31 2003

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

PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY!

NET	Diffpair	NET_SPACING_RULE
5.4C< 3.5A> BI FBACLK0	FBACLK1	18MIL_G2G_25MIL
5.4C< 3.5A> BI FBACLK0*	FBACLK1	18MIL_G2G_25MIL
4.1A< 3.1A> BI FBAD<63..32>		10MIL
5.4A< 3.3A> BI FBADQM<7..4>		10MIL
5.4A< 3.3A> BI FBADQS<7..4>		15MIL
BI MFBAD<63..32>		10MIL
BI MFBADQM<7..4>		10MIL
BI MFBADQS<7..4>		15MIL
5.3C< 4.3C< 4.1G< 3.4A> BI FBAA<12..0>		10MIL
5.3C< 4.3C< 4.1G< 3.5A> BI FBARAS*		10MIL
5.3C< 4.3C< 4.1G< 3.5A> BI FBACAS*		10MIL
5.3C< 4.3C< 4.1G< 3.5A> BI FBAWE*		10MIL
5.3C< 4.3C< 4.1G< 3.5A> BI FBACS0*		10MIL
5.4C< 4.4C< 4.1G< 3.4A> BI FBABA0		10MIL
5.4C< 4.4C< 4.2G< 3.5A> BI FBABA1		10MIL
5.4C< 4.4C< 4.2G< 3.5A> BI FBACKE		10MIL

5.1G< 4.1A< 3.1A> BI FBAD<63..32>

MFBAD<63..32>

32 FBAD<32> RP20 15 MFBAD<32> 32
33 FBAD<33> RP20 15 MFBAD<33> 33
34 FBAD<34> RP20 15 MFBAD<34> 34
35 FBAD<35> RP20 15 MFBAD<35> 35
36 FBAD<36> RP19 15 MFBAD<36> 36
37 FBAD<37> RP19 15 MFBAD<37> 37
38 FBAD<38> RP19 15 MFBAD<38> 38
39 FBAD<39> RP19 15 MFBAD<39> 39
40 FBAD<40> RP510 15 MFBAD<40> 40
41 FBAD<41> RP510 15 MFBAD<41> 41
42 FBAD<42> RP510 15 MFBAD<42> 42
43 FBAD<43> RP510 15 MFBAD<43> 43
44 FBAD<44> RP509 15 MFBAD<44> 44
45 FBAD<45> RP509 15 MFBAD<45> 45
46 FBAD<46> RP509 15 MFBAD<46> 46
47 FBAD<47> RP509 15 MFBAD<47> 47
48 FBAD<48> RP17 15 MFBAD<48> 48
49 FBAD<49> RP17 15 MFBAD<49> 49
50 FBAD<50> RP17 15 MFBAD<50> 50
51 FBAD<51> RP17 15 MFBAD<51> 51
52 FBAD<52> RP16 15 MFBAD<52> 52
53 FBAD<53> RP16 15 MFBAD<53> 53
54 FBAD<54> RP16 15 MFBAD<54> 54
55 FBAD<55> RP16 15 MFBAD<55> 55
56 FBAD<56> RP507 15 MFBAD<56> 56
57 FBAD<57> RP507 15 MFBAD<57> 57
58 FBAD<58> RP507 15 MFBAD<58> 58
59 FBAD<59> RP507 15 MFBAD<59> 59
60 FBAD<60> RP506 15 MFBAD<60> 60
61 FBAD<61> RP506 15 MFBAD<61> 61
62 FBAD<62> RP506 15 MFBAD<62> 62
63 FBAD<63> RP506 15 MFBAD<63> 63

0402X4 5% COMMON

5.1G< 3.3A> IN FBADQM<4> RP18 15 MFBADQM<4>
5.1G< 3.3A> IN FBADQM<5> RP508 15 MFBADQM<5>
5.1G< 3.3A> IN FBADQM<6> RP18 15 MFBADQM<6>
5.1G< 3.3A> IN FBADQM<7> RP508 15 MFBADQM<7>

5.1G< 3.3A< BI FBADQS<4> RP18 15 MFBADQS<4>
5.1G< 3.3A< BI FBADQS<5> RP508 15 MFBADQS<5>
5.1G< 3.3A< BI FBADQS<6> RP18 15 MFBADQS<6>
5.1G< 3.3A< BI FBADQS<7> RP508 15 MFBADQS<7>

0402X4 5% COMMON

U13 8MX16DDR-3.6 16M66 COMMON

32	MFBAD<32>	2	DQ<0>
33	MFBAD<33>	4	DQ<1>
34	MFBAD<34>	5	DQ<2>
35	MFBAD<35>	7	DQ<3>
36	MFBAD<36>	8	DQ<4>
37	MFBAD<37>	10	DQ<5>
38	MFBAD<38>	11	DQ<6>
39	MFBAD<39>	13	DQ<7>
	MFBADQM<4>	20	DQM
	MFBADQS<4>	16	DQS

U505 8MX16DDR-3.6 16M66 COMMON

40	MFBAD<40>	55	DQ<0>
41	MFBAD<41>	53	DQ<1>
42	MFBAD<42>	52	DQ<2>
43	MFBAD<43>	50	DQ<3>
44	MFBAD<44>	49	DQ<4>
45	MFBAD<45>	47	DQ<5>
46	MFBAD<46>	46	DQ<6>
47	MFBAD<47>	54	DQ<7>
	MFBADQM<5>	47	DQM
	MFBADQS<5>	51	DQS

U13 8MX16DDR-3.6 16M66 COMMON

48	MFBAD<48>	54	DQ<0>
49	MFBAD<49>	56	DQ<1>
50	MFBAD<50>	57	DQ<2>
51	MFBAD<51>	59	DQ<3>
52	MFBAD<52>	60	DQ<4>
53	MFBAD<53>	62	DQ<5>
54	MFBAD<54>	63	DQ<6>
55	MFBAD<55>	65	DQ<7>
	MFBADQM<6>	47	DQM
	MFBADQS<6>	51	DQS

U505 8MX16DDR-3.6 16M66 COMMON

56	MFBAD<56>	13	DQ<0>
57	MFBAD<57>	11	DQ<1>
58	MFBAD<58>	10	DQ<2>
59	MFBAD<59>	8	DQ<3>
60	MFBAD<60>	7	DQ<4>
61	MFBAD<61>	4	DQ<5>
62	MFBAD<62>	2	DQ<6>
63	MFBAD<63>	5	DQ<7>
	MFBADQM<7>	20	DQM
	MFBADQS<7>	16	DQS

U505 8MX16DDR-3.6 16M66 16M66 COMMON

5.1G< 4.3C< 4.1G< 3.5A>	IN	FBARAS*	23 RAS
5.1G< 4.3C< 4.1G< 3.5A>	IN	FBACAS*	22 CAS
5.1G< 4.3C< 4.1G< 3.5A>	IN	FBAWE*	21 WE
5.1G< 4.3C< 4.1G< 3.5A>	IN	FBACS0*	24 CS
4.3C< 4.1G< 3.4A> 5.1G<	IN	FBAA<12..0>	
		0 FBAA<0>	29 A<0>
		1 FBAA<1>	30 A<1>
		2 FBAA<2>	31 A<2>
		3 FBAA<3>	32 A<3>
		4 FBAA<4>	33 A<4>
		5 FBAA<5>	35 A<5>
		6 FBAA<6>	37 A<6>
		7 FBAA<7>	38 A<7>
		8 FBAA<8>	39 A<8>
		9 FBAA<9>	40 A<9>
		10 FBAA<10>	28 AP/A<10>
		11 FBAA<11>	41 A<11>
		12 FBAA<12>	42 A<12>
5.2G< 4.4C< 4.1G< 3.4A>	IN	FBABA0	26 BA<0>
5.2G< 4.4C< 4.2G< 3.5A>	IN	FBABA1	27 BA<1>
5.2G< 4.4C< 4.2G< 3.5A>	IN	FBACKE	44 CKE
5.1G< 3.5A>	IN	FBACLK0	45 CLK
5.1G< 3.5A>	IN	FBACLK0*	46 CLK
			49 Vref

VDD 1, 18, 33 — FBVDD
VDDQ 3, 9, 15, 55, 61 — FBVDDQ
VSS 34, 48, 65 — GND
VSSQ 5, 12, 58, 62, 64 — GND

FB_VREF_M2

R530 200 5% 0402 COMMON

C117 .047UF 16V 10% X7R 0402 COMMON

NC 14, 17, 19, 25, 43, 50, 53 — NTP_M2_NC1 … NTP_M2_NC7

U13 8MX16DDR-3.6 16M66 16M66 COMMON

		FBARAS*	23 RAS
		FBACAS*	22 CAS
		FBAWE*	21 WE
		FBACS0*	24 CS
		FBAA<12..0>	
		0 FBAA<0>	29 A<0>
		1 FBAA<1>	30 A<1>
		2 FBAA<2>	31 A<2>
		3 FBAA<3>	32 A<3>
		4 FBAA<4>	33 A<4>
		5 FBAA<5>	35 A<5>
		6 FBAA<6>	37 A<6>
		7 FBAA<7>	38 A<7>
		8 FBAA<8>	39 A<8>
		9 FBAA<9>	40 A<9>
		10 FBAA<10>	28 AP/A<10>
		11 FBAA<11>	41 A<11>
		12 FBAA<12>	42 A<12>
		FBABA0	26 BA<0>
		FBABA1	27 BA<1>
		FBACKE	44 CKE
		FBACLK0	45 CLK
		FBACLK0*	46 CLK
			49 Vref

VDD 1, 18, 33 — FBVDD
VDDQ 3, 9, 15, 55, 61 — FBVDDQ
VSS 34, 48, 65 — GND
VSSQ 5, 12, 58, 62, 64 — GND

FB_VREF_M2

R70 200 5% 0402 COMMON

C530 .047UF 16V 10% X7R 0402 COMMON

NC 14, 17, 19, 25, 43, 50, 53 — NTP_M2_NC8 … NTP_M2_NC14

FBVDD

C87 .022UF 16V 10% X7R 0402 COMMON
C91 4700PF 16V 20% X7R 0402 COMMON
C119 .022UF 16V 10% X7R 0402 COMMON
C116 4700PF 16V 20% X7R 0402 COMMON
C126 .022UF 16V 10% X7R 0402 COMMON
C128 4700PF 16V 20% X7R 0402 COMMON
C133 4.7UF 6.3V 10% X5R 0805 COMMON

GND

FBVDDQ

C97 220PF 16V 10% X7R 0402 COMMON
C109 220PF 16V 10% X7R 0402 COMMON
C94 220PF 16V 10% X7R 0402 COMMON
C102 220PF 16V 10% X7R 0402 COMMON
C113 220PF 16V 10% X7R 0402 COMMON

GND

FBVDDQ

C93 .047UF 16V 10% X7R 0402 COMMON
C98 4700PF 16V 20% X7R 0402 COMMON
C105 4700PF 16V 20% X7R 0402 COMMON
C111 4700PF 16V 20% X7R 0402 COMMON
C107 .047UF 16V 10% X7R 0402 COMMON
C89 4.7UF 6.3V 10% X5R 0805 COMMON

GND

FBVDD

C88 .022UF 16V 10% X7R 0402 COMMON
C92 4700PF 16V 20% X7R 0402 COMMON
C120 .022UF 16V 10% X7R 0402 COMMON
C118 4700PF 16V 20% X7R 0402 COMMON
C127 .022UF 16V 10% X7R 0402 COMMON
C129 4700PF 16V 20% X7R 0402 COMMON
C125 4.7UF 6.3V 10% X5R 0805 COMMON

GND

FBVDDQ

C96 220PF 16V 10% X7R 0402 COMMON
C103 220PF 16V 10% X7R 0402 COMMON
C114 220PF 16V 10% X7R 0402 COMMON
C99 220PF 16V 10% X7R 0402 COMMON
C110 220PF 16V 10% X7R 0402 COMMON

GND

FBVDDQ

C95 .047UF 16V 10% X7R 0402 COMMON
C100 4700PF 16V 20% X7R 0402 COMMON
C106 4700PF 16V 20% X7R 0402 COMMON
C112 4700PF 16V 20% X7R 0402 COMMON
C108 .047UF 16V 10% X7R 0402 COMMON
C90 4.7UF 6.3V 10% X5R 0805 COMMON

GND

Clock Termination

FBVDDQ

R523 240 5% 0402 NO STUFF
R534 240 5% 0402 NO STUFF
FBACLK0
FBACLK0*
R522 240 5% 0402 NO STUFF
R533 240 5% 0402 NO STUFF

GND

FB_VREF

FBVDDQ

R63 1K 5% 0402 COMMON
FB_VREF_M2
R65 1K 5% 0402 COMMON

GND

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DETAIL	DRAWING DETAIL CONTINUED...		
ID	p164	PAGE	5 OF 24
NAME	Richard Li	DATE	Jan 31 2003

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

PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY!

NET	Diffpair	NET_SPACING_RULE
6.4C(3.5E> BI FBCCLK1	FBCCLK0	10MIL_G2G_25MIL
6.4C(3.5E> BI FBCCLK1*	FBCCLK0	10MIL_G2G_25MIL
6.1A(> 3.1E(> BI FBCD(31..0)		10MIL
6.4A(3.3E(> BI FBCDQM(3..0)		10MIL
6.4A(> 3.3E(> BI FBCDQS(3..0)		15MIL
BI MFBCD(31..0)		10MIL
BI MFBCDQM(3..0)		10MIL
BI MFBCDQS(3..0)		15MIL
7.3C(7.1G(> 6.3C(3.4E> BI FBCA(12..0)		10MIL
7.3C(7.1G(> 6.3C(3.5E> BI FBCAAS*		10MIL
7.3C(7.1G(> 6.3C(3.5E> BI FBCCAS*		10MIL
7.3C(7.1G(> 6.3C(3.5E> BI FBCWE*		10MIL
7.3C(7.1G(> 6.3C(3.5E> BI FBCCS0*		10MIL
BI FBCCS1*		10MIL
7.4C(7.1G(> 6.4C(3.4E> BI FBCBA0		10MIL
7.4C(7.2G(> 6.4C(3.5E> BI FBCBA1		10MIL
7.4C(7.2G(> 6.4C(3.5E> BI FBCCKE		10MIL

7.1A(> 6.1G(> 3.1E(> 7.1G(> BI FBCD(63..0)

MFBCD(63..0)

RP516 0402X4 5% 15 COMMON: FBCD(0)→MFBCD(0), FBCD(1)→MFBCD(1), FBCD(2)→MFBCD(2), FBCD(3)→MFBCD(3), FBCD(4)→MFBCD(4), RP517 0402X4 5% 15 COMMON: FBCD(5)→MFBCD(5), FBCD(6)→MFBCD(6), FBCD(7)→MFBCD(7), RP5 0402X4 5% 15 COMMON: FBCD(8)→MFBCD(8), FBCD(9)→MFBCD(9), FBCD(10)→MFBCD(10), FBCD(11)→MFBCD(11), RP4 0402X4 5% 15 COMMON: FBCD(12)→MFBCD(12), FBCD(13)→MFBCD(13), FBCD(14)→MFBCD(14), FBCD(15)→MFBCD(15), RP519 0402X4 5% 15 COMMON: FBCD(16)→MFBCD(16), FBCD(17)→MFBCD(17), FBCD(18)→MFBCD(18), FBCD(19)→MFBCD(19), RP520 0402X4 5% 15 COMMON: FBCD(20)→MFBCD(20), FBCD(21)→MFBCD(21), FBCD(22)→MFBCD(22), FBCD(23)→MFBCD(23), RP2 0402X4 5% 15 COMMON: FBCD(24)→MFBCD(24), FBCD(25)→MFBCD(25), FBCD(26)→MFBCD(26), FBCD(27)→MFBCD(27), RP1 0402X4 5% 15 COMMON: FBCD(28)→MFBCD(28), FBCD(29)→MFBCD(29), FBCD(30)→MFBCD(30), FBCD(31)→MFBCD(31)

U507 8MX16DDR-3.6 16M86 16M86 COMMON: MFBCD(0)→65, MFBCD(1)→63, MFBCD(2)→62, MFBCD(3)→60, MFBCD(4)→59, MFBCD(5)→57, MFBCD(6)→56, MFBCD(7)→54, MFBCDQM(0)→47, MFBCDQS(0)→51; DQ(0)…DQ(7), DQM, DQS

U9 8MX16DDR-3.6 16M86 16M86 COMMON: MFBCD(8)→2, MFBCD(9)→4, MFBCD(10)→5, MFBCD(11)→7, MFBCD(12)→8, MFBCD(13)→10, MFBCD(14)→11, MFBCD(15)→13, MFBCDQM(1)→20, MFBCDQS(1)→16; DQ(0)…DQ(7), DQM, DQS

U507 8MX16DDR-3.6 16M86 16M86 COMMON: MFBCD(16)→13, MFBCD(17)→11, MFBCD(18)→10, MFBCD(19)→8, MFBCD(20)→7, MFBCD(21)→5, MFBCD(22)→4, MFBCD(23)→2, MFBCDQM(2)→20, MFBCDQS(2)→16; DQ(0)…DQ(7), DQM, DQS

U9 8MX16DDR-3.6 16M86 16M86 COMMON: MFBCD(24)→54, MFBCD(25)→56, MFBCD(26)→57, MFBCD(27)→59, MFBCD(28)→60, MFBCD(29)→62, MFBCD(30)→63, MFBCD(31)→65, MFBCDQM(3)→47, MFBCDQS(3)→51; DQ(0)…DQ(7), DQM, DQS

6.1G(> 3.3E(> IN FBCDQM(0) RP518 0402X4 5% 15 COMMON: MFBCDQM(0)
6.1G(> 3.3E(> IN FBCDQM(1) RP3 0402X4 5% 15 COMMON: MFBCDQM(1)
6.1G(> 3.3E(> IN FBCDQM(2) RP518 0402X4 5% 15 COMMON: MFBCDQM(2)
6.1G(> 3.3E(> IN FBCDQM(3) RP3 0402X4 5% 15 COMMON: MFBCDQM(3)

6.1G(> 3.3E(> BI FBCDQS(0) RP518 0402X4 5% 15 COMMON: MFBCDQS(0)
6.1G(> 3.3E(> BI FBCDQS(1) RP3 0402X4 5% 15 COMMON: MFBCDQS(1)
6.1G(> 3.3E(> BI FBCDQS(2) RP518 0402X4 5% 15 COMMON: MFBCDQS(2)
6.1G(> 3.3E(> BI FBCDQS(3) RP3 0402X4 5% 15 COMMON: MFBCDQS(3)

U9 8MX16DDR-3.6 16M86 16M86 COMMON

7.3C(7.1G(> 6.1G(> 3.5E> IN FBCRAS* 23 → RAS
7.3C(7.1G(> 6.1G(> 3.5E> IN FBCCAS* 22 → CAS
7.3C(7.1G(> 6.1G(> 3.5E> IN FBCWE* 21 → WE
7.3C(7.1G(> 6.1G(> 3.5E> IN FBCCS0* 24 → CS
7.1G(> 6.1G(> 3.4E> 7.3C(IN FBCA(12..0)
0 FBCA(0) 29 → A(0)
1 FBCA(1) 30 → A(1)
2 FBCA(2) 31 → A(2)
3 FBCA(3) 32 → A(3)
4 FBCA(4) 33 → A(4)
5 FBCA(5) 35 → A(5)
6 FBCA(6) 36 → A(6)
7 FBCA(7) 37 → A(7)
8 FBCA(8) 39 → A(8)
9 FBCA(9) 40 → A(9)
10 FBCA(10) 28 → AP/A(10)
11 FBCA(11) 41 → A(11)
12 FBCA(12) 42 → A(12)
7.4C(7.1G(> 6.1G(> 3.4E> IN FBCBA0 26 → BA(0)
7.4C(7.2G(> 6.2G(> 3.5E> IN FBCBA1 27 → BA(1)
7.4C(7.2G(> 6.2G(> 3.5E> IN FBCCKE 44 → CKE
6.1G(> 3.5E> IN FBCCLK1 45 → CLK
6.1G(> 3.5E> IN FBCCLK1* 46 → CLK
VDD 1, 18, 33 → FBVDD
VDDQ 3, 9, 15, 55, 61 → FBVDDQ
VSS 34, 40, 66
VSSQ 6, 12, 52, 58, 64
Vref 49 → FB_VREF_M3
NC 14, 17, 19, 25, 43, 50, 53 → NTP_M3_NC1 … NTP_M3_NC7
R52 200 0402 5% COMMON
C34 .047UF 16V 10% X7R 0402 COMMON → GND

U507 8MX16DDR-3.6 16M86 16M86 COMMON

FBCRAS* 23 → RAS
FBCCAS* 22 → CAS
FBCWE* 21 → WE
FBCCS0* 24 → CS
FBCA(12..0)
0 FBCA(0) 29 → A(0)
1 FBCA(1) 30 → A(1)
2 FBCA(2) 31 → A(2)
3 FBCA(3) 32 → A(3)
4 FBCA(4) 33 → A(4)
5 FBCA(5) 35 → A(5)
6 FBCA(6) 36 → A(6)
7 FBCA(7) 37 → A(7)
8 FBCA(8) 39 → A(8)
9 FBCA(9) 40 → A(9)
10 FBCA(10) 28 → AP/A(10)
11 FBCA(11) 41 → A(11)
12 FBCA(12) 42 → A(12)
FBCBA0 26 → BA(0)
FBCBA1 27 → BA(1)
FBCCKE 44 → CKE
FBCCLK1 45 → CLK
FBCCLK1* 46 → CLK
VDD 1, 18, 33 → FBVDD
VDDQ 3, 9, 15, 55, 61 → FBVDDQ
VSS 34, 40, 66
VSSQ 6, 12, 52, 58, 64
Vref 49 → FB_VREF_M3
NC 14, 17, 19, 25, 43, 50, 53 → NTP_M3_NC8 … NTP_M3_NC14
R560 200 0402 5% COMMON
C640 .047UF 16V 10% X7R 0402 COMMON → GND

FBVDD: C45 .022UF 16V 10% X7R 0402 COMMON; C44 4700PF 16V 20% X7R 0402 COMMON; C54 .022UF 16V 10% X7R 0402 COMMON; C47 4700PF 16V 20% X7R 0402 COMMON; C46 .022UF 16V 10% X7R 0402 COMMON; C55 4700PF 16V 20% X7R 0402 COMMON; C57 4.7UF 6.3V 10% X5R 0805 COMMON → GND

FBVDDQ: C35 220PF 16V 10% X7R 0402 COMMON; C37 220PF 16V 10% X7R 0402 COMMON; C48 220PF 16V 10% X7R 0402 COMMON; C51 220PF 16V 10% X7R 0402 COMMON; C53 220PF 16V 10% X7R 0402 COMMON → GND

FBVDDQ: C38 .047UF 16V 10% X7R 0402 COMMON; C50 4700PF 16V 20% X7R 0402 COMMON; C49 4700PF 16V 20% X7R 0402 COMMON; C52 4700PF 16V 20% X7R 0402 COMMON; C36 .047UF 16V 10% X7R 0402 COMMON; C568 4.7UF 6.3V 10% X5R 0805 COMMON → GND

FBVDD: C70 .022UF 16V 10% X7R 0402 COMMON; C69 4700PF 16V 20% X7R 0402 COMMON; C71 .022UF 16V 10% X7R 0402 COMMON; C72 4700PF 16V 20% X7R 0402 COMMON; C79 .022UF 16V 10% X7R 0402 COMMON; C80 4700PF 16V 20% X7R 0402 COMMON; C81 4.7UF 6.3V 10% X5R 0805 COMMON → GND

FBVDDQ: C63 220PF 16V 10% X7R 0402 COMMON; C65 220PF 16V 10% X7R 0402 COMMON; C78 220PF 16V 10% X7R 0402 COMMON; C76 220PF 16V 10% X7R 0402 COMMON; C73 220PF 16V 10% X7R 0402 COMMON → GND

FBVDDQ: C64 .047UF 16V 10% X7R 0402 COMMON; C74 4700PF 16V 20% X7R 0402 COMMON; C75 4700PF 16V 20% X7R 0402 COMMON; C77 4700PF 16V 20% X7R 0402 COMMON; C66 .047UF 16V 10% X7R 0402 COMMON; C635 4.7UF 6.3V 10% X5R 0805 COMMON → GND

Clock Termination

FBVDDQ
R46 240 5% 0402 NO STUFF — FBCCLK1
R47 240 5% 0402 NO STUFF
FBCCLK1*
R48 240 5% 0402 NO STUFF
R49 240 5% 0402 NO STUFF
GND

FB_VREF

FBVDDQ
R51 1K 1% 0402 COMMON — FB_VREF_M3
R50 1K 1% 0402 COMMON
GND

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DETAIL	DRAWING DETAIL CONTINUED...		
ID	p164	PAGE	6 OF 24
NAME	Richard L1	DATE	Jan 31 2003

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

PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY!

	NET	Diffpair	NET_SPACING_RULE
7.4C< 3.5E> BI	FBCCLK0	FBCCLK1	10MIL_G2G_2SMIL
7.4C< 3.5E> BI	FBCCLK0*	FBCCLK1	10MIL_G2G_2SMIL
6.1A< 3.1E> BI	FBCD<63..32>		10MIL
7.4A< 3.3E> 7.1A< BI	FBCDQM<7..4>		10MIL
7.4A< 3.3E> BI	FBCDQS<7..4>		15MIL
BI	MFBCD<63..32>		10MIL
BI	MFBCDQM<7..4>		10MIL
BI	MFBCDQS<7..4>		15MIL
7.3C< 6.3C< 6.1G< 3.4E> BI	FBCA<12..0>		10MIL
7.3C< 6.3C< 6.1G< 3.5E> BI	FBCRAS*		10MIL
7.3C< 6.3C< 6.1G< 3.5E> BI	FBCCAS*		10MIL
7.3C< 6.3C< 6.1G< 3.5E> BI	FBCWE*		10MIL
7.3C< 6.3C< 6.1G< 3.5E> BI	FBCCS0*		10MIL
7.4C< 6.4C< 6.1G< 3.4E> BI	FBCBA0		10MIL
7.4C< 6.4C< 6.2G< 3.5E> BI	FBCBA1		10MIL
7.4C< 6.4C< 6.2G< 3.5E> BI	FBCCKE		10MIL

7.1G< 6.1A< 3.1E> BI FBCD<63..32>

MFBCD<63..32>

RP10 RP511 RP512 RP7 RP6 RP514 RP515 RP9 — 0402X4 5% 16 COMMON

32 FBCD<32>	RP10	MFBCD<32>	32
33 FBCD<33>	RP10	MFBCD<33>	33
34 FBCD<34>	RP10	MFBCD<34>	34
35 FBCD<35>	RP10	MFBCD<35>	35
36 FBCD<36>	RP9	MFBCD<36>	36
37 FBCD<37>	RP9	MFBCD<37>	37
38 FBCD<38>	RP9	MFBCD<38>	38
39 FBCD<39>	RP9	MFBCD<39>	39
40 FBCD<40>	RP511	MFBCD<40>	40
41 FBCD<41>	RP511	MFBCD<41>	41
42 FBCD<42>	RP511	MFBCD<42>	42
43 FBCD<43>	RP511	MFBCD<43>	43
44 FBCD<44>	RP512	MFBCD<44>	44
45 FBCD<45>	RP512	MFBCD<45>	45
46 FBCD<46>	RP512	MFBCD<46>	46
47 FBCD<47>	RP512	MFBCD<47>	47
48 FBCD<48>	RP7	MFBCD<48>	48
49 FBCD<49>	RP7	MFBCD<49>	49
50 FBCD<50>	RP7	MFBCD<50>	50
51 FBCD<51>	RP7	MFBCD<51>	51
52 FBCD<52>	RP6	MFBCD<52>	52
53 FBCD<53>	RP6	MFBCD<53>	53
54 FBCD<54>	RP6	MFBCD<54>	54
55 FBCD<55>	RP6	MFBCD<55>	55
56 FBCD<56>	RP514	MFBCD<56>	56
57 FBCD<57>	RP514	MFBCD<57>	57
58 FBCD<58>	RP514	MFBCD<58>	58
59 FBCD<59>	RP514	MFBCD<59>	59
60 FBCD<60>	RP515	MFBCD<60>	60
61 FBCD<61>	RP515	MFBCD<61>	61
62 FBCD<62>	RP515	MFBCD<62>	62
63 FBCD<63>	RP515	MFBCD<63>	63

7.1G< 3.3E> IN	FBCDQM<4>	RP8	MFBCDQM<4>
7.1G< 3.3E> IN	FBCDQM<5>	RP513	MFBCDQM<5>
7.1G< 3.3E> IN	FBCDQM<6>	RP8	MFBCDQM<6>
7.1G< 3.3E> IN	FBCDQM<7>	RP513	MFBCDQM<7>
7.1G< 3.3E< BI	FBCDQS<4>	RP8	MFBCDQS<4>
7.1G< 3.3E< BI	FBCDQS<5>	RP513	MFBCDQS<5>
7.1G< 3.3E< BI	FBCDQS<6>	RP8	MFBCDQS<6>
7.1G< 3.3E< BI	FBCDQS<7>	RP513	MFBCDQS<7>

U11 / U505 — 8MX16DDR-3.6 16M86 16M86 COMMON

32 MFBCD<32>	2	DQ<0>	
33 MFBCD<33>	4	DQ<1>	
34 MFBCD<34>	5	DQ<2>	
35 MFBCD<35>	7	DQ<3>	
36 MFBCD<36>	8	DQ<4>	
37 MFBCD<37>	10	DQ<5>	
38 MFBCD<38>	11	DQ<6>	
39 MFBCD<39>	13	DQ<7>	
MFBCDQM<4>	20	DQM	
MFBCDQS<4>	16	DQS	

40 MFBCD<40>	65	DQ<0>	
41 MFBCD<41>	63	DQ<1>	
42 MFBCD<42>	62	DQ<2>	
43 MFBCD<43>	60	DQ<3>	
44 MFBCD<44>	59	DQ<4>	
45 MFBCD<45>	57	DQ<5>	
46 MFBCD<46>	55	DQ<6>	
47 MFBCD<47>	54	DQ<7>	
MFBCDQM<5>	47	DQM	
MFBCDQS<5>	51	DQS	

U11 / U505 — 8MX16DDR-3.6 16M86 16M86 COMMON

48 MFBCD<48>	54	DQ<0>	
49 MFBCD<49>	56	DQ<1>	
50 MFBCD<50>	57	DQ<2>	
51 MFBCD<51>	59	DQ<3>	
52 MFBCD<52>	60	DQ<4>	
53 MFBCD<53>	62	DQ<5>	
54 MFBCD<54>	63	DQ<6>	
55 MFBCD<55>	65	DQ<7>	
MFBCDQM<6>	47	DQM	
MFBCDQS<6>	51	DQS	

56 MFBCD<56>	13	DQ<0>	
57 MFBCD<57>	11	DQ<1>	
58 MFBCD<58>	10	DQ<2>	
59 MFBCD<59>	8	DQ<3>	
60 MFBCD<60>	7	DQ<4>	
61 MFBCD<61>	4	DQ<5>	
62 MFBCD<62>	2	DQ<6>	
63 MFBCD<63>	5	DQ<7>	
MFBCDQM<7>	20	DQM	
MFBCDQS<7>	16	DQS	

U505 — 8MX16DDR-3.6 16M86 16M86 COMMON

7.1G< 6.3C< 6.1G< 3.5E> IN	FBCRAS*	23	RAS
7.1G< 6.3C< 6.1G< 3.5E> IN	FBCCAS*	22	CAS
7.1G< 6.3C< 6.1G< 3.5E> IN	FBCWE*	21	WE
7.1G< 6.3C< 6.1G< 3.5E> IN	FBCCS0*	24	CS
6.3C< 6.1G< 3.4E> 7.1G< IN	FBCA<12..0>		
0 FBCA<0>	29	A<0>	
1 FBCA<1>	30	A<1>	
2 FBCA<2>	31	A<2>	
3 FBCA<3>	32	A<3>	
4 FBCA<4>	35	A<4>	
5 FBCA<5>	36	A<5>	
6 FBCA<6>	37	A<6>	
7 FBCA<7>	38	A<7>	
8 FBCA<8>	39	A<8>	
9 FBCA<9>	40	A<9>	
10 FBCA<10>	28	AP/A<10>	
11 FBCA<11>	41	A<11>	
12 FBCA<12>	42	A<12>	
7.1G< 6.4C< 6.1G< 3.4E> IN FBCBA0	26	BA<0>	
7.2G< 6.4C< 6.2G< 3.5E> IN FBCBA1	27	BA<1>	
7.2G< 6.4C< 6.2G< 3.5E> IN FBCCKE	44	CKE	
7.1G< 3.5E> IN FBCCLK0	45	CLK	
7.1G< 3.5E> IN FBCCLK0*	46	CLK	
VDD	1, 18, 33		
VDDQ	3, 9, 15, 55, 61		
VSS	34, 40, 66		
VSSQ	6, 12, 52, 58, 64		
Vref	49	FB_VREF_M4	
NC	14, 17, 19, 25, 43, 50, 53	NTP_M4_NC1 … NTP_M4_NC7	

FBVDD, FBVDDQ, GND

R551 200 5% 0402 COMMON

C569 .047UF 16V 10% X7R 0402 COMMON

U11 / U505 — 8MX16DDR-3.6 16M86 16M86 COMMON

FBCRAS*	23	RAS	
FBCCAS*	22	CAS	
FBCWE*	21	WE	
FBCCS0*	24	CS	
FBCA<12..0>			
0 FBCA<0>	29	A<0>	
1 FBCA<1>	30	A<1>	
2 FBCA<2>	31	A<2>	
3 FBCA<3>	32	A<3>	
4 FBCA<4>	35	A<4>	
5 FBCA<5>	36	A<5>	
6 FBCA<6>	37	A<6>	
7 FBCA<7>	38	A<7>	
8 FBCA<8>	39	A<8>	
9 FBCA<9>	40	A<9>	
10 FBCA<10>	28	AP/A<10>	
11 FBCA<11>	41	A<11>	
12 FBCA<12>	42	A<12>	
FBCBA0	26	BA<0>	
FBCBA1	27	BA<1>	
FBCCKE	44	CKE	
FBCCLK0	45	CLK	
FBCCLK0*	46	CLK	
VDD	1, 18, 33		
VDDQ	3, 9, 15, 55, 61		
VSS	34, 40, 66		
VSSQ	6, 12, 52, 58, 64		
Vref	49	FB_VREF_M4	
NC	14, 17, 19, 25, 43, 50, 53	NTP_M4_NC8 … NTP_M4_NC14	

FBVDD, FBVDDQ, GND

R57 200 5% 0402 COMMON

C62 .047UF 16V 10% X7R 0402 COMMON

FBVDD

C600 .022UF 16V 10% X7R 0402 COMMON
C599 4700PF 16V 20% X7R 0402 COMMON
C601 .022UF 16V 10% X7R 0402 COMMON
C610 4700PF 16V 20% X7R 0402 COMMON
C609 .022UF 16V 10% X7R 0402 COMMON
C602 4700PF 16V 20% X7R 0402 COMMON
C624 4.7UF 6.3V 10% X5R 0805 COMMON

GND

FBVDDQ

C603 220PF 16V 10% X7R 0402 COMMON
C606 220PF 16V 10% X7R 0402 COMMON
C608 220PF 16V 10% X7R 0402 COMMON
C572 220PF 16V 10% X7R 0402 COMMON
C570 220PF 16V 10% X7R 0402 COMMON

GND

FBVDDQ

C571 .047UF 16V 10% X7R 0402 COMMON
C604 4700PF 16V 20% X7R 0402 COMMON
C605 4700PF 16V 20% X7R 0402 COMMON
C607 4700PF 16V 20% X7R 0402 COMMON
C573 .047UF 16V 10% X7R 0402 COMMON
C61 4.7UF 6.3V 10% X5R 0805 COMMON

GND

FBVDD

C681 .022UF 16V 10% X7R 0402 COMMON
C680 4700PF 16V 20% X7R 0402 COMMON
C683 .022UF 16V 10% X7R 0402 COMMON
C682 4700PF 16V 20% X7R 0402 COMMON
C690 .022UF 16V 10% X7R 0402 COMMON
C691 4700PF 16V 20% X7R 0402 COMMON
C692 4.7UF 6.3V 10% X5R 0805 COMMON

GND

FBVDDQ

C641 220PF 16V 10% X7R 0402 COMMON
C643 220PF 16V 10% X7R 0402 COMMON
C684 220PF 16V 10% X7R 0402 COMMON
C687 220PF 16V 10% X7R 0402 COMMON
C689 220PF 16V 10% X7R 0402 COMMON

GND

FBVDDQ

C644 .047UF 16V 10% X7R 0402 COMMON
C585 4700PF 16V 20% X7R 0402 COMMON
C686 4700PF 16V 20% X7R 0402 COMMON
C688 4700PF 16V 20% X7R 0402 COMMON
C642 .047UF 16V 10% X7R 0402 COMMON
C33 4.7UF 6.3V 10% X5R 0805 COMMON

GND

Clock Termination

FBVDDQ

R544 240 5% 0402 NO STUFF — FBCCLK0
R545 240 5% 0402 NO STUFF
R548 240 5% 0402 NO STUFF — FBCCLK0*
R549 240 5% 0402 NO STUFF

GND

FB_VREF

FBVDDQ

R56 1K 1% 0402 COMMON — FB_VREF_M4
R55 1K 1% 0402 COMMON

GND

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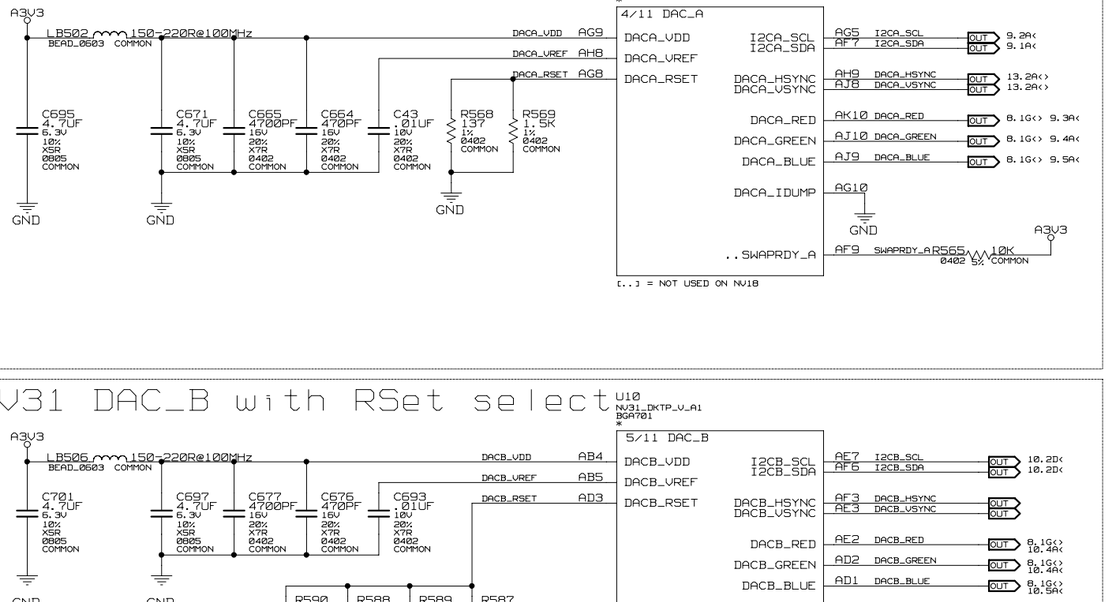
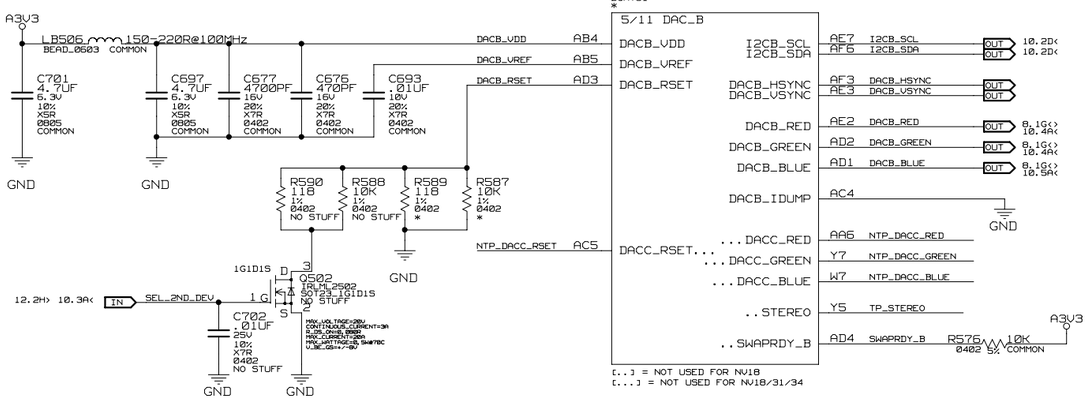
NV31 DAC_A, DAC_B, PLL, SYNC Buffer

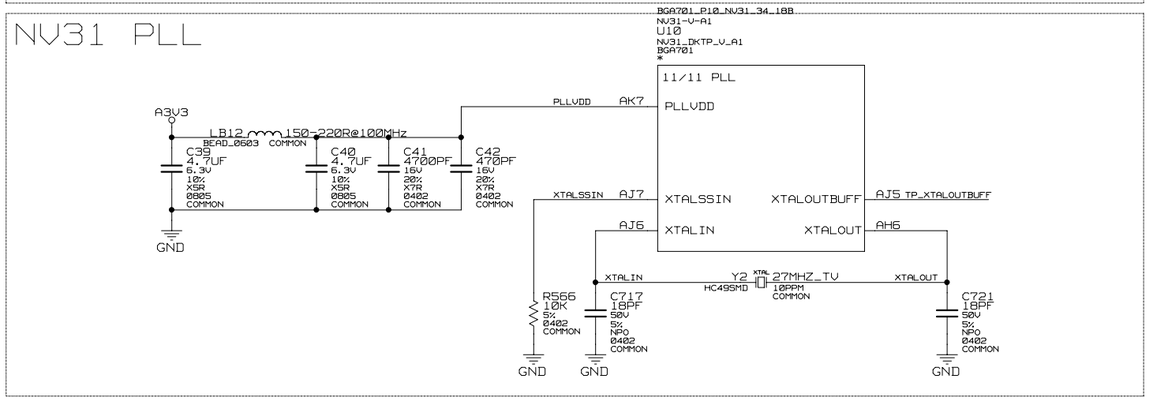
NV31 DAC_A



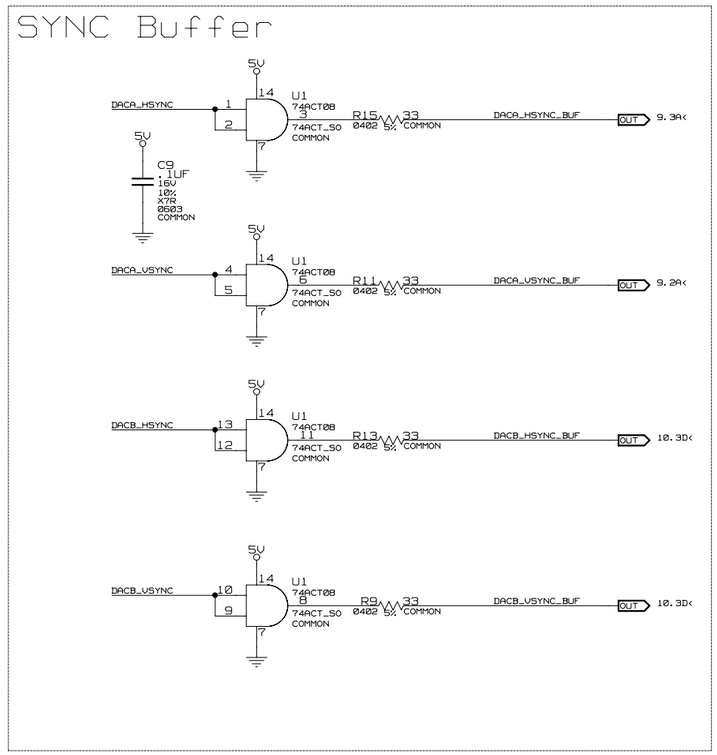
NV31 DAC_B with RSet select



NV31 PLL



SYNC Buffer



NET	NET_PHYSICAL_TYPE	VOLTAGE
DACA_VDD	12MIL_TRACE	3.3V
DACA_VREF	5MIL_TRACE	
DACA_RSET	5MIL_TRACE	
DACB_VDD	12MIL_TRACE	3.3V
DACB_VREF	5MIL_TRACE	
DACB_RSET	5MIL_TRACE	
PLLVDD	12MIL_TRACE	3.3V

NET	NET_PHYSICAL_TYPE	NET_SPACING_RULE
XTALIN	5MIL_TRACE	15MIL
XTALOUT	5MIL_TRACE	15MIL

NET	NET_SPACING_RULE
DACA_RED	20MIL_G2G_30MIL
DACA_GREEN	20MIL_G2G_30MIL
DACA_BLUE	20MIL_G2G_30MIL
DACB_RED	20MIL_G2G_30MIL
DACB_GREEN	20MIL_G2G_30MIL
DACB_BLUE	20MIL_G2G_30MIL

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Primary Display (DACA), DB15 only!

NET	NET_SPACING_RULE
ARF	20MIL_G2G_30MIL
AGF	20MIL_G2G_30MIL
ABF	20MIL_G2G_30MIL
DACA_RED_C	20MIL_G2G_30MIL
DACA_GREEN_C	20MIL_G2G_30MIL
DACA_BLUE_C	20MIL_G2G_30MIL

EMI-FILTER

8.1D> IN I2CA_SDA — R8 33 0402 5% COMMON — I2CA_SDA_T — LB5 150-220R@100MHz BEAD_0603 COMMON — I2CA_SDA_C — OUT 9.1F> 11.4G<9.1F> 11.4G<

5V — R7 2.2K 5% 0402 COMMON — R6 2.2K 5% 0402 COMMON — C4 47PF 50V 5% NPO 0603 COMMON

8.1D> IN I2CA_SCL — R5 33 0402 5% COMMON — I2CA_SCL_T — LB4 150-220R@100MHz BEAD_0603 COMMON — I2CA_SCL_C — OUT 9.2F> 11.4G<9.2F> 11.4G<

C3 47PF 50V 5% NPO 0603 COMMON

8.3G> IN DACA_VSYNC_BUF — L515 68nH 0603 COMMON — DACA_VSYNC_C — OUT 9.2F> 11.4G<9.2F> 11.4G<

C795 47PF 50V 5% NPO 0603 COMMON

8.2G> IN DACA_HSYNC_BUF — L516 68nH 0603 COMMON — DACA_HSYNC_C — OUT 9.3F> 11.4G<9.3F> 11.4G<

C796 47PF 50V 5% NPO 0603 COMMON

OUT 9.1G<> 11.4G<
OUT 9.1G<> 11.4G<
OUT 9.1G<> 11.4G<

R663 0 0603,.05R COMMON — CGND2 — IN 11.3H< 15.2F< 15.4F<

J3 CON_DSUB15HD VGA_SLIM_DVIMTG COMMON

16 SHIELD

8.2D> 8.1G<> IN DACA_RED — L514 68nH 0603 COMMON — ARF L519 0 0603 * — DACA_RED_C — 1 R — ID2 4 NTP_A_MON_ID2 — ID0 11 NTP_A_MON_ID0

R652 2.2K 5% 0402 NO STUFF — R656 75 1% 0402 COMMON — C780 10PF 50V 5% NPO 0603 NO STUFF — C784 4.7PF 50V +/-0.25PF COG 0603 NO STUFF — C799 10PF 50V 5% NPO 0603 NO STUFF

DACA_GREEN_C — 2 G — HSYNC 13 DACA_HSYNC_C

DACA_BLUE_C — 3 B — VSYNC 14 DACA_VSYNC_C

DDC_5V — 9 5V — SCL 15 I2CA_SCL_C

11.4H< IN CGND1 — 17 SHIELD — SDA 12 I2CA_SDA_C

R662 0 .05R 0603 COMMON — CGND1

5 GND
10 GND
8 GND-B
7 GND-G
6 GND-R

8.2D> 8.1G<> IN DACA_GREEN — L513 68nH 0603 COMMON — AGF L518 0 0603 *

R651 1.8K 5% 0402 NO STUFF — R655 75 1% 0402 COMMON — C779 10PF 50V 5% NPO 0603 NO STUFF — C783 4.7PF 50V +/-0.25PF COG 0603 NO STUFF — C798 10PF 50V 5% NPO 0603 NO STUFF

8.2D> 8.1G<> IN DACA_BLUE — L512 68nH 0603 COMMON — ABF L517 0 0603 *

R650 2.2K 5% 0402 NO STUFF — R654 75 1% 0402 COMMON — C778 10PF 50V 5% NPO 0603 NO STUFF — C782 4.7PF 50V +/-0.25PF COG 0603 NO STUFF — C797 10PF 50V 5% NPO 0603 NO STUFF

place nearest to connector

5V — C776 4.7UF 6.3V 10% X5R 0805 COMMON

A3V3 — C774 4.7UF 6.3V 10% X5R 0805 COMMON

Place in output filter section!

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!

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DETAIL	DRAWING DETAIL CONTINUED...		
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Secondary Display (DACB), 42 Pin Multimedia Connector

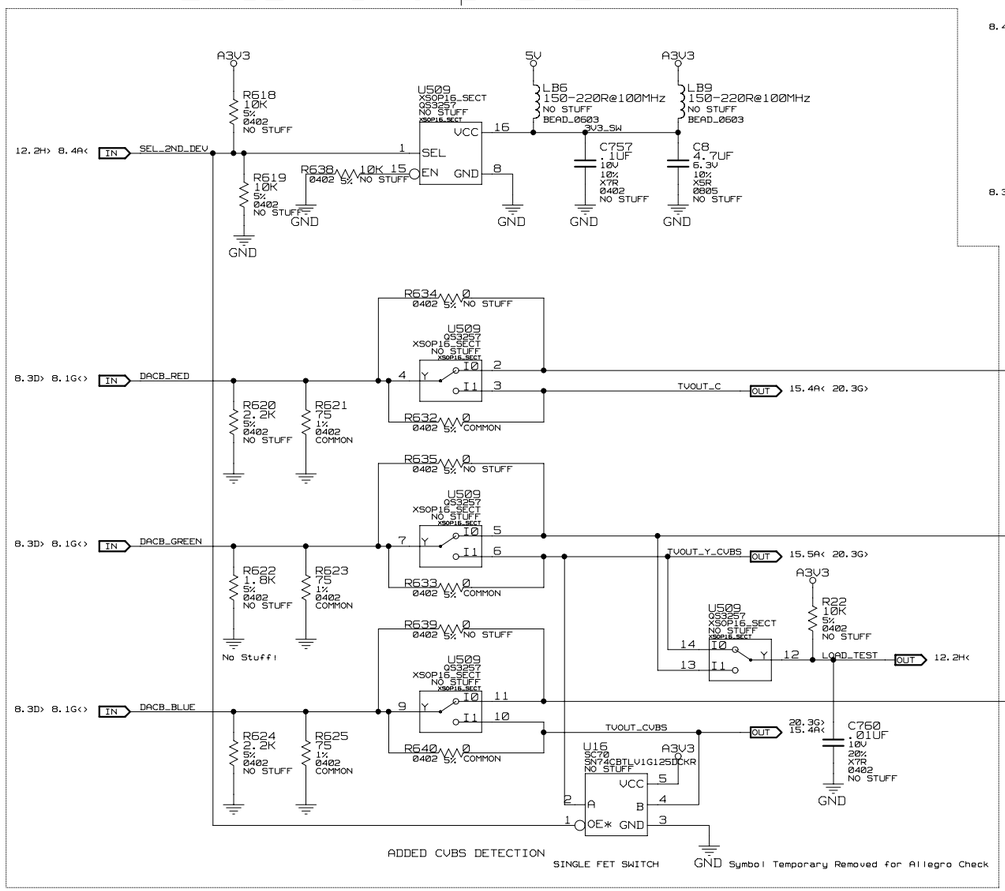
Place all filter components on the side nearest to the reference GND plane!

Route all signals only on layers referenced to GND!

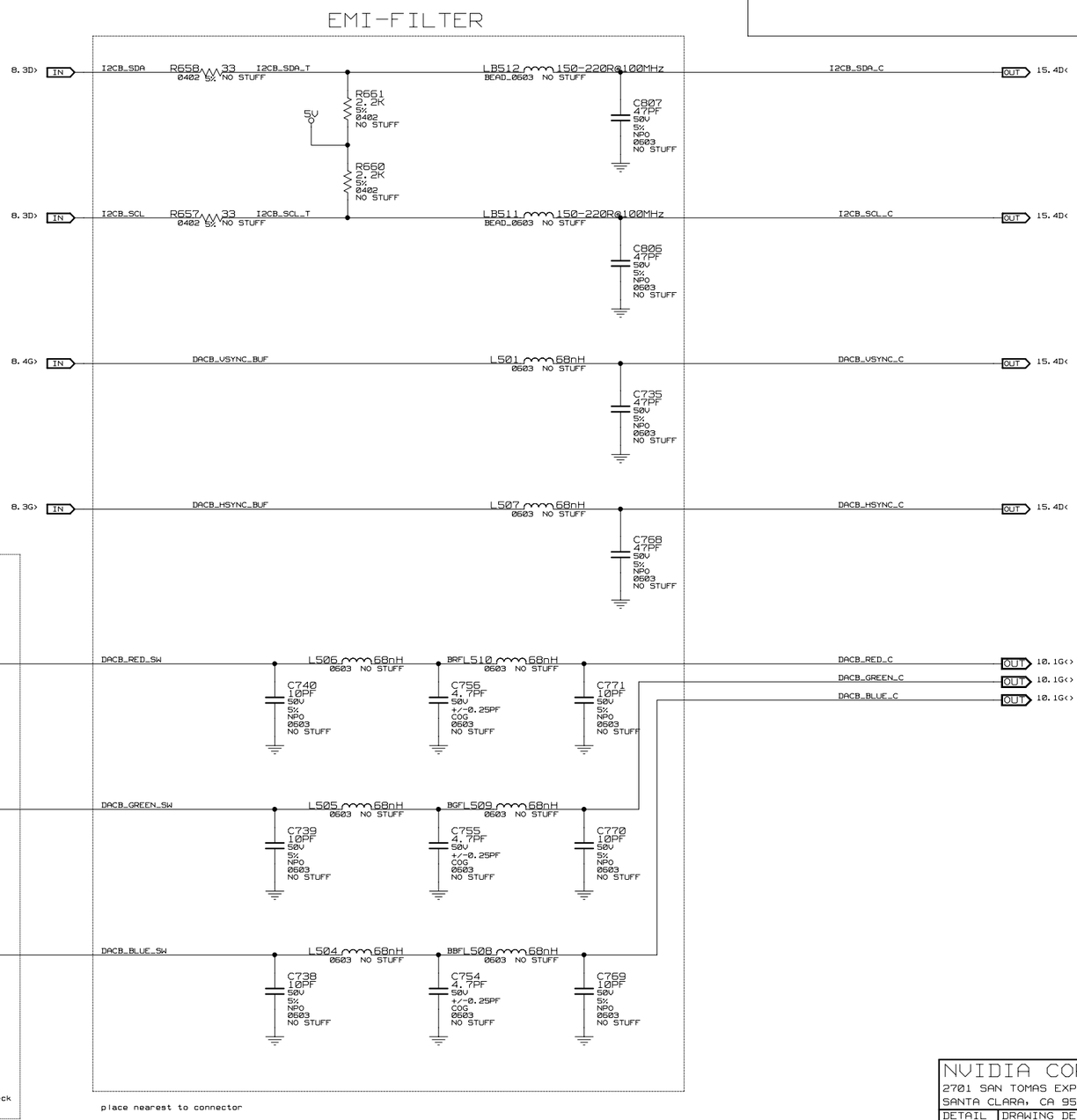
Don't split the reference GND plane beneath a RGB signal!

NET	NET_SPACING_RULE
BRF	20MIL_G2G_30MIL
BGF	20MIL_G2G_30MIL
BBF	20MIL_G2G_30MIL
15.4D< 10.4H> DACB_RED_C	20MIL_G2G_30MIL
15.4D< 10.4H> DACB_GREEN_C	20MIL_G2G_30MIL
15.4D< 10.4H> DACB_BLUE_C	20MIL_G2G_30MIL
DACB_RED_SW	20MIL_G2G_30MIL
DACB_GREEN_SW	20MIL_G2G_30MIL
DACB_BLUE_SW	20MIL_G2G_30MIL
MINIDIN_Cout	20MIL_G2G_30MIL
MINIDIN_Y_CVBSout	20MIL_G2G_30MIL
MINIDIN_PBout	20MIL_G2G_30MIL

DACB Multiplexer



EMI-FILTER



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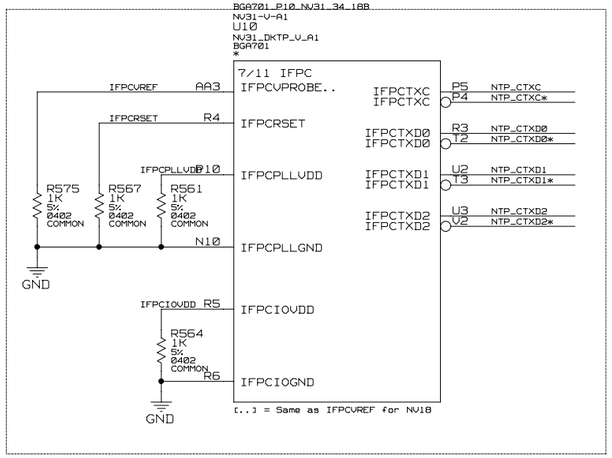
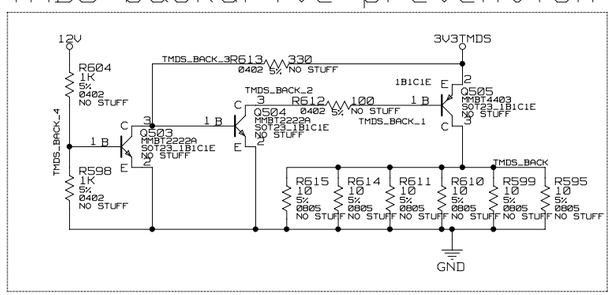
INTERNAL DUAL LINK TMDS POWER AND DECOUPLING

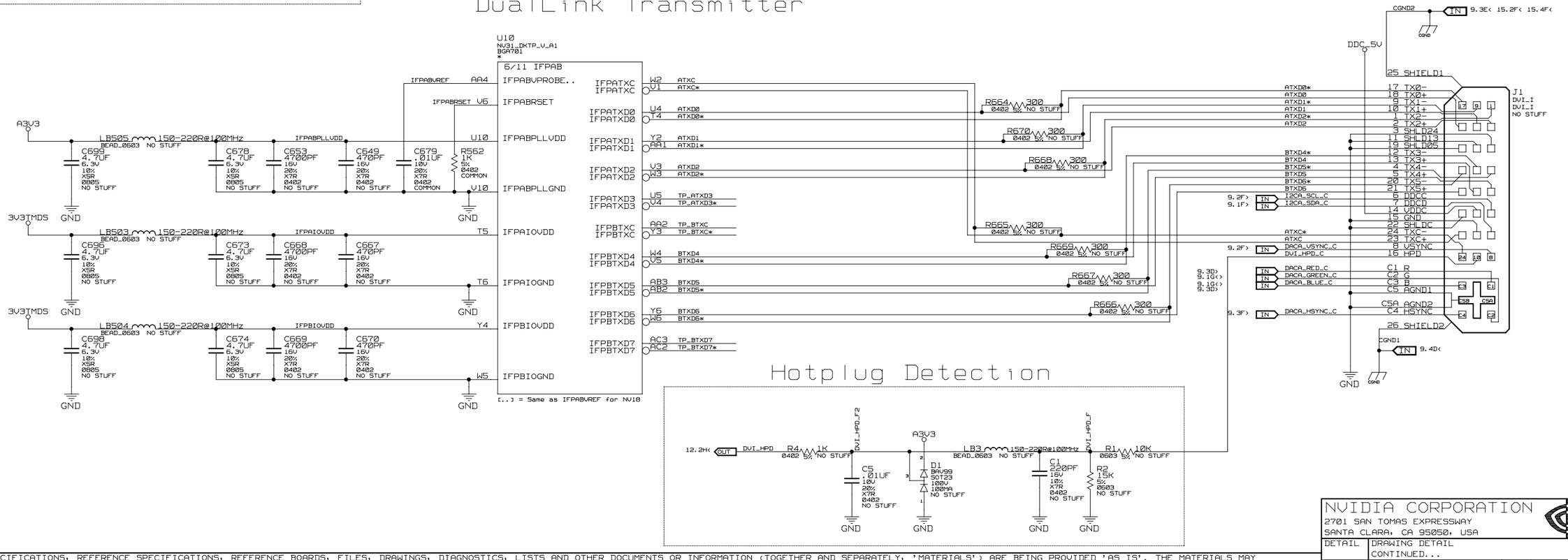
Unused Transmitter



TMDS backdrive prevention



DualLink Transmitter



Hotplug Detection

NET	NET_PHYSICAL_TYPE	VOLTAGE
IFPABVREF	12MIL_TRACE	3.3V
IFPABPLLVDD	12MIL_TRACE	3.3V
IFPAIOVDD	12MIL_TRACE	3.3V
IFPBIOVDD	12MIL_TRACE	3.3V
IFPCVREF	12MIL_TRACE	3.3V
IFPCPLLVDD	12MIL_TRACE	3.3V
IFPCIOVDD	12MIL_TRACE	3.3V
12.1G< FAN_RETURN	12MIL_TRACE	3.3V
TMDS_BACK	12MIL_TRACE	3.3V

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

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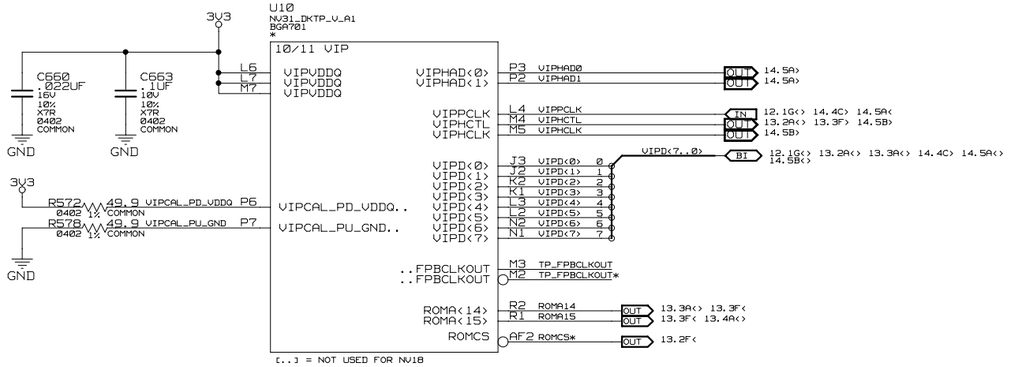
NV31 DVO, VIP AND GPIO SECTION, FAN CONTROL AND TEMP SENSOR

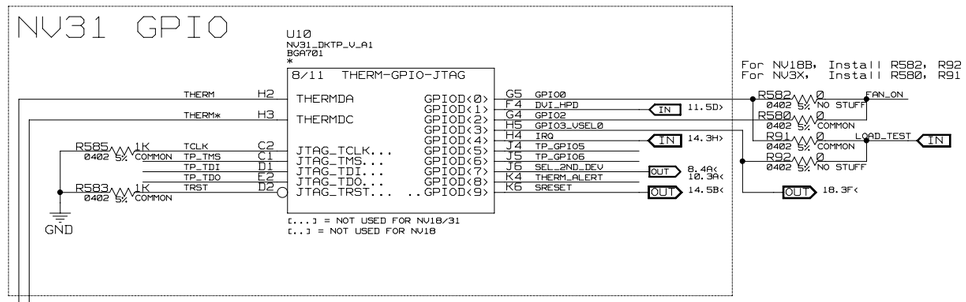
NET	NET_PHYSICAL_TYPE	VOLTAGE
FAN_RETURN	12MIL_TRACE	3.3V
THERM	10MIL_TRACE	
THERM*	10MIL_TRACE	

NET	NET_SPACING_RULE
VIPD<7..0>	10MIL
VIPPCLK	20MIL_G2G_30MIL

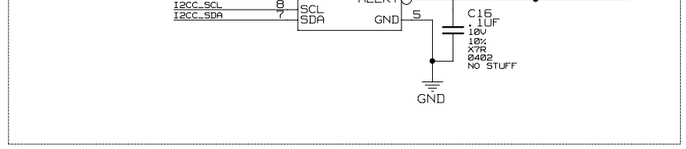
NV31 VIP



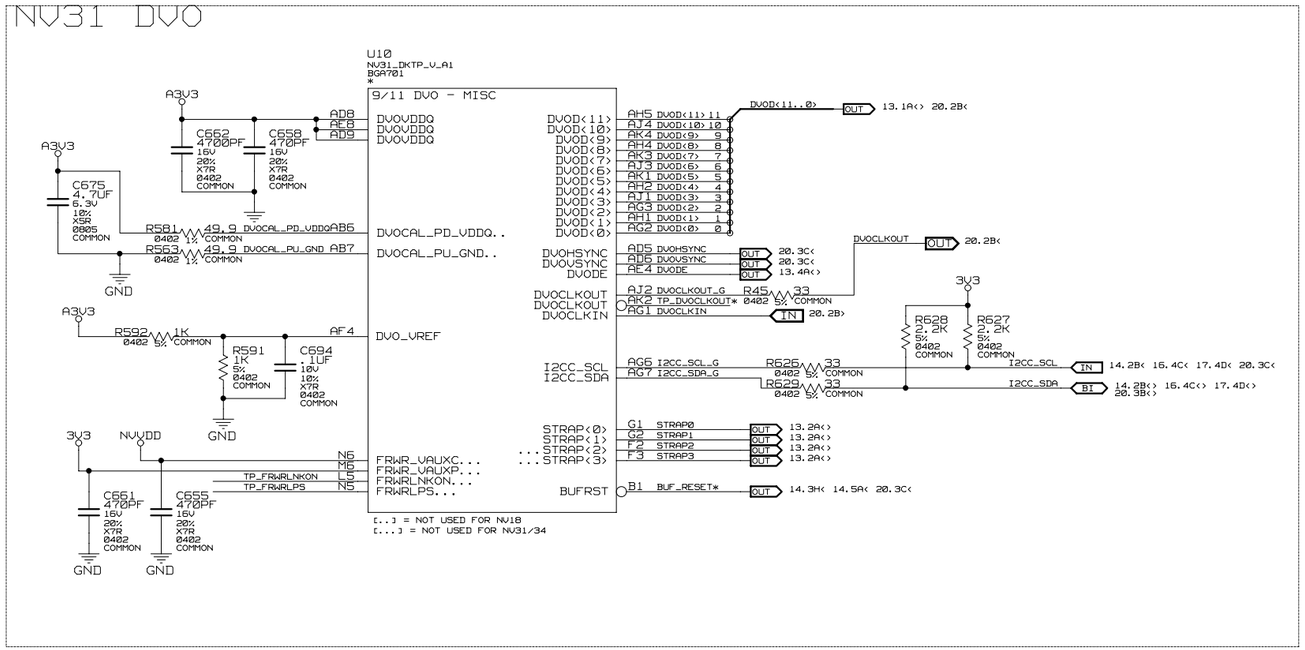
NV31 GPIO



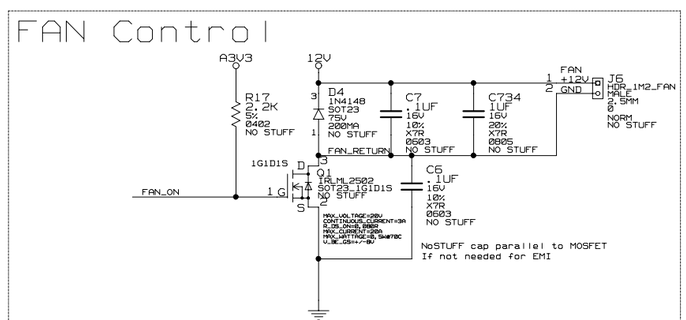
TEMP Sensor



NV31 DVO



FAN Control



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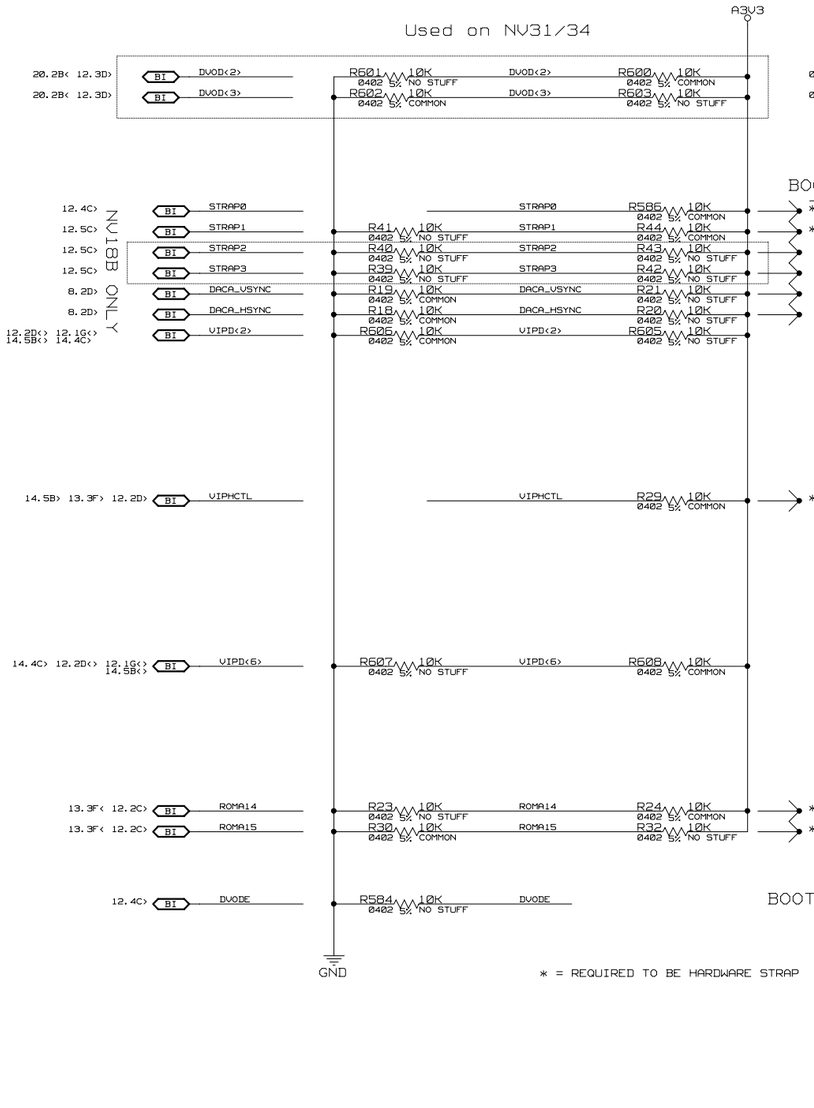
NV31 BIOS STRAPPING

AND MASK
1 -> HARDWARE STRAP
0 -> BIOS STRAP

OR MASK
1 -> DESIRED=1 ANDMASK=0

Used on NV31/34



* = REQUIRED TO BE HARDWARE STRAP

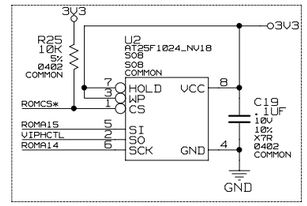
02: RAM_CFG_0
03: RAM_CFG_1

SKU#	0000			0001			0002			0003		
BOOT_0_STRAP_0	DESIRED	AND MASK	OR MASK	DESIRED	AND MASK	OR MASK	DESIRED	AND MASK	OR MASK	DESIRED	AND MASK	OR MASK
*00: PCI_AD_SWAP	1	1	0	1	1	0	1	1	0	1	1	0
*01: SUB_VENDOR	1	1	0	1	1	0	1	1	0	1	1	0
02: RAM_CFG_0	1	1	0	1	1	0	1	1	0	1	1	0
03: RAM_CFG_1	1	1	0	1	1	0	1	1	0	1	1	0
04: RAM_CFG_2	0	1	0	0	1	0	0	1	0	0	1	0
05: RAM_CFG_3	0	1	0	0	1	0	0	1	0	0	1	0
06: CRYSTAL_0	0	1	0	0	1	0	0	1	0	0	1	0
07: TV_MODE_0	1	0	1	1	0	1	1	0	1	1	0	1
08: TV_MODE_1	0	0	0	0	0	0	0	0	0	0	0	0
09: AGP4x/8x	0	0	0	0	0	0	0	0	0	0	0	0
10: AGP_SBA	0	0	0	0	0	0	0	0	0	0	0	0
11: AGP_FASTWR	0	0	0	0	0	0	0	0	0	0	0	0
12: PCI_DEVID_0	0	0	0	0	0	0	0	0	0	1	0	0
13: PCI_DEVID_1	1	0	1	1	0	1	1	0	1	1	0	1
*14: BUS_TYPE	1	1	0	1	1	0	1	1	0	1	1	0
15: FP_IFACE	1	0	1	1	0	1	1	0	1	1	0	1
16: USER_0	0	0	0	0	0	0	0	0	0	0	0	0
17: USER_1	0	0	0	0	0	0	0	0	0	0	0	0
18: USER_2	0	0	0	0	0	0	0	0	0	0	0	0
19: USER_3	0	0	0	0	0	0	0	0	0	0	0	0
20: PCI_DEVID_2	0	0	0	0	0	0	0	0	0	0	0	0
21: PCI_DEVID_3	0	0	0	0	0	0	0	0	0	0	0	0
22: CRYSTAL_1	1	1	0	1	1	0	1	1	0	1	1	0
23: FB_0	0	0	0	0	0	0	0	0	0	0	0	0
24: FB_1	0	0	0	0	0	0	0	0	0	0	0	0
25: BR	0	0	0	0	0	0	0	0	0	0	0	0
26: BR_128M	0	0	0	0	0	0	0	0	0	0	0	0
27: BR_AGP	0	0	0	0	0	0	0	0	0	0	0	0
28: BR_IO	0	0	0	0	0	0	0	0	0	0	0	0
*29: ROM_TYPE_0	1	1	0	1	1	0	1	1	0	1	1	0
*30: ROM_TYPE_1	0	1	0	0	1	0	0	1	0	0	1	0
31: STRAP_0_OVERWRITE	0	0	0	0	0	0	0	0	0	0	0	0

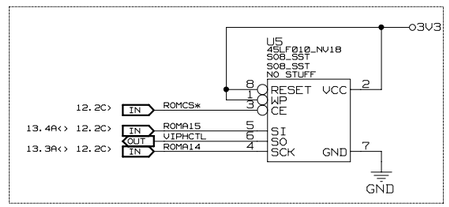
BOOT_3_STRAP_1

0: 1394	0	0	0	0	0	0	0	0	0	0	0	0
1: 1394_PHY	0	0	0	0	0	0	0	0	0	0	0	0
2: 1394_PHY_PWRCLASS[0]	0	0	0	0	0	0	0	0	0	0	0	0
3: 1394_PHY_PWRCLASS[1]	0	0	0	0	0	0	0	0	0	0	0	0
4: VGA_DEVICE	1	0	1	1	0	1	1	0	1	1	0	1
5: MEM_LSB_SWAP	0	0	0	0	0	0	0	0	0	0	0	0
6: BR_LAST_DEV	0	0	0	0	0	0	0	0	0	0	0	0
7: BR_BAR1_BCASTONLY	0	0	0	0	0	0	0	0	0	0	0	0
31: STRAP_1_OVERWRITE	0	0	0	0	0	0	0	0	0	0	0	0

BIOS (serial)



BIOS (serial alternative)



NV Register Description	NV Address	BIOS Address	Data SKU#0000-0002 (600-10141-0000 / 600-10141-0001 / 600-10141-0002)	Data SKU#0003 (600-10141-0003)
BOOT_0_STRAP_0	0x00101000		0x2040E08F	0x2040C08F
BOOT_1_STRAP_0_ANDMASK	0x00101004	0x58	0x6040407F	0x6040407F
BOOT_2_STRAP_0_ORMASK	0x00101008	0x5C	0x00008080	0x00008080
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

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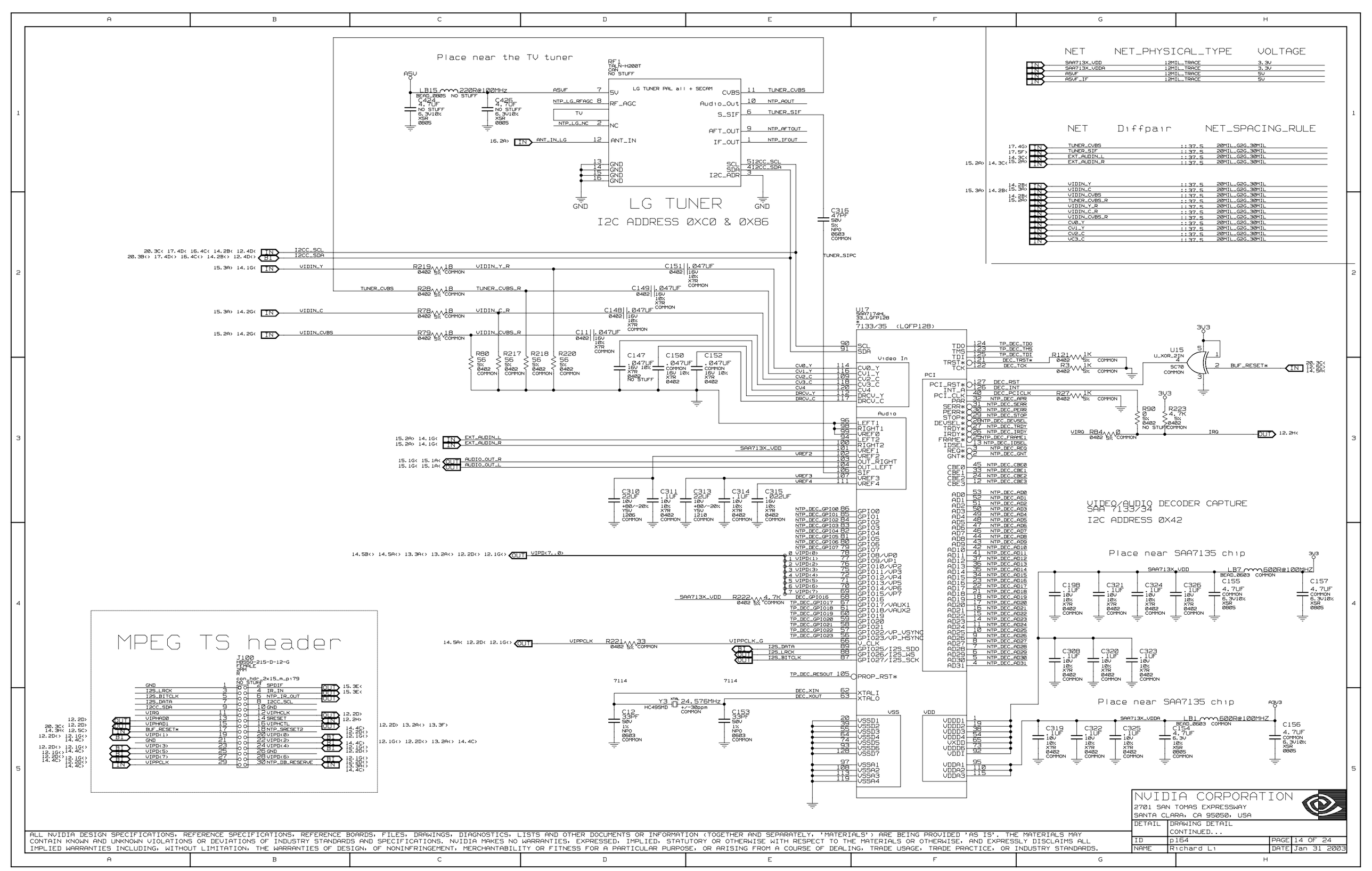

NET	NET_PHYSICAL_TYPE	VOLTAGE
AUDIO_CLMP	12MIL_TRACE	5V

VIDIN_Y_C	::37.5	20MIL_G2G_30MIL	
VIDIN_C_C	::37.5	20MIL_G2G_30MIL	
VIDIN_CVBS_C	::37.5	20MIL_G2G_30MIL	
20.1G< TVOUT_Y_CVBS_C	::37.5	20MIL_G2G_30MIL	
20.1G< TVOUT_C_C	::37.5	20MIL_G2G_30MIL	
20.1G< TVOUT_CVBS_C	::37.5	20MIL_G2G_30MIL	
SCART_SYNC_C	::37.5	20MIL_G2G_30MIL	
15.1A< 14.3C> AUDIO_OUT_L	::37.5	20MIL_G2G_30MIL	
15.1A< 14.3C> AUDIO_OUT_R	::37.5	20MIL_G2G_30MIL	
AUDIO_OUT_L_C	::37.5	20MIL_G2G_30MIL	
AUDIO_OUT_R_C	::37.5	20MIL_G2G_30MIL	
MPC_OUT_L	::37.5	20MIL_G2G_30MIL	
MPC_OUT_R	::37.5	20MIL_G2G_30MIL	
EXT_AUDIN_R_C	::37.5	20MIL_G2G_30MIL	
EXT_AUDIN_L_C	::37.5	20MIL_G2G_30MIL	
EXT_AUDIN_R_F	::37.5	20MIL_G2G_30MIL	
EXT_AUDIN_L_F	::37.5	20MIL_G2G_30MIL	

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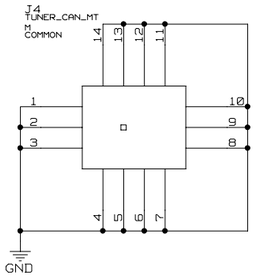
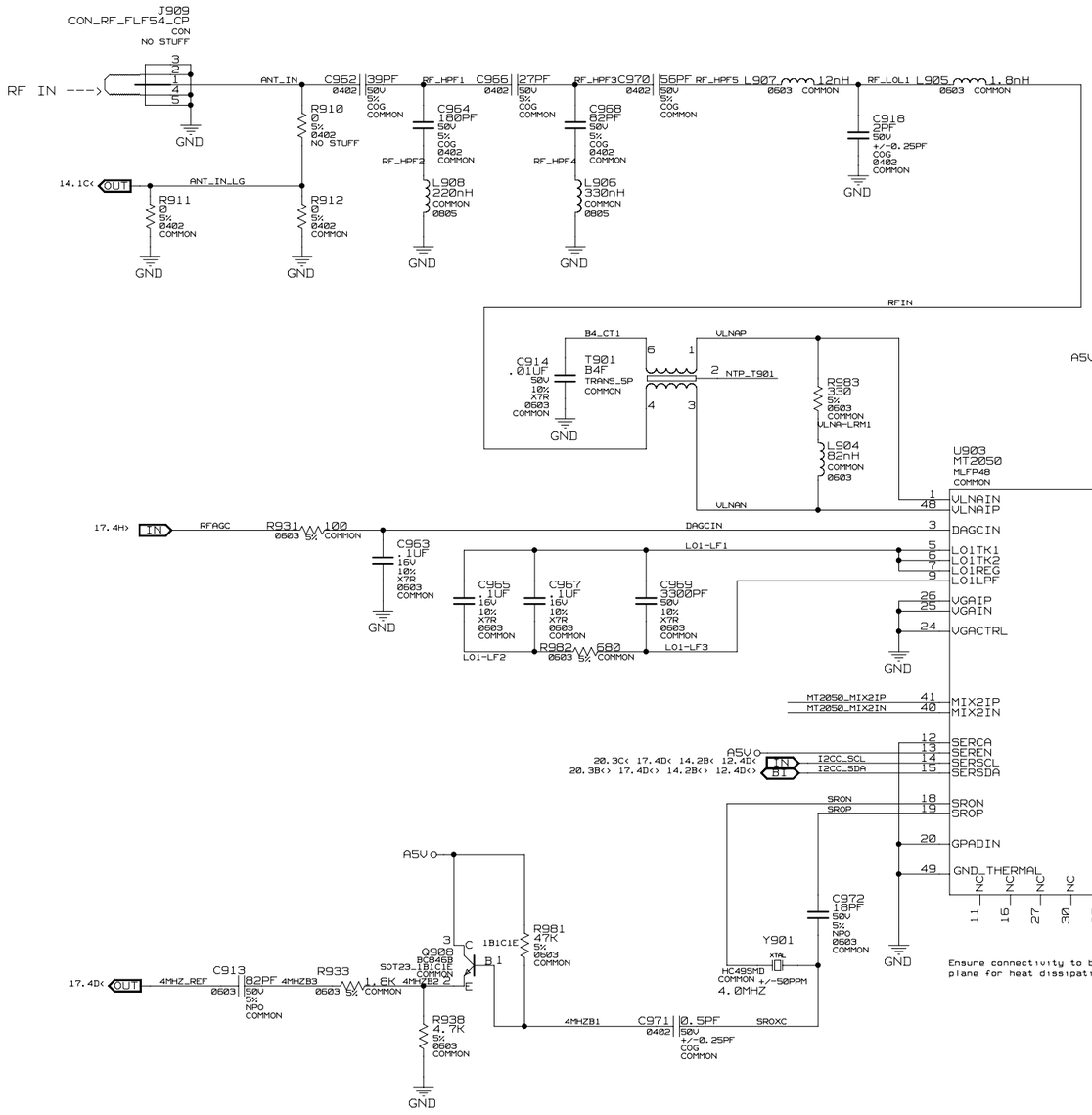
20. Microtune Tuner(MT2050)

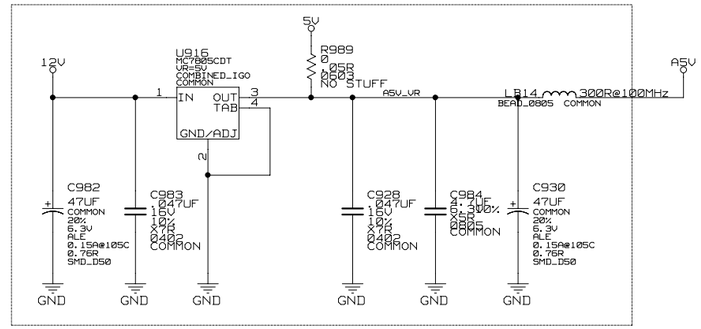
NET	NET_PHYSICAL_TYPE
A5V	
B1 A5V_VR	24MIL_TRACE
A5V	24MIL_TRACE
B1 ANT_IN	50MIL_TRACE
B1 ANT_IN_R	50MIL_TRACE
B1 RF_HPF1	50MIL_TRACE
B1 RF_HPF2	50MIL_TRACE
B1 RF_HPF3	50MIL_TRACE
B1 RF_HPF4	50MIL_TRACE
B1 RF_HPF5	50MIL_TRACE
B1 RF_LOL1	50MIL_TRACE

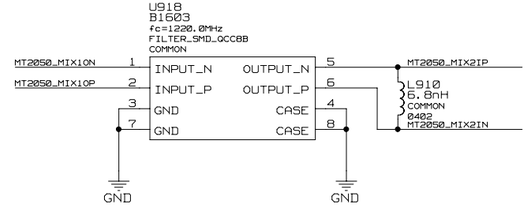




Follow Microtune Layout Application Note for the layout of the tuner !

TUNER 5V





ANALOG / DIG GND PLANE

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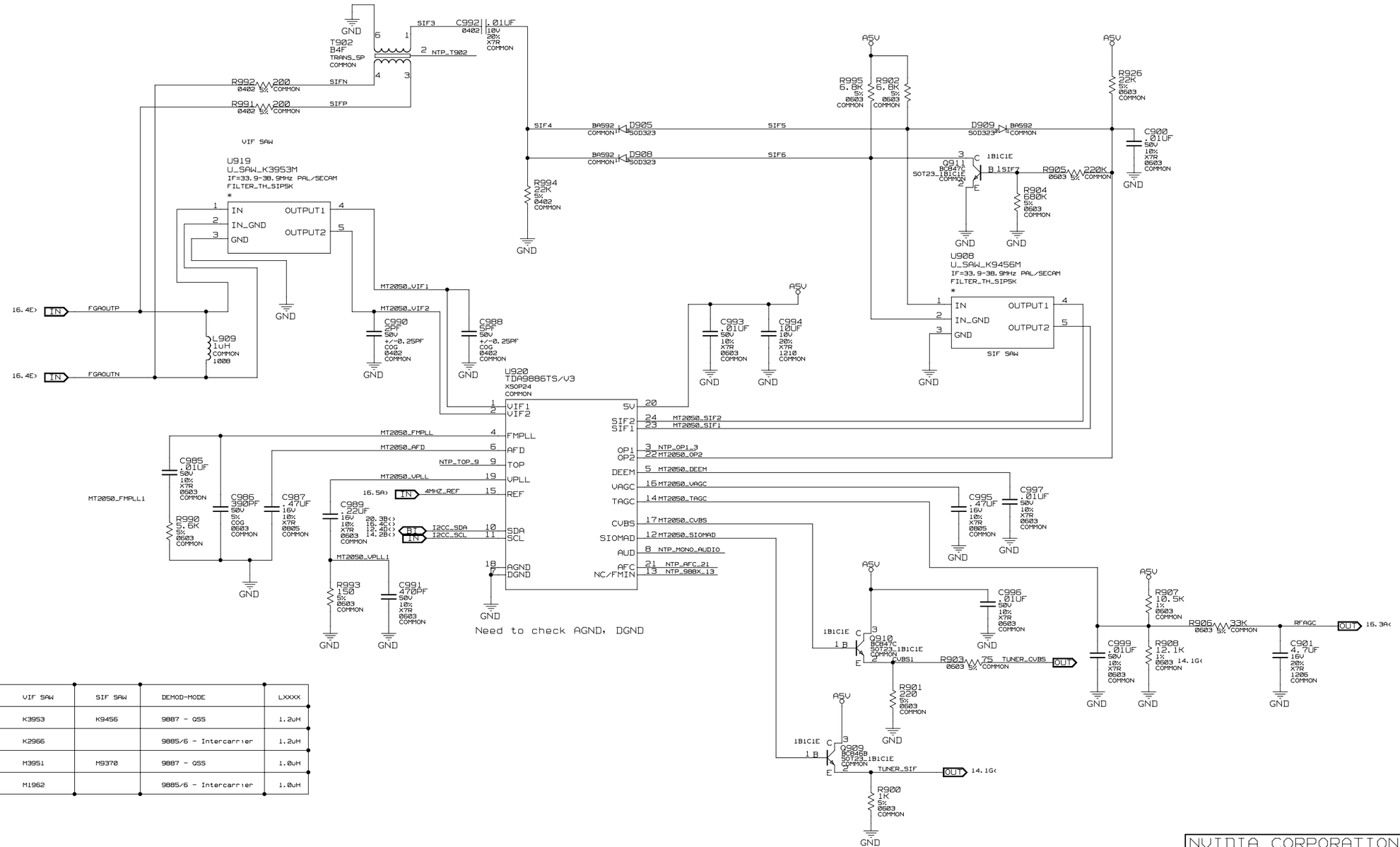
21. Microtune Tuner(IF - Demodulator)



	VIF SAW	SIF SAW	DEMOD-MODE	LXXXX
PAL/SECAM/FM Radio	K3953	K9456	9887 - QSS	1.2uH
PAL TV Only	K2966		9885/6 - Intercarrier	1.2uH
NTSC/FM Radio	M3951	M9370	9887 - QSS	1.0uH
NTSC TV Only	M1962		9885/6 - Intercarrier	1.0uH

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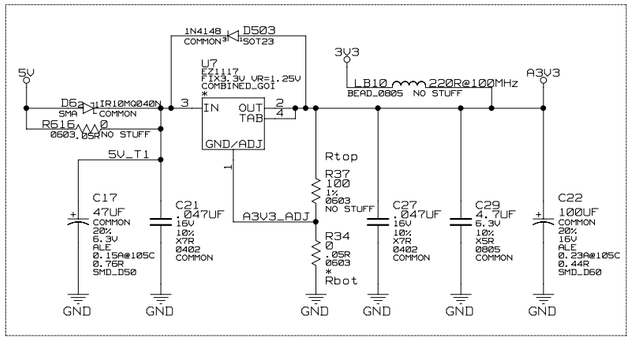
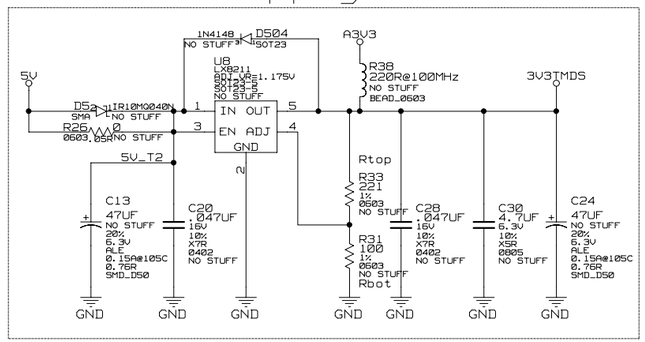
POWER SUPPLY

ANALOG 3V3



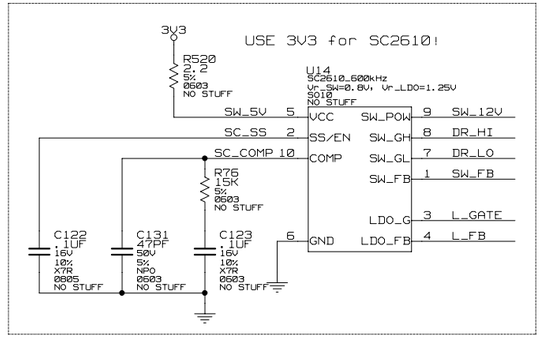
Vout = VRef * (1+Rbot/Rtop)
3.31V = 1.25V * (1+(165/100))

TMDS 3V3 Supply



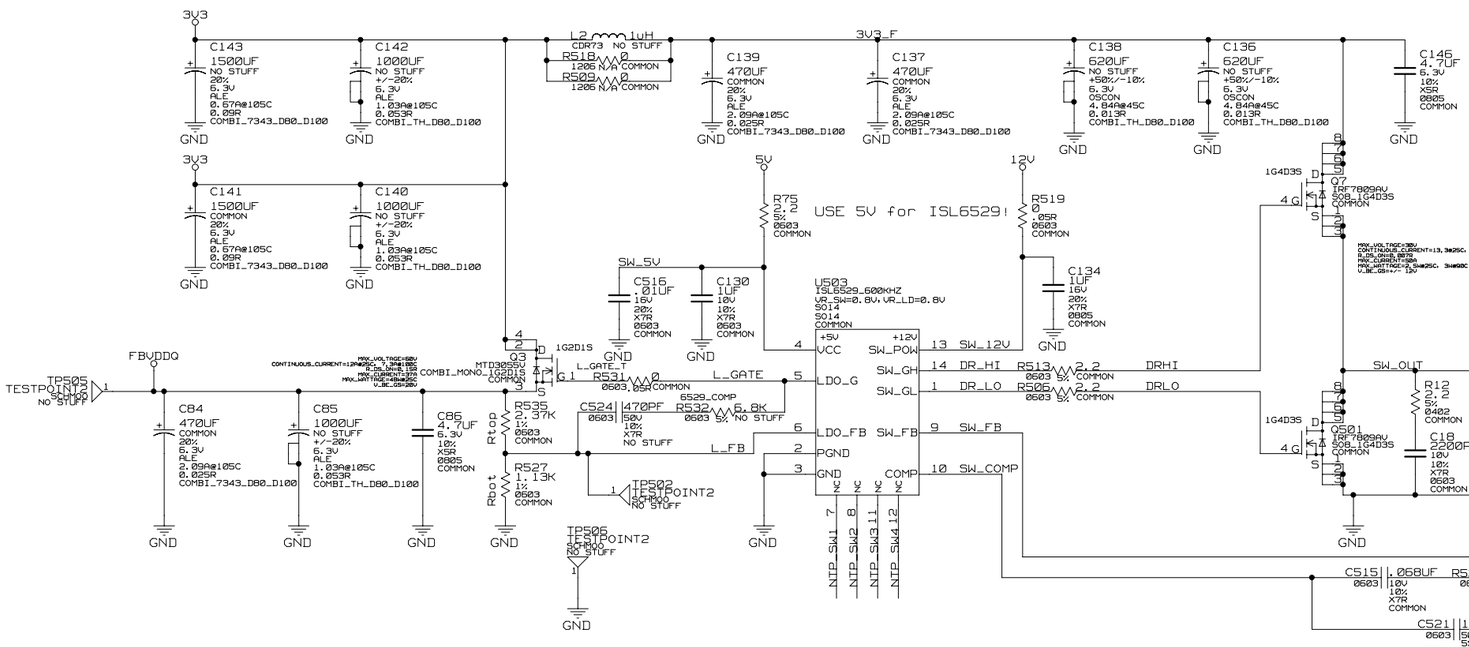
Vout = VRef * (1+Rtop/Rbot)
3.77V = 1.175V * (1+(221/100))

ALTERNATIVE TO ISL6529



	NET	NET_PHYSICAL_TYPE	VOLTAGE
3V3	3V3	12MIL_TRACE	3.3V
BI	A3V3	12MIL_TRACE	3.3V
FBVDD	FBVDD	12MIL_TRACE	2.5V
NVVDD	NVVDD	12MIL_TRACE	1.65V
5V	5V	12MIL_TRACE	5V
12V	12V	12MIL_TRACE	12V
BI	3V3_F	12MIL_TRACE	3.3V
DDC_5V	DDC_5V	12MIL_TRACE	5V
BI	SW_12V	10MIL_TRACE	12V
BI	SW_5V	10MIL_TRACE	5V
BI	DR_HI	10MIL_TRACE	
BI	DR_LO	10MIL_TRACE	
BI	DRHI	10MIL_TRACE	
BI	DRLO	10MIL_TRACE	
BI	SW_FB	10MIL_TRACE	
BI	SW_COMP	10MIL_TRACE	
BI	A3V3_ADJ	10MIL_TRACE	
BI	A3V3TMDS_ADJ	10MIL_TRACE	
3V3TMDS	3V3TMDS	12MIL_TRACE	3.3V

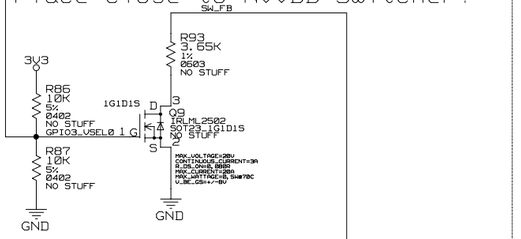
NVVDD-SWITCHER / FBVDDQ-LDO CONTROLER ISL6529



18.3F< 12.2H> 18.3F< 12.2H> IN GPIO3_VSEL0

VSEL0	NVVDD
0	1.3V
1	1.45V

Place close to NVVDD Switcher!



FBVDDQ= VRef * (1+Rtop/ Rbot)

ISL6529	2.5V	= 0.800V *	(1+2.37k/1.13k)
SC2610	2.5V	= 1.250V *	(1+1.02k/1.02k)

NVVDD = VRef * (1+Rtop/ Rbot)

NV18B	1.656V	= 0.800V *	(1+1070/1000)
NV31	1.309V	= 0.800V *	(1+649/1020)
NV31	1.600V	= 0.800V *	(1+1020/1020)

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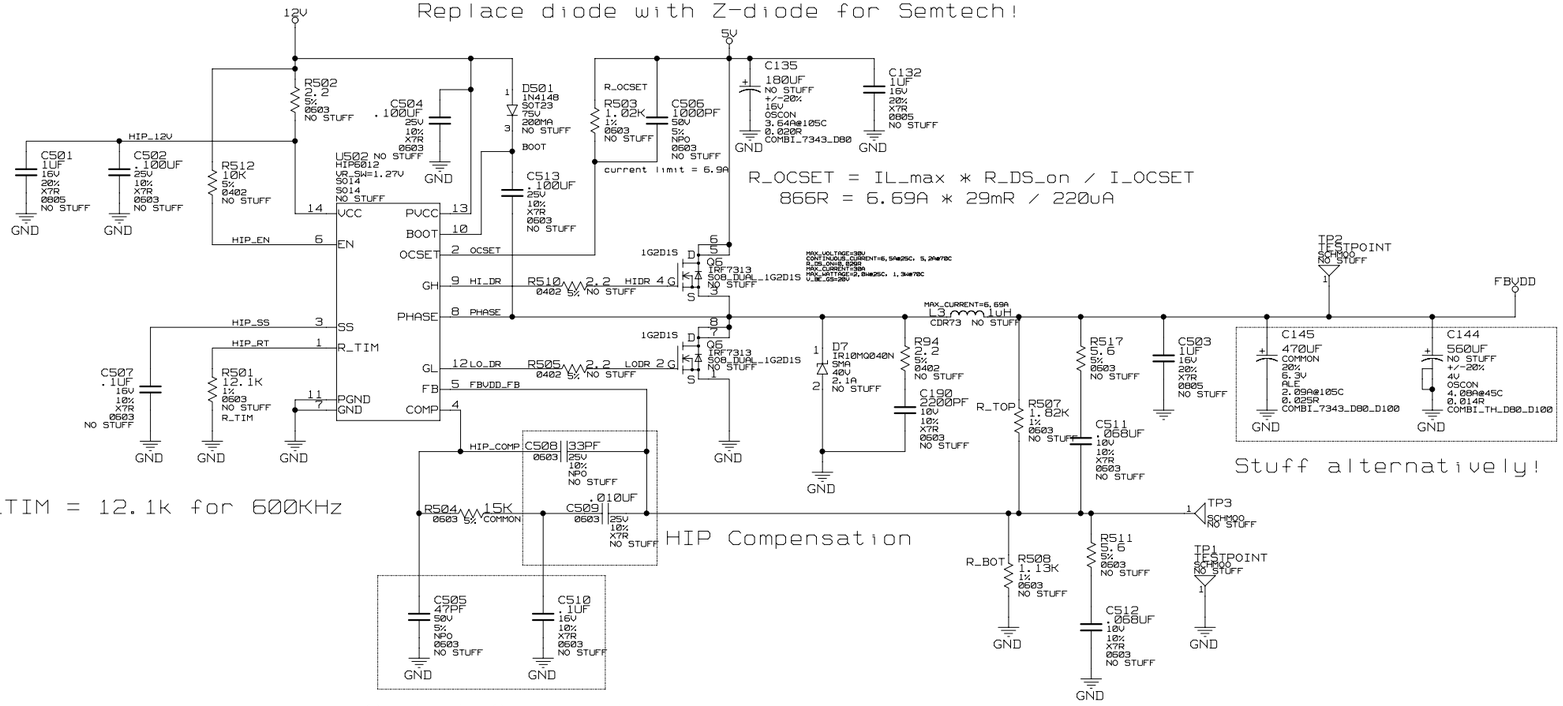
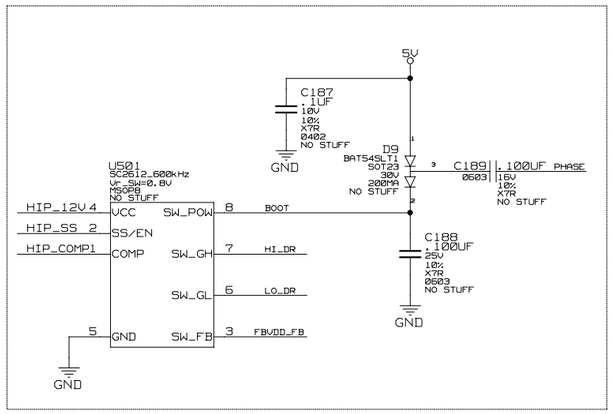
FBVDD Switcher (3.3V out of 12V Rail)

NET	NET_PHYSICAL_TYPE
HI_DR	10MIL_TRACE
LO_DR	10MIL_TRACE
HIDR	10MIL_TRACE
LODR	10MIL_TRACE
HIP_12V	10MIL_TRACE
BOOT	10MIL_TRACE
PHASE	10MIL_TRACE
FBVDD_FB	10MIL_TRACE
HIP_COMP	10MIL_TRACE
OCSET	10MIL_TRACE
HIP_SS	10MIL_TRACE
HIP_RT	10MIL_TRACE

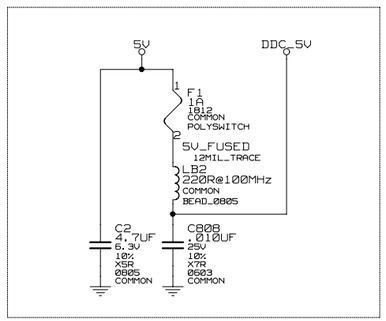


Semtech Compensation

Semtech Sc2612
Stuff alternatively to ISL & HIP!



DDC 5V

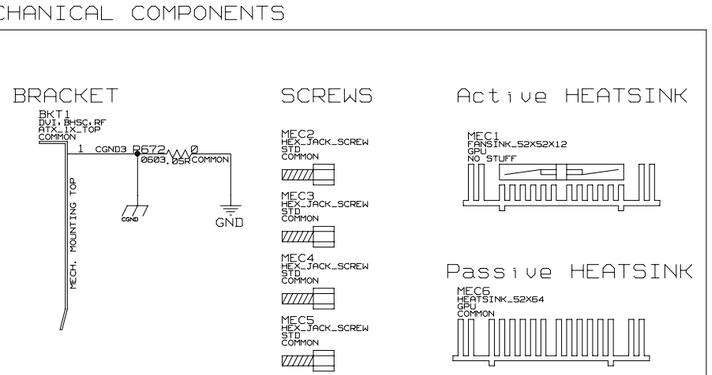


$$FBVDD = VRef * (1+Rtop/Rbot)$$

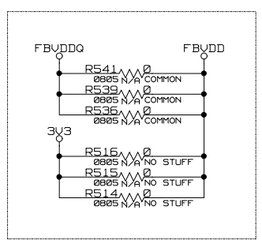
$$HIP6012 \quad 3.29V = 1.270V * (1 + 1.82K / 1.13K)$$

$$ISL6522/SC2612 \quad 3.34V = 0.8V * (1 + 3.32K / 1.07K)$$

MECHANICAL COMPONENTS



Switcher Bypass



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NET	NET_PHYSICAL_TYPE	VOLTAGE
CX87X_VDD	12MIL_TRACE	3.3V
CX87X_VDDC	12MIL_TRACE	1.8V
CX87X_VAA	12MIL_TRACE	3.3V

20.3G> 15.5A<	SCART_SYNC	::37.5	20MIL_G2G_30MIL	
15.1G<	TVOUT_Y_CVBS_C	::37.5	20MIL_G2G_30MIL	
15.1G<	TVOUT_C_C	::37.5	20MIL_G2G_30MIL	
15.1G<	TVOUT_CVBS_C	::37.5	20MIL_G2G_30MIL	

VIDEO ENCODER

CX25874/5

I2C ADDRESS 0X8A

Place near the CX2587X chip

A3V3

CX87X_VAA

LB13 500R@100MHZ BEAD_0603 NO STUFF

C185 .1UF 10V 10% X7R 0402 NO STUFF
C169 .1UF 10V 10% X7R 0402 NO STUFF
C175 .1UF 10V 10% X7R 0402 NO STUFF
C179 .1UF 10V 10% X7R 0402 NO STUFF
C421 4.7UF NO STUFF 6.3V10% X5R 0805
C423 4.7UF NO STUFF 6.3V10% X5R 0805

CX87X_VDD

LB8 500R@100MHZ BEAD_0603 NO STUFF

C186 .1UF 10V 10% X7R 0402 NO STUFF
C170 .1UF 10V 10% X7R 0402 NO STUFF
C181 4.7UF NO STUFF 6.3V10% X5R 0805

U3
CX25875
75_TQFP64
NO STUFF
CX25872/3/4/5 (TQFP64)

12.4C<	OUT	DVOCLKINR190 33 DVOCLKIN_G	37	CLKO
12.4D>	IN	DVOCLKOUT 0402 5% NO STUFF	35	CLKI
13.1A<> 12.3D>	IN	DVOD<11..0>		
0		DVOD<0>	2	P0
1		DVOD<1>	3	P1
2		DVOD<2>	4	P2
3		DVOD<3>	5	P3
4		DVOD<4>	6	P4
5		DVOD<5>	7	P5
6		DVOD<6>	8	P6
7		DVOD<7>	13	P7
8		DVOD<8>	14	P8
9		DVOD<9>	15	P9
10		DVOD<10>	16	P10
11		DVOD<11>	17	P11
12.4C<	IN	DVOHSYNC	18	HSYNC*
12.4C<	IN	DVOVSYNC	19	VSYNC*
		TP_FIELD	20	FIELD
		DVOBLANK	21	BLANK*
17.4D<> 16.4C<> 14.2B<> 12.4D<>	BI	I2CC_SDA	39	SDA
17.4D< 16.4C< 14.2B< 12.4D<	IN	I2CC_SCL	40	SCL
		ALTADDR	41	ALTADDR
			26	SLEEP
14.5A< 14.3H< 12.5C>	IN	BUF_RESET*	27	RESET*
		TP_CX872_NC1	23	NC1
		CX87X_GPIO0	28	NC2/GPIO0
		CX87X_GPIO1	29	NC3/GPIO1
		CX87X_GPIO2	30	NC4/GPIO2
		TP_CX87X_NCS	33	NC5
		FSADJUST	54	FSADJUST
		CX_XTL_IN	46	XTALIN
		CX_XTL_OUT	47	XTALOUT

CX87X_VDD R98 4.7K 0402 5% NO STUFF
CX87X_VDD R169 4.7K 0402 5% NO STUFF
R148 47K 0402 5% NO STUFF
R164 47K 0402 5% NO STUFF
R153 47K 0402 5% NO STUFF
R145 402 0603 1% NO STUFF
Y4 XTAL 13.500MHZ HC49SMD +/-10PPM NO STUFF
R99 75K 0603 5% NO STUFF
C428 27PF 50V 1% NPO 0603 NO STUFF
C429 33PF 50V 1% NPO 0603 NO STUFF

Place near the CX2587X chip

VAA_OSC	48		
VAA_BG	52		
VAA_DAC1	57		
VAA_DAC2	58		
VDDHV	25		
VDD_SIO	38		
VDDO1	11		
VDDO2	35		
REG_OUT	50	REG_OUT	
REG_IN	49	REG_IN	
VDD1	10		
VDD2	32		
DACA	60	TVOUT_CVBS	
DACB	61	TVOUT_C	
DACC	62	TVOUT_Y_CVBS	
NC/DACD	59	SCART_SYNC	
COMP	55	CX_COMP	
VREF	53	CX_VREF	
PLL_COMP	43	CX_PLL_COMP	
XTL_BFO	1	TP_XTL_BFO	
VSSHV	24		
VSS1	9		
VSS2	22		
VSS3	31		
VSS01	12		
VSS02	34		
VSS_SO	42		
VSS_PLL	44		
VSS_OSC	45		
VSS_BG	51		
NGDAC	56		
VSS_DAC1	63		
VSS_DAC2	64		

1B1C1E C 3 Q8 MMBT2222A SOT23_1B1C1E NO STUFF B 1 E 2
C184 1UF 10V 10% X7R 0402 NO STUFF

Place near the CX2587X chip

CX87X_VDDC

R89 1K 5% 0603 NO STUFF
C175 .1UF 10V 10% X7R 0402 NO STUFF
C178 .1UF 10V 10% X7R 0402 NO STUFF
C180 .1UF 10V 10% X7R 0402 NO STUFF
C422 4.7UF 6.3V 10% X5R 0805 NO STUFF

C162 1UF 10V 10% X7R 0805 NO STUFF
C174 .1UF 10V 10% X7R 0402 NO STUFF
C177 .1UF 10V 10% X7R 0402 NO STUFF

CX87X_VDD

Place near the CX2587X chip

Place near the connector

R81 75 1% 0402 NO STUFF
R82 75 1% 0402 NO STUFF
R83 75 1% 0402 NO STUFF
R85 75 1% 0402 NO STUFF

OUT	10.5C>	15.4A<
OUT	10.4C>	15.4A<
OUT	10.4C>	15.5A<
OUT	15.5A<	20.1G<

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

3V3_F	18.1G>
4MHZ_REF	16.5A> 17.4D<
A3V3	18.1G>
A3V3TMDS_ADJ	18.1G>
A3V3_ADJ	18.1G>
A5VF	14.1G<
A5VF_IF	14.1G<
A5V_VR	16.1G>
ABF	9.1G>
AGF	9.1G>
AGPADSTB0F	2.5G>
AGPADSTB0S	2.5G>
AGPADSTB1F	2.5G>
AGPADSTB1S	2.5G>
AGPDBI_HI	2.4G>
AGPDBI_LO	2.4G>
AGPMBDET	2.5G>
AGPRBF	2.4G>
AGPSBA<0>	2.5G>
AGPSBA<7..0>	2.5G>
AGPSBA<1>	2.5G>
AGPSBA<2>	2.5G>
AGPSBA<3>	2.5G>
AGPSBA<4>	2.5G>
AGPSBA<5>	2.5G>
AGPSBA<6>	2.5G>
AGPSBA<7>	2.5G>
AGPSBSTBF	2.5G>
AGPSBSTBS	2.5G>
AGPST0	2.4G>
AGPST1	2.4G>
AGPST2	2.4G>
AGPSTOP	2.5G>
AGPVREFCG	2.5G>
AGPVREFGC	2.5G>
AGPWBF	2.4G>
ANT_IN	16.1G>
ANT_IN_LG	14.1C< 16.2A>
ANT_IN_R	16.1G>
ARF	9.1G>
ATXC	11.1G>
ATXC*	11.1G>
ATXD0	11.1G>
ATXD0*	11.1G>
ATXD1	11.1G>
ATXD1*	11.1G>
ATXD2	11.1G>
ATXD2*	11.1G>
AUDIO_CLMP	15.1G<
AUDIO_OUT_L	14.3C> 15.1A< 15.1G<
AUDIO_OUT_L_C	15.1G<
AUDIO_OUT_R	14.3C> 15.1A< 15.1G<
AUDIO_OUT_R_C	15.1G<
BBF	10.1G>
BGF	10.1G>
BOOT	19.1G>
BRF	10.1G>
BTXD4	11.2G>
BTXD4*	11.2G>
BTXD5	11.2G>
BTXD5*	11.2G>
BTXD6	11.2G>
BTXD6*	11.2G>
BUF_RESET*	12.5C> 14.3H< 14.5A< 20.3C<
CGND1	9.4D< 11.4H<
CGND2	9.3E< 11.3H< 15.2F< 15.4F<
CV0_Y	14.2G<
CV1_Y	14.2G<
CV2_C	14.2G<
CX87X_VAA	20.1G<
CX87X_VDD	20.1G<
CX87X_VDDC	20.1G<
DACA_BLUE	8.1G> 8.2D> 9.5A<
DACA_BLUE_C	9.1G> 9.3D> 11.4G<
DACA_GREEN	8.1G> 8.2D> 9.4A<
DACA_GREEN_C	9.1G> 9.3D> 11.4G<
DACA_HSYNC	8.2D> 13.2A<>
DACA_HSYNC_BUF	8.2G> 9.3A<
DACA_HSYNC_C	9.3F> 11.4G<
DACA_RED	8.1G> 8.2D> 9.3A<
DACA_RED_C	9.1G> 9.3D> 11.4G<
DACA_RSET	8.1G>
DACA_VDD	8.1G>
DACA_VREF	8.1G>
DACA_VSYNC	8.2D> 13.2A<>
DACA_VSYNC_BUF	8.3G> 9.2A<
DACA_VSYNC_C	9.2F> 11.4G<
DACB_BLUE	8.1G<> 8.3D> 10.5A<
DACB_BLUE_C	10.1G<> 10.4H> 15.4D<
DACB_BLUE_SW	10.1G<>
DACB_GREEN	8.1G<> 8.3D> 10.4A<
DACB_GREEN_C	10.1G<> 10.4H> 15.4D<
DACB_GREEN_SW	10.1G<>
DACB_HSYNC	8.3D>
DACB_HSYNC_BUF	8.3G> 10.3D<
DACB_HSYNC_C	10.3H> 15.4D<
DACB_RED	8.1G<> 8.3D> 10.4A<
DACB_RED_C	10.1G<> 10.4H> 15.4D<
DACB_RED_SW	10.1G<>
DACB_RSET	8.1G<>
DACB_VDD	8.1G<>
DACB_VREF	8.1G<>
DACB_VSYNC	8.3D>
DACB_VSYNC_BUF	8.4G> 10.3D<
DACB_VSYNC_C	10.3H> 15.4D<
DRHI	18.1G<>
DRLO	18.1G<>
DR_HI	18.1G<>
DR_LO	18.1G<>
DVI_HPD	11.5D> 12.2H<
DVOCLKIN	12.4C< 20.2B>

DVOCLKOUT	12.4D> 20.2B<
DVOD<0>	12.3D> 20.2B<
DVOD<11..0>	12.3D> 13.1A<> 20.2B<
DVOD<1>	12.3D> 20.2B<
DVOD<2>	12.3D> 13.1A<> 20.2B<
DVOD<3>	12.3D> 13.1A<> 20.2B<
DVOD<4>	12.3D> 20.2B<
DVOD<5>	12.3D> 20.2B<
DVOD<6>	12.3D> 20.2B<
DVOD<7>	12.3D> 20.2B<
DVOD<8>	12.3D> 20.2B<
DVOD<9>	12.3D> 20.2B<
DVOD<10>	12.3D> 20.2B<
DVOD<11>	12.3D> 20.2B<
DVODE	12.4C> 13.4A<>
DVOHSYNC	12.4C> 20.3C<
DVOVSYNC	12.4C> 20.3C<
EXT_AUDIN_L	14.1G< 14.3C< 15.2A>
EXT_AUDIN_L_C	15.2G<
EXT_AUDIN_L_F	15.2G<
EXT_AUDIN_R	14.1G< 14.3C< 15.2A>
EXT_AUDIN_R_C	15.2G<
EXT_AUDIN_R_F	15.2G<
FAN_RETURN	11.1G<> 12.1G<>
FBAA<0>	3.4A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBAA<12..0>	3.4A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBAA<63..0>	3.4A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBAA<1>	3.4A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBAA<2>	3.4A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBAA<3>	3.4A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBAA<4>	3.4A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBAA<5>	3.4A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBAA<6>	3.4A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBAA<7>	3.4A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBAA<8>	3.4A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBAA<9>	3.4A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBAA<10>	3.4A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBAA<11>	3.4A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBAA<12>	3.4A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBABA0	3.4A> 4.1G<> 4.4C< 5.2G<> 5.4C<
FBABA1	3.5A> 4.2G<> 4.4C< 5.2G<> 5.4C<
FBACAS*	3.5A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBACKE	3.5A> 4.2G<> 4.4C< 5.2G<> 5.4C<
FBACLK0	3.5A> 5.1G<> 5.4C<
FBACLK0*	3.5A> 5.1G<> 5.4C<
FBACLK1	3.5A> 4.1G<> 4.4C<
FBACLK1*	3.5A> 4.1G<> 4.4C<
FBACS0*	3.5A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBACS1*	4.1G<>
FBAD<0>	3.1A<> 4.1A<> 4.1G<>
FBAD<31..0>	3.1A<> 4.1A<> 4.1G<>
FBAD<63..0>	3.1A<> 4.1A<> 4.1G<> 5.1A<> 5.1G<>
FBAD<1>	3.1A<> 4.1A<> 4.1G<>
FBAD<2>	3.1A<> 4.1A<> 4.1G<>
FBAD<3>	3.1A<> 4.1A<> 4.1G<>
FBAD<4>	3.1A<> 4.1A<> 4.1G<>
FBAD<5>	3.1A<> 4.1A<> 4.1G<>
FBAD<6>	3.1A<> 4.1A<> 4.1G<>
FBAD<7>	3.1A<> 4.1A<> 4.1G<>
FBAD<8>	3.1A<> 4.1A<> 4.1G<>
FBAD<9>	3.1A<> 4.1A<> 4.1G<>
FBAD<10>	3.1A<> 4.1A<> 4.1G<>
FBAD<11>	3.1A<> 4.1A<> 4.1G<>
FBAD<12>	3.1A<> 4.1A<> 4.1G<>
FBAD<13>	3.1A<> 4.1A<> 4.1G<>
FBAD<14>	3.1A<> 4.1A<> 4.1G<>
FBAD<15>	3.1A<> 4.1A<> 4.1G<>
FBAD<16>	3.1A<> 4.1A<> 4.1G<>
FBAD<17>	3.1A<> 4.1A<> 4.1G<>
FBAD<18>	3.1A<> 4.1A<> 4.1G<>
FBAD<19>	3.1A<> 4.1A<> 4.1G<>
FBAD<20>	3.1A<> 4.1A<> 4.1G<>
FBAD<21>	3.1A<> 4.1A<> 4.1G<>
FBAD<22>	3.1A<> 4.1A<> 4.1G<>
FBAD<23>	3.1A<> 4.1A<> 4.1G<>
FBAD<24>	3.1A<> 4.1A<> 4.1G<>
FBAD<25>	3.1A<> 4.1A<> 4.1G<>
FBAD<26>	3.1A<> 4.1A<> 4.1G<>
FBAD<27>	3.1A<> 4.1A<> 4.1G<>
FBAD<28>	3.1A<> 4.1A<> 4.1G<>
FBAD<29>	3.1A<> 4.1A<> 4.1G<>
FBAD<30>	3.1A<> 4.1A<> 4.1G<>
FBAD<31>	3.1A<> 4.1A<> 4.1G<>
FBAD<32>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<63..32>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<33>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<34>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<35>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<36>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<37>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<38>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<39>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<40>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<41>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<42>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<43>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<44>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<45>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<46>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<47>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<48>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<49>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<50>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<51>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<52>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<53>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<54>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<55>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<56>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<57>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<58>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<59>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<60>	3.1A<> 4.1A<> 5.1A<> 5.1G<>

FBAD<61>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<62>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBAD<63>	3.1A<> 4.1A<> 5.1A<> 5.1G<>
FBADQM<0>	3.3A> 4.1G<> 4.4A<
FBADQM<3..0>	3.3A> 4.1G<> 4.4A<
FBADQM<63..0>	3.3A> 4.1G<> 4.4A< 5.1G<> 5.4A<
FBADQM<1>	3.3A> 4.1G<> 4.4A<
FBADQM<2>	3.3A> 4.1G<> 4.4A<
FBADQM<3>	3.3A> 4.1G<> 4.4A<
FBADQM<4>	3.3A> 5.1G<> 5.4A<
FBADQM<7..4>	3.3A> 5.1G<> 5.4A<
FBADQM<5>	3.3A> 5.1G<> 5.4A<
FBADQM<6>	3.3A> 5.1G<> 5.4A<
FBADQM<7>	3.3A> 5.1G<> 5.4A<
FBADQS<0>	3.3A<> 4.1G<> 4.4A<>
FBADQS<3..0>	3.3A<> 4.1G<> 4.4A<>
FBADQS<63..0>	3.3A<> 4.1G<> 4.4A<> 5.1G<> 5.4A<>
FBADQS<1>	3.3A<> 4.1G<> 4.4A<>
FBADQS<2>	3.3A<> 4.1G<> 4.4A<>
FBADQS<3>	3.3A<> 4.1G<> 4.4A<>
FBADQS<4>	3.3A<> 5.1G<> 5.4A<>
FBADQS<7..4>	3.3A<> 5.1G<> 5.4A<>
FBADQS<5>	3.3A<> 5.1G<> 5.4A<>
FBADQS<6>	3.3A<> 5.1G<> 5.4A<>
FBADQS<7>	3.3A<> 5.1G<> 5.4A<>
FBARAS*	3.5A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBAWE*	3.5A> 4.1G<> 4.3C< 5.1G<> 5.3C<
FBCA<0>	3.4E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCA<12..0>	3.4E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCA<63..0>	3.4E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCA<1>	3.4E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCA<2>	3.4E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCA<3>	3.4E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCA<4>	3.4E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCA<5>	3.4E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCA<6>	3.4E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCA<7>	3.4E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCA<8>	3.4E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCA<9>	3.4E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCA<10>	3.4E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCA<11>	3.4E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCA<12>	3.4E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCBA0	3.5E> 6.2G<> 6.4C< 7.2G<> 7.4C<
FBCBA1	3.5E> 6.2G<> 6.4C< 7.2G<> 7.4C<
FBCCAS*	3.5E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCCKE	3.5E> 6.2G<> 6.4C< 7.2G<> 7.4C<
FBCCLK0	3.5E> 7.1G<> 7.4C<
FBCCLK0*	3.5E> 7.1G<> 7.4C<
FBCCLK1	3.5E> 6.1G<> 6.4C<
FBCCLK1*	3.5E> 6.1G<> 6.4C<
FBCCS0*	3.5E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCCS1*	6.1G<>
FBCD<0>	3.1E<> 6.1A<> 6.1G<>
FBCD<31..0>	3.1E<> 6.1A<> 6.1G<>
FBCD<63..0>	3.1E<> 6.1A<> 6.1G<> 7.1A<> 7.1G<>
FBCD<1>	3.1E<> 6.1A<> 6.1G<>
FBCD<2>	3.1E<> 6.1A<> 6.1G<>
FBCD<3>	3.1E<> 6.1A<> 6.1G<>
FBCD<4>	3.1E<> 6.1A<> 6.1G<>
FBCD<5>	3.1E<> 6.1A<> 6.1G<>
FBCD<6>	3.1E<> 6.1A<> 6.1G<>
FBCD<7>	3.1E<> 6.1A<> 6.1G<>
FBCD<8>	3.1E<> 6.1A<> 6.1G<>
FBCD<9>	3.1E<> 6.1A<> 6.1G<>
FBCD<10>	3.1E<> 6.1A<> 6.1G<>
FBCD<11>	3.1E<> 6.1A<> 6.1G<>
FBCD<12>	3.1E<> 6.1A<> 6.1G<>
FBCD<13>	3.1E<> 6.1A<> 6.1G<>
FBCD<14>	3.1E<> 6.1A<> 6.1G<>
FBCD<15>	3.1E<> 6.1A<> 6.1G<>
FBCD<16>	3.1E<> 6.1A<> 6.1G<>
FBCD<17>	3.1E<> 6.1A<> 6.1G<>
FBCD<18>	3.1E<> 6.1A<> 6.1G<>
FBCD<19>	3.1E<> 6.1A<> 6.1G<>
FBCD<20>	3.1E<> 6.1A<> 6.1G<>
FBCD<21>	3.1E<> 6.1A<> 6.1G<>
FBCD<22>	3.1E<> 6.1A<> 6.1G<>
FBCD<23>	3.1E<> 6.1A<> 6.1G<>
FBCD<24>	3.1E<> 6.1A<> 6.1G<>
FBCD<25>	3.1E<> 6.1A<> 6.1G<>
FBCD<26>	3.1E<> 6.1A<> 6.1G<>
FBCD<27>	3.1E<> 6.1A<> 6.1G<>
FBCD<28>	3.1E<> 6.1A<> 6.1G<>
FBCD<29>	3.1E<> 6.1A<> 6.1G<>
FBCD<30>	3.1E<> 6.1A<> 6.1G<>
FBCD<31>	3.1E<> 6.1A<> 6.1G<>
FBCD<32>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<63..32>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<33>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<34>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<35>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<36>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<37>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<38>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<39>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<40>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<41>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<42>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<43>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<44>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<45>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<46>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<47>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<48>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<49>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<50>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<51>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<52>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<53>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<54>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<55>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<56>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<57>	3.1E<> 6.1A<> 7.1A<> 7.1G<>

FBCD<58>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<59>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<60>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<61>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<62>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCD<63>	3.1E<> 6.1A<> 7.1A<> 7.1G<>
FBCDQM<0>	3.3E> 6.1G<> 6.4A<
FBCDQM<3..0>	3.3E> 6.1G<> 6.4A<
FBCDQM<63..0>	3.3E> 6.1G<> 6.4A< 7.1G<> 7.4A<
FBCDQM<1>	3.3E> 6.1G<> 6.4A<
FBCDQM<2>	3.3E> 6.1G<> 6.4A<
FBCDQM<3>	3.3E> 6.1G<> 6.4A<
FBCDQM<4>	3.3E> 7.1G<> 7.4A<
FBCDQM<7..4>	3.3E> 7.1G<> 7.4A<
FBCDQM<5>	3.3E> 7.1G<> 7.4A<
FBCDQM<6>	3.3E> 7.1G<> 7.4A<
FBCDQM<7>	3.3E> 7.1G<> 7.4A<
FBCDQS<0>	3.3E<> 6.1G<> 6.4A<
FBCDQS<3..0>	3.3E<> 6.1G<> 6.4A<
FBCDQS<63..0>	3.3E<> 6.1G<> 6.4A<> 7.1G<> 7.4A<>
FBCDQS<1>	3.3E<> 6.1G<> 6.4A<>
FBCDQS<2>	3.3E<> 6.1G<> 6.4A<>
FBCDQS<3>	3.3E<> 6.1G<> 6.4A<>
FBCDQS<4>	3.3E<> 7.1G<> 7.4A<>
FBCDQS<7..4>	3.3E<> 7.1G<> 7.4A<>
FBCDQS<5>	3.3E<> 7.1G<> 7.4A<>
FBCDQS<6>	3.3E<> 7.1G<> 7.4A<>
FBCDQS<7>	3.3E<> 7.1G<> 7.4A<>
FBCRAS*	3.5E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBCWE*	3.5E> 6.1G<> 6.3C< 7.1G<> 7.3C<
FBVDD_FB	19.1G<>
FGAOUTN	16.4E> 17.3B<
FGAOUTP	16.4E> 17.3B<
GPIO3_VSEL0	12.2H> 18.3F<
HIDR	19.1G<>
HIP_12V	19.1G<>
HIP_COMP	19.1G<>
HIP_RT	19.1G<>
HIP_SS	19.1G<>
HI_DR	19.1G<>
I2CA_SCL	8.1D> 9.2A<
I2CA_SCL_C	9.2F> 11.4G<
I2CA_SDA	8.1D> 9.2A<
I2CA_SDA_C	9.1F> 11.4G<
I2CB_SCL	8.3D> 10.2D<
I2CB_SCL_C	10.2H> 15.4D<
I2CB_SDA	8.3D> 10.2D<
I2CB_SDA_C	10.2H> 15.4D<
I2CC_SCL	12.4D< 14.2B< 16.4C< 17.4D< 20.3C<
I2CC_SDA	12.4D<> 14.2B<> 16.4C<> 17.4D<> 20.3B<>
I2S_BITCLK	14.4E>
I2S_DATA	14.4E<>
I2S_LRCK	14.4E>
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IFPABVREF	11.1G<
IFPAIOVDD	11.1G<
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IFPCVREF	11.1G<
IRQ	12.2H< 14.3H>
IR_IN	14.5B> 15.3E<
LOAD_TEST	10.5D> 12.2H<
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MFBCD<63..0>	6.1G<> 7.1G<>
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MFBCDQM<3>	6.1G<>
MFBCDQM<4>	7.1G<>

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MFBCDQM<7..4>	7.1G<>
MFBCDQM<5>	7.1G<>
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MFBCDQS<6>	7.1G<>
MFBCDQS<7>	7.1G<>
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MINIDIN_PBOUT	10.1G<>
MINIDIN_Y_CVBSOUT	10.1G<>
MPC_OUT_L	15.1G<
MPC_OUT_R	15.1G<
NTP_DB_RESERVE	14.5B<
NTP_IR_OUT	14.5B>
NV18_VREFCG	2.5G<>
OCSET	19.1G<>
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PCIFRAME	2.4G<>
PCIGNT	2.4G<>
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PCIINTB	2.4G<>
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PCIPAR	2.4G<>
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PCIRST*	2.4G<>
PCISTOP	2.4G<>
PCITRDY	2.4G<>
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RF_HPF2	16.1G<>
RF_HPF3	16.1G<>
RF_HPF4	16.1G<>
RF_HPF5	16.1G<>
RF_LOL1	16.1G<>
ROMA14	12.2C> 13.3A<> 13.3F<
ROMA15	12.2C> 13.3F< 13.4A<>
ROMCS*	12.2C> 13.2F<
SAA713X_VDD	14.1G<
SAA713X_VDDA	14.1G<
SCART_SYNC	15.5A< 20.1G< 20.3G>
SCART_SYNC_C	15.1G<
SEL_2ND_DEV	8.4A< 10.3A< 12.2H>
SPDIF	14.5B> 15.3E<
SRESET	12.2H> 14.5B<
STRAP0	12.4C> 13.2A<>
STRAP1	12.5C> 13.2A<>
STRAP2	12.5C> 13.2A<>
STRAP3	12.5C> 13.2A<>
SW_5V	18.1G<>
SW_12V	18.1G<>
SW_COMP	18.1G<>
SW_FB	18.1G<>
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THERM*	12.1G<>
TMDS_BACK	11.1G<>
TUNER_CVBS	14.1G< 17.4G>
TUNER_CVBS_R	14.2G<
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TVOUT_CVBS	10.5C> 15.4A< 20.3G>
TVOUT_CVBS_C	15.1G< 20.1G<
TVOUT_C_C	15.1G< 20.1G<
TVOUT_Y_CVBS	10.4C> 15.5A< 20.3G>
TVOUT_Y_CVBS_C	15.1G< 20.1G<
VC3_C	14.2G<

VIDIN_C	14.2B< 14.2G< 15.3A>
VIDIN_CVBS	14.2B< 14.2G< 15.2A>
VIDIN_CVBS_C	15.1G<
VIDIN_CVBS_R	14.2G<
VIDIN_C_C	15.1G<
VIDIN_C_R	14.2G<
VIDIN_Y	14.1G< 14.2B< 15.3A>
VIDIN_Y_C	15.1G<
VIDIN_Y_R	14.2G<
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VIPD<2>	12.1G<> 12.2D<> 13.2A<> 14.4C> 14.5B<>
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VIPD<6>	12.1G<> 12.2D<> 13.3A<> 14.4C> 14.5B<>
VIPD<7>	12.1G<> 12.2D<> 14.4C> 14.5A<>
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VIPHAD1	12.2D> 14.5A>
VIPHCLK	12.2D> 14.5B>
VIPHCTL	12.2D> 13.3A<> 13.3F> 14.5B>
VIPPCLK	12.1G<> 12.2D< 14.4C> 14.5A<
XTALIN	8.1G<>
XTALOUT	8.1G<>

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NAME	Richard L1	DATE	Jan 31 2003

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

BKT1	BRACKET	19.4A
C1	C	11.5F
C2	C	19.4G
C3	C	9.2C
C4	C	9.1C
C5	C	11.5E
C6	C	12.4G
C7	C	12.4G
C8	C	10.3C
C9	C	8.2F
C10	C	15.2B
C11	C	14.2D
C12	C	14.5D
C13	C_POL	18.2C
C14	C	15.5B
C15	C	15.2C
C16	C	12.3G
C17	C_POL	18.2A
C18	C	18.4E
C19	C	13.2G
C20	C	18.2C
C21	C	18.2A
C22	C_POL	18.2B
C23	C	2.1A
C24	C_POL	18.2E
C25	C	2.2A
C26	C	2.2A
C27	C	18.2B
C28	C	18.2D
C29	C	18.2B
C30	C	18.2D
C31	C	2.2A
C32	C	2.5G
C33	C	7.5H
C34	C	6.4D
C35	C	6.2F
C36	C	6.3H
C37	C	6.2G
C38	C	6.3F
C39	C	8.4B
C40	C	8.4B
C41	C	8.4B
C42	C	8.4C
C43	C	8.2B
C44	C	6.2G
C45	C	6.2F
C46	C	6.2H
C47	C	6.2G
C48	C	6.2G
C49	C	6.3G
C50	C	6.3G
C51	C	6.2G
C52	C	6.3G
C53	C	6.2H
C54	C	6.2G
C55	C	6.2H
C56	C	2.2A
C57	C	6.2H
C58	C	2.2A
C59	C	2.2A
C60	C	2.2B
C61	C	7.3H
C62	C	7.4F
C63	C	6.4F
C64	C	6.5F
C65	C	6.4G
C66	C	6.5H
C67	C	2.3A
C68	C	2.2A
C69	C	6.4G
C70	C	6.4F
C71	C	6.4G
C72	C	6.4G
C73	C	6.4H
C74	C	6.5G
C75	C	6.5G
C76	C	6.4G
C77	C	6.5G
C78	C	6.4G
C79	C	6.4H
C80	C	6.4H
C81	C	6.4H
C82	C_POL	18.4G
C83	C_POL	18.4H
C84	C_POL	18.4A
C85	C_POL	18.4B
C86	C	18.4B
C87	C	5.2F
C88	C	5.4F
C89	C	5.3H
C90	C	5.5H
C91	C	5.2G
C92	C	5.4G
C93	C	5.3F
C94	C	5.3G
C95	C	5.5F
C96	C	5.4F
C97	C	5.3F
C98	C	5.3G
C99	C	5.4G
C100	C	5.5G
C101	C_POL	18.5G
C102	C	5.3G
C103	C	5.4G
C104	C_POL	18.5H
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C107	C	5.3H
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C109	C	5.3G
C110	C	5.4H
C111	C	5.3G
C112	C	5.5G
C113	C	5.3H
C114	C	5.4G
C115	C	4.4D
C116	C	5.2G
C117	C	5.4D
C118	C	5.4G
C119	C	5.2G
C120	C	5.4G
C121	C	2.5B
C122	C	18.2E
C123	C	18.2F
C124	C	2.5A
C125	C	5.4H
C126	C	5.2H
C127	C	5.4H
C128	C	5.2H
C129	C	5.4H
C130	C	18.4C
C131	C	18.2E
C132	C	19.1D
C133	C	5.2H
C134	C	18.4D
C135	C_POL	19.1D
C136	C_POL	18.3E
C137	C_POL	18.3C
C138	C_POL	18.3D
C139	C_POL	18.3C
C140	C_POL	18.3B
C141	C_POL	18.3A
C142	C_POL	18.3B
C143	C_POL	18.3A
C144	C_POL	19.2F
C145	C_POL	19.2E
C146	C	18.3E
C147	C	14.3D
C148	C	14.2D
C149	C	14.2D
C150	C	14.3D
C151	C	14.2D
C152	C	14.3E
C153	C	14.5E
C154	C	14.5G
C155	C	14.4H
C156	C	14.5H
C157	C	14.4H
C158	C	15.2C
C159	C	15.2B
C160	C	15.1B
C161	C	15.1B
C162	C	20.3E
C163	C	15.4B
C164	C	15.5B
C165	C	15.4B
C166	C	15.3B
C167	C	15.4B
C168	C	15.4B
C169	C	20.2E
C170	C	20.2E
C171	C	15.4C
C172	C	15.5C
C173	C	15.4C
C174	C	20.3E
C175	C	20.2E
C176	C	20.3E
C177	C	20.3E
C178	C	20.3E
C179	C	20.2E
C180	C	20.3F
C181	C	20.2F
C182	C	15.5B
C183	C	15.5C
C184	C	20.3D
C185	C	20.2E
C186	C	20.2E
C187	C	19.2G
C188	C	19.2H
C189	C	19.2H
C190	C	19.2D
C198	C	14.4G
C308	C	14.4G
C310	C	14.3D
C311	C	14.3D
C313	C	14.3E
C314	C	14.3E
C315	C	14.3E
C316	C	14.2E
C319	C	14.5G
C320	C	14.4G
C321	C	14.4G
C322	C	14.5G
C323	C	14.4G
C324	C	14.4G
C325	C	14.5G
C326	C	14.4H
C336	C	15.1C
C337	C	15.1C
C387	C	15.3C
C388	C	15.3C
C389	C	15.2C
C390	C	15.3C
C391	C	15.2C
C392	C	15.2C
C393	C	15.3B
C394	C	15.3B
C395	C	15.2B
C421	C	20.2F
C422	C	20.3F
C423	C	20.2F
C424	C	14.1C
C426	C	14.1C
C428	C	20.4B
C429	C	20.4C
C501	C	19.2A
C502	C	19.2A
C503	C	19.2E
C504	C	19.1B
C505	C	19.3B
C506	C	19.1C
C507	C	19.2A
C508	C	19.2C
C509	C	19.3C
C510	C	19.3C
C511	C	19.2E
C512	C	19.3E
C513	C	19.2C
C514	C	4.4H
C515	C	18.5E
C516	C	18.4C
C517	C	4.2G
C518	C	4.4G
C519	C	4.2G
C520	C	4.4G
C521	C	18.5E
C522	C	4.2H
C523	C	18.4G
C524	C	18.4C
C525	C	18.4F
C526	C	4.2H
C527	C	4.4H
C528	C	18.5F
C529	C	4.4F
C530	C	5.4F
C531	C	4.2F
C532	C	4.4F
C533	C	4.2G
C534	C	4.4F
C535	C	4.3G
C536	C	4.5G
C537	C	4.2F
C538	C	4.4G
C539	C	4.3F
C540	C	4.5H
C541	C	4.3G
C542	C	4.5G
C543	C	4.2G
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C548	C	4.4G
C549	C	4.2G
C550	C	4.3H
C551	C	4.4G
C552	C	4.5F
C553	C	4.2G
C554	C	4.4G
C555	C	4.3H
C556	C	4.5H
C557	C	4.2G
C558	C	4.4G
C559	C	2.3A
C560	C	2.3A
C561	C	2.4A
C562	C	3.2C
C563	C	2.3A
C564	C	2.3A
C565	C	3.3D
C566	C	2.3B
C567	C	3.3D
C568	C	6.3H
C569	C	7.4D
C570	C	7.2H
C571	C	7.3F
C572	C	7.2G
C573	C	7.3H
C574	C	3.3D
C575	C	2.3A
C576	C	2.3A
C577	C	3.2D
C578	C	2.5D
C579	C	2.5D
C580	C	2.3A
C581	C	2.3A
C582	C	3.5A
C583	C	3.3D
C584	C	3.1C
C585	C	3.2D
C586	C	3.1D
C587	C	3.1D
C588	C	3.2C
C589	C	3.2D
C590	C	3.1D
C591	C	2.1F
C592	C	3.1D
C593	C	2.2F
C594	C	2.2F
C595	C	2.3F
C596	C	2.3G
C597	C	2.3F
C598	C	3.1D
C599	C	7.2G
C600	C	7.2F
C601	C	7.2G
C602	C	7.2H
C603	C	7.2F
C604	C	7.3G
C605	C	7.3G
C606	C	7.2G
C607	C	7.3G
C608	C	7.2G
C609	C	7.2H
C610	C	7.2G
C611	C	2.1F
C612	C	2.1G
C613	C	2.1G
C614	C	2.2F
C615	C	2.1F
C616	C	2.1F
C617	C	3.1C
C618	C	2.1F
C619	C	2.3F
C620	C	2.1G
C621	C	2.1F
C622	C	2.1F
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C624	C	7.2H
C625	C	3.1D
C626	C	2.1F
C627	C	2.2F
C628	C	2.3F
C629	C	2.1F
C630	C	2.2F
C631	C	3.1D
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C643	C	7.4G
C644	C	7.5F
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C646	C	2.2G
C647	C	2.1F
C648	C	3.1D
C649	C	11.4C
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C666	C	2.2F
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C670	C	11.4C
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C672	C	3.2D
C673	C	11.4B
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C685	C	7.5G
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C692	C	7.4H
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C694	C	12.4B
C695	C	8.2A
C696	C	11.4A
C697	C	8.3B
C698	C	11.4A
C699	C	11.4A
C701	C	8.3A
C702	C	8.4B
C705	C	2.1A
C717	C	8.5C
C721	C	8.5D
C734	C	12.4G
C735	C	10.3F
C738	C	10.5E
C739	C	10.4E
C740	C	10.4E
C754	C	10.5E
C755	C	10.4E
C756	C	10.4E
C757	C	10.3C
C760	C	10.5C
C768	C	10.3F
C769	C	10.5F
C770	C	10.4F
C771	C	10.4F
C774	C	9.5E
C776	C	9.5E
C778	C	9.5B
C779	C	9.4B
C780	C	9.4B
C782	C	9.5C
C783	C	9.4C
C784	C	9.4C
C795	C	9.2C
C796	C	9.3C
C797	C	9.5C
C798	C	9.4C
C799	C	9.4C
C805	C	10.2F
C807	C	10.2F
C808	C	19.4G
C900	C	17.2G
C901	C	17.4H
C913	C	16.5A
C914	C	16.3B
C918	C	16.2C
C919	C	16.4E
C920	C	16.4E
C924	C	16.4F
C928	C	16.2G
C930	C_POL	16.2G
C962	C	16.2B
C963	C	16.3B
C964	C	16.2B
C965	C	16.3B
C966	C	16.2B
C967	C	16.3B
C968	C	16.2C
C969	C	16.3C
C970	C	16.2C
C971	C	16.5C
C972	C	16.4C
C973	C	16.3D
C974	C	16.3E
C976	C	16.4E
C977	C	16.4F
C978	C	16.4F
C979	C	16.4F
C980	C	16.3F
C981	C	16.3F
C982	C_POL	16.2F
C983	C	16.2F
C984	C	16.2G
C985	C	17.3C
C986	C	17.4C
C987	C	17.4C
C988	C	17.3D
C989	C	17.4C
C990	C	17.3D
C991	C	17.4D
C992	C	17.1D
C993	C	17.3E
C994	C	17.3E
C995	C	17.4F
C996	C	17.4F
C997	C	17.4F
C999	C	17.4G
CN501	CON_AGP	2.1B
D1	D_3PIN_AC	11.5E
D4	D	12.4F
D5	D_SCHOTTKY	18.1C
D6	D_SCHOTTKY	18.1A
D7	D_SCHOTTKY	19.2D
D8	D_3PIN_AC	15.5B
D9	D_3PIN_AC	19.2H
D14	D_3PIN_AC	15.4B
D15	D_3PIN_AC	15.5B
D19	D_3PIN_AC	15.4B
D26	D_3PIN_AC	15.3B
D27	D_3PIN_AC	15.3B
D28	D_3PIN_AC	15.2B
DS01	D	19.1C
DS02	D_SCHOTTKY	18.4E
D503	D	18.1A
D504	D	18.1D
D905	D	17.2E
D908	D	17.2E
D909	D	17.2F
F1	F_POLYSW	19.4G
H1	TESTPOINT	15.3G
H2	TESTPOINT	15.3G
H3	TESTPOINT	15.3G
J1	CON_DVI_I	11.3H
J2	CON_HSC42	15.2F
J3	CON_DSUB15HD	9.3E
J4	TUNER_CAN	16.1D
J5	HDR_1X2	12.4G
J8	HDR_1X4	15.1C
J100	HDR_2X15_2MM	14.4B
J909	CON_RF_TH_F	16.2A
L1	L	18.4F
L2	L	18.3C
L3	L	19.2D
L4	L	15.4B
L5	L	15.4B
L6	L	15.4B
L18	L	15.5B
L20	L	15.3C
L21	L	15.3C
L22	L	15.2C
L501	L	10.3F
L504	L	10.5E
L505	L	10.4E
L506	L	10.4E
L507	L	10.3F
L508	L	10.5F
L509	L	10.4F
L510	L	10.4F
L512	L	9.5B
L513	L	9.4B
L514	L	9.3B
L515	L	9.2C
L516	L	9.3C
L517	L	9.5C
L518	L	9.4C

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L519	L	9.3C
L904	L	16.3C
L905	L	16.2D
L906	L	16.2C
L907	L	16.2C
L908	L	16.2B
L909	L	17.3C
L910	L	16.3H
LB1	L	14.5H
LB2	L	19.4G
LB3	L	11.5F
LB4	L	9.2C
LB5	L	9.1C
LB6	L	10.3B
LB7	L	14.4H
LB8	L	20.2F
LB9	L	10.3C
LB10	L	18.1B
LB11	L	2.4G
LB12	L	8.4B
LB13	L	20.2F
LB14	L	16.2G
LB15	L	14.1C
LB25	L	15.1C
LB26	L	15.1C
LB27	L	15.2C
LB28	L	15.2C
LBS01	L	3.3D
LBS02	L	8.1A
LBS03	L	11.4B
LBS04	L	11.4B
LBS05	L	11.3B
LBS06	L	8.3A
LBS11	L	10.2F
LBS12	L	10.1F
MEC1	HEATSINK	19.4B
MEC2	MEC_SCREW	19.4B
MEC3	MEC_SCREW	19.5B
MEC4	MEC_SCREW	19.5B
MEC5	MEC_SCREW	19.5B
MEC6	HEATSINK	19.5B
Q1	Q_FET_N_ENH	12.4F
Q2	Q_FET_N_ENH	2.4C 2.5C
Q3	Q_FET_N_ENH	18.4B
Q4	Q_FET_N_ENH	2.5A
Q5	Q_PNP	2.5B
Q6	Q_FET_N_ENH	19.2C
Q7	Q_FET_N_ENH	18.3E
Q8	Q_NPN	20.2E
Q9	Q_FET_N_ENH	18.3G
Q501	Q_FET_N_ENH	18.4E
Q502	Q_FET_N_ENH	8.4B
Q503	Q_NPN	11.2D
Q504	Q_NPN	11.2E
Q505	Q_PNP	11.2E
Q908	Q_NPN	16.5B
Q909	Q_NPN	17.5F
Q910	Q_NPN	17.4F
Q911	Q_NPN	17.2F
R1	R	11.5F
R2	R	11.5F
R3	R	14.3G
R4	R	11.5E
R5	R	9.2B
R6	R	9.2B
R7	R	9.1B
R8	R	9.1B
R9	R	8.4F
R10	R	15.2E
R11	R	8.3F
R12	R	18.4E
R13	R	8.3F
R15	R	8.2F
R17	R	12.4F
R18	R	13.2B
R19	R	13.2B
R20	R	13.2C
R21	R	13.2C
R22	R	10.4C
R23	R	13.3B
R24	R	13.3C
R25	R	13.1F
R26	R	18.1C
R27	R	14.3G
R28	R	14.2C
R29	R	13.2C
R30	R	13.3B
R31	R	18.2D
R32	R	13.3C
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R34	R	18.2B
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R37	R	18.2B
R38	L	18.1D
R39	R	13.2B
R40	R	13.2B
R41	R	13.2B
R42	R	13.2C
R43	R	13.2C
R44	R	13.2C
R45	R	12.4C
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R47	R	6.5D
R48	R	6.5D
R49	R	6.5D
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R51	R	6.5F
R52	R	6.4C
R53	R	3.5F
R54	R	2.3C
R55	R	7.5F
R56	R	7.5F

R57	R	7.4E
R58	R	2.5C
R59	R	2.5C
R60	R	2.4C
R61	R	2.5C
R62	R	4.5F
R63	R	5.5F
R64	R	4.5F
R65	R	5.5F
R66	R	4.5D
R67	R	4.5D
R68	R	3.5B
R69	R	4.4E
R70	R	5.4E
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R72	R	4.5D
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R78	R	14.2C
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R80	R	14.2C
R81	R	20.3F
R82	R	20.3F
R83	R	20.3F
R84	R	14.3G
R85	R	20.3F
R86	R	18.3G
R87	R	18.3G
R88	R	15.4E
R89	R	20.3E
R90	R	14.3G
R91	R	12.2H
R92	R	12.2H
R93	R	18.3G
R94	R	19.2D
R98	R	20.3B
R99	R	20.4B
R121	R	14.2G
R126	R	16.4F
R145	R	20.4C
R147	R	20.3D
R148	R	20.3B
R163	R	20.4B
R164	R	20.4B
R169	R	20.3B
R190	R	20.2C
R217	R	14.2C
R218	R	14.2D
R219	R	14.2C
R220	R	14.2D
R221	R	14.4D
R222	R	14.4E
R223	R	14.3H
R501	R	19.2B
R502	R	19.1B
R503	R	19.1C
R504	R	19.3C
R505	R	19.2C
R506	R	18.4D
R507	R	19.2D
R508	R	19.3D
R509	R	18.3C
R510	R	19.2C
R511	R	19.3E
R512	R	19.2B
R513	R	18.4D
R514	R	19.5E
R515	R	19.5E
R516	R	19.5E
R517	R	19.2E
R518	R	18.3C
R519	R	18.3D
R520	R	18.1F
R521	R	18.5E
R522	R	5.5D
R523	R	5.5D
R524	R	18.4F
R525	R	18.4F
R526	R	18.5F
R527	R	18.4B
R528	R	18.4F
R529	R	4.4C
R530	R	5.4C
R531	R	18.4C
R532	R	18.4C
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R534	R	5.5D
R535	R	18.4B
R536	R	19.4E
R537	R	2.4A
R538	R	2.4A
R539	R	19.4E
R540	R	2.4A
R541	R	19.4E
R542	R	2.4A
R543	R	2.3C
R544	R	7.5D
R545	R	7.5D
R546	R	2.4F
R547	R	2.5D
R548	R	7.5D
R549	R	7.5D
R550	R	2.5D
R551	R	7.4C
R552	R	3.5A
R553	R	3.5A
R554	R	3.4D
R555	R	3.4D
R556	R	3.4H
R557	R	2.4F

R558	R	3.4H
R559	R	2.4F
R560	R	6.4E
R561	R	11.2A
R562	R	11.4C
R563	R	12.4A
R564	R	11.2A
R565	R	8.2D
R566	R	8.5C
R567	R	11.2A
R568	R	8.2C
R569	R	8.2C
R570	R	3.2G
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R576	R	8.4D
R577	R	2.4E
R578	R	12.2A
R579	R	3.2G
R580	R	12.2H
R581	R	12.4A
R582	R	12.2H
R583	R	12.2F
R584	R	13.4B
R585	R	12.2F
R586	R	13.1C
R587	R	8.3C
R588	R	8.3B
R589	R	8.3C
R590	R	8.3B
R591	R	12.4A
R592	R	12.4A
R594	R	2.4B
R595	R	11.2F
R596	R	2.4B
R598	R	11.2D
R599	R	11.2F
R600	R	13.1C
R601	R	13.1B
R602	R	13.1B
R603	R	13.1C
R604	R	11.2D
R605	R	13.2C
R606	R	13.2B
R607	R	13.3B
R608	R	13.3C
R610	R	11.2E
R611	R	11.2E
R612	R	11.2E
R613	R	11.2E
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R619	R	10.3A
R620	R	10.4A
R621	R	10.4B
R622	R	10.4A
R623	R	10.4B
R624	R	10.5A
R625	R	10.5B
R626	R	12.4C
R627	R	12.4D
R628	R	12.4D
R629	R	12.4C
R632	R	10.4B
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R635	R	10.4B
R638	R	10.3B
R639	R	10.4B
R640	R	10.5B
R650	R	9.5B
R651	R	9.4B
R652	R	9.4B
R654	R	9.5B
R655	R	9.4B
R656	R	9.4B
R657	R	10.2D
R658	R	10.1D
R660	R	10.2E
R661	R	10.2E
R662	R	9.4D
R663	R	9.3E
R664	R	11.3F
R665	R	11.4F
R666	R	11.4F
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R668	R	11.4F
R669	R	11.4F
R670	R	11.3F
R672	R	19.4A
R900	R	17.5F
R901	R	17.4F
R902	R	17.2F
R903	R	17.4F
R904	R	17.2F
R905	R	17.2G
R906	R	17.4G
R907	R	17.4G
R908	R	17.4G
R910	R	16.2B
R911	R	16.2A
R912	R	16.2B
R926	R	17.2G
R931	R	16.3B
R933	R	16.5B
R938	R	16.5B
R981	R	16.5B
R982	R	16.4B

R983	R	16.3C
R989	R	16.2F
R990	R	17.4C
R991	R	17.2C
R992	R	17.2C
R993	R	17.4C
R994	R	17.2D
R995	R	17.2F
RF1	RF_MOD_LGX200T	14.1D
RP1	R_PAK	6.3B 6.4B
RP2	R_PAK	6.3B
RP3	R_PAK	6.4B
RP4	R_PAK	6.2B 6.3B
RP5	R_PAK	6.2B
RP6	R_PAK	7.3B
RP7	R_PAK	7.3B
RP8	R_PAK	7.4B
RP9	R_PAK	7.2B
RP10	R_PAK	7.2B
RP11	R_PAK	4.3B 4.4B
RP12	R_PAK	4.3B
RP13	R_PAK	4.4B
RP14	R_PAK	4.2B 4.3B
RP15	R_PAK	4.2B
RP16	R_PAK	5.3B
RP17	R_PAK	5.3B
RP18	R_PAK	5.4B
RP19	R_PAK	5.2B
RP20	R_PAK	5.2B
RP501	R_PAK	4.3B
RP502	R_PAK	4.3B
RP503	R_PAK	4.4B
RP504	R_PAK	4.2B
RP505	R_PAK	4.2B
RP506	R_PAK	5.3B 5.4B
RP507	R_PAK	5.3B
RP508	R_PAK	5.4B
RP509	R_PAK	5.2B 5.3B
RP510	R_PAK	5.2B
RP511	R_PAK	7.2B
RP512	R_PAK	7.2B 7.2B 7.3B
RP513	R_PAK	7.4B
RP514	R_PAK	7.3B
RP515	R_PAK	7.3B 7.4B
RP516	R_PAK	6.2B
RP517	R_PAK	6.2B
RP518	R_PAK	6.4B
RP519	R_PAK	6.3B
RP520	R_PAK	6.3B
TS01	TR_5PIN_B4F	16.3C
TS02	TR_5PIN_B4F	17.2C
TP1	TESTPOINT	19.3E
TP2	TESTPOINT	19.2E
TP3	TESTPOINT	19.3E
TP501	TESTPOINT	18.4F
TP502	TESTPOINT	18.4C
TP503	TESTPOINT	18.4H
TP504	TESTPOINT	18.5G
TP505	TESTPOINT	18.4A
TP506	TESTPOINT	18.4B
U1	U_AND_2IN	8.2F 8.3F 8.4F
U2	U_MEM_FL_SER_128KX8	13.1F
U3	U_VENC_CX25BXX	20.2C
U5	U_MEM_FL_SER_128KX8	13.2F
U6	U_TEMP_AD1032	12.3F
U7	U_VREG_3PIN	18.1A
U8	U_VREG_5PIN	18.1C
U9	U_MEM_SD_DDR_4_8MX16	6.2D 6.2E 6.3D
U10	U_GPU_DDR2M64X2_V1	2.1D 3.1B 3.1F 8.1C 8.3C 8.4C 11.1B 11.3C 12.1B 12.1F 12.3B
U11	U_MEM_SD_DDR_4_8MX16	7.1D 7.1E 7.3E
U12	U_MEM_SD_DDR_4_8MX16	4.2D 4.2E 4.3D
U13	U_MEM_SD_DDR_4_8MX16	5.1D 5.1E 5.3E
U14	U_SWREG_SC2610	18.1F
U15	U_XOR_2IN	14.2H
U16	U_SWLANA_1G125	10.5B
U17	U_VDEC_SAA71XX	14.2F
U501	U_SWREG_SC2612	19.2G
U502	U_SWREG_HIP6012	19.2B
U503	U_SWREG_ISL6529	18.4C
U504	U_MEM_SD_DDR_4_8MX16	4.1D 4.1E 4.3E
U505	U_MEM_SD_DDR_4_8MX16	5.2D 5.2E 5.3D
U506	U_MEM_SD_DDR_4_8MX16	7.2D 7.2E 7.3D
U507	U_MEM_SD_DDR_4_8MX16	6.1D 6.1E 6.3E
U509	U_SWLANA_3257	10.3B 10.4B 10.4B 10.4C 10.5B
U903	U_RF_MT2050	16.3D
U908	U_SAW_EPCOS	17.2F
U916	U_VREG_3PIN	16.2F
U918	U_SAW_B1603	16.3G
U919	U_SAW_EPCOS	17.2C
U920	U_VDEM_TDA988X	17.3D
Y2	XTAL	8.5C
Y3	XTAL	14.5D
Y4	XTAL	20.4B
Y901	XTAL	16.5C

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