P621-A00: G98-GB1-64, MXM-I, 256/128MB GDDR2 (32M/16Mx16), LVDS, HDMI, TV_OUT, VGA, HD Audio, DP option

Table of Contents

SKU	VARIANT	NVPN	ASSEMBLY
B	Base	600-10621-0000-000	BASE LEVEL GENERIC SCHEMATIC ONLY
1	SKU0001	600-10621-0001-000	NB9M-GS G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
2	SKU0002	600-10621-0002-000	Cancelled 128MB version
3	SKU0003	600-10621-0003-000	NB9M-GE G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
4	SKU9998	600-10621-9998-000	All components
5	<UNDEFINED>	<UNDEFINED?	<UNDEFINED?
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14	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
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ASSEMBLY	NB9M-GS G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
PAGE DETAIL	PAGE OVERVIEW

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

NV_PN	600-10621-0001-000 A		
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NAME	Thorsten Freund	DATE	13-SEP-2007

PCI-EXPRESS

CN1
CON_MXM_X16_EDGE
(NPHY,NONPHY)-X16(_SLI)
NONPHY-X16
COMMON

1/2 PCI-Express, Power

3V3_RUN
C2 .1UF 10V 10% X5R 0402 COMMON
C3 .1UF 10V 10% X5R 0402 COMMON
238 3V3RUN (1.5A)

1V8_RUN
C535 .1UF 10V 10% X5R 0402 COMMON
2 1V8RUN (3.5A)

PWR_SRC
C531 1UF 25V 10% X7R 0603 COMMON
1 PWR_SRC (4A)

2V5_RUN
234 2V5RUN (0.5A)
C29 .1UF 10V 10% X5R 0402 COMMON

5V_RUN
C536 .1UF 10V 10% X5R 0402 COMMON
18 5VRUN (0.5A)

17 20 41 44 47 50 53 56 59 62 65 68 71 74 77 80 83 86 89 92 95 98 101 104 107 110 113 116 119 122 125 128 131 138 142 146 150 154 158 164 176 182 188 194 199 200 205 206 211 212 218 223 229 235 236 241 GND

7<> 7< OUT HDA_RST*

10< OUT IFPC_HPD

CN1		NET_NAME	DIFF_PAIR	NV_CRITICAL_NET	NV_IMPEDANCE			G1	NET_NAME	NV_CRITICAL_NET	NV_IMPEDANCE	DIFF_PAIR
CLK_REQ	137							SNN_RFU_AE9	AE9	RFU		
PEX_RST	139							PEX_RST	AD9	PEX_RST		
PEX_REFCLK	135	PEX_RCLK	PEX_REFCLK	1	100DIFF			PEX_REFCLK	AB10	PEX_REFCLK		
PEX_REFCLK	133	PEX_RCLK	PEX_REFCLK*	1	100DIFF			PEX_REFCLK*	AC10	PEX_REFCLK		
PEX_RX0	129	PEX_TX0_C	PEX_TX0_C	1	90DIFF	C622 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX0	AD10	PEX_TX0		
PEX_RX0	127	PEX_TX0_C*	PEX_TX0_C	1	90DIFF	C612 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX0*	AD11	PEX_TX0		
PEX_TX0	132				90DIFF		1	PEX_RX0	AE12	PEX_RX0		
PEX_TX0	130				90DIFF		1	PEX_RX0*	AF12	PEX_RX0		
PEX_RX1	123	PEX_TX1_C	PEX_TX1_C	1	90DIFF	C611 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX1	AD12	PEX_TX1		
PEX_RX1	121	PEX_TX1_C*	PEX_TX1_C	1	90DIFF	C602 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX1*	AC12	PEX_TX1		
PEX_TX1	126				90DIFF		1	PEX_RX1	AG12	PEX_RX1		
PEX_TX1	124				90DIFF		1	PEX_RX1*	AG13	PEX_RX1		
PEX_RX2	117	PEX_TX2_C	PEX_TX2_C	1	90DIFF	C601 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX2	AB11	PEX_TX2		
PEX_RX2	115	PEX_TX2_C*	PEX_TX2_C	1	90DIFF	C594 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX2*	AB12	PEX_TX2		
PEX_TX2	120				90DIFF		1	PEX_RX2	AF13	PEX_RX2		
PEX_TX2	118				90DIFF		1	PEX_RX2*	AE13	PEX_RX2		
PEX_RX3	111	PEX_TX3_C	PEX_TX3_C	1	90DIFF	C593 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX3	AD13	PEX_TX3		
PEX_RX3	109	PEX_TX3_C*	PEX_TX3_C	1	90DIFF	C589 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX3*	AD14	PEX_TX3		
PEX_TX3	114				90DIFF		1	PEX_RX3	AE15	PEX_RX3		
PEX_TX3	112				90DIFF		1	PEX_RX3*	AF15	PEX_RX3		
PEX_RX4	105	PEX_TX4_C	PEX_TX4_C	1	90DIFF	C587 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX4	AD15	PEX_TX4		
PEX_RX4	103	PEX_TX4_C*	PEX_TX4_C	1	90DIFF	C581 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX4*	AC15	PEX_TX4		
PEX_TX4	108				90DIFF		1	PEX_RX4	AG15	PEX_RX4		
PEX_TX4	106				90DIFF		1	PEX_RX4*	AG16	PEX_RX4		
PEX_RX5	99	PEX_TX5_C	PEX_TX5_C	1	90DIFF	C579 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX5	AB14	PEX_TX5		
PEX_RX5	97	PEX_TX5_C*	PEX_TX5_C	1	90DIFF	C578 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX5*	AB15	PEX_TX5		
PEX_TX5	102				90DIFF		1	PEX_RX5	AF16	PEX_RX5		
PEX_TX5	100				90DIFF		1	PEX_RX5*	AE16	PEX_RX5		
PEX_RX6	93	PEX_TX6_C	PEX_TX6_C	1	90DIFF	C575 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX6	AC16	PEX_TX6		
PEX_RX6	91	PEX_TX6_C*	PEX_TX6_C	1	90DIFF	C573 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX6	AD16	PEX_TX6		
PEX_TX6	96				90DIFF		1	PEX_RX6	AE18	PEX_RX6		
PEX_TX6	94				90DIFF		1	PEX_RX6*	AF18	PEX_RX6		
PEX_RX7	87	PEX_TX7_C	PEX_TX7_C	1	90DIFF	C570 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX7	AD17	PEX_TX7		
PEX_RX7	85	PEX_TX7_C*	PEX_TX7_C	1	90DIFF	C569 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX7*	AD18	PEX_TX7		
PEX_TX7	90				90DIFF		1	PEX_RX7	AG18	PEX_RX7		
PEX_TX7	88				90DIFF		1	PEX_RX7*	AG19	PEX_RX7		
PEX_RX8	81	PEX_TX8_C	PEX_TX8_C	1	90DIFF	C568 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX8	AC18	PEX_TX8		
PEX_RX8	79	PEX_TX8_C*	PEX_TX8_C	1	90DIFF	C567 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX8*	AB18	PEX_TX8		
PEX_TX8	84				90DIFF		1	PEX_RX8	AF19	PEX_RX8		
PEX_TX8	82				90DIFF		1	PEX_RX8*	AE19	PEX_RX8		
PEX_RX9	75	PEX_TX9_C	PEX_TX9_C	1	90DIFF	C566 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX9	AB19	PEX_TX9		
PEX_RX9	73	PEX_TX9_C*	PEX_TX9_C	1	90DIFF	C565 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX9*	AB20	PEX_TX9		
PEX_TX9	78				90DIFF		1	PEX_RX9	AE21	PEX_RX9		
PEX_TX9	76				90DIFF		1	PEX_RX9*	AF21	PEX_RX9		
PEX_RX10	69	PEX_TX10_C	PEX_TX10_C	1	90DIFF	C564 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX10	AD19	PEX_TX10		
PEX_RX10	67	PEX_TX10_C*	PEX_TX10_C	1	90DIFF	C563 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX10*	AD20	PEX_TX10		
PEX_TX10	72				90DIFF		1	PEX_RX10	AG21	PEX_RX10		
PEX_TX10	70				90DIFF		1	PEX_RX10*	AG22	PEX_RX10		
PEX_RX11	63	PEX_TX11_C	PEX_TX11_C	1	90DIFF	C562 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX11	AD21	PEX_TX11		
PEX_RX11	61	PEX_TX11_C*	PEX_TX11_C	1	90DIFF	C561 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX11*	AC21	PEX_TX11		
PEX_TX11	66				90DIFF		1	PEX_RX11	AF22	PEX_RX11		
PEX_TX11	64				90DIFF		1	PEX_RX11*	AE22	PEX_RX11		
PEX_RX12	57	PEX_TX12_C	PEX_TX12_C	1	90DIFF	C560 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX12	AB21	PEX_TX12		
PEX_RX12	55	PEX_TX12_C*	PEX_TX12_C	1	90DIFF	C559 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX12*	AB22	PEX_TX12		
PEX_TX12	60				90DIFF		1	PEX_RX12	AE24	PEX_RX12		
PEX_TX12	58				90DIFF		1	PEX_RX12*	AF24	PEX_RX12		
PEX_RX13	51	PEX_TX13_C	PEX_TX13_C	1	90DIFF	C558 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX13	AC22	PEX_TX13		
PEX_RX13	49	PEX_TX13_C*	PEX_TX13_C	1	90DIFF	C557 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX13*	AD22	PEX_TX13		
PEX_TX13	54				90DIFF		1	PEX_RX13	AG24	PEX_RX13		
PEX_TX13	52				90DIFF		1	PEX_RX13*	AF25	PEX_RX13		
PEX_RX14	45	PEX_TX14_C	PEX_TX14_C	1	90DIFF	C553 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX14	AD23	PEX_TX14		
PEX_RX14	43	PEX_TX14_C*	PEX_TX14_C	1	90DIFF	C549 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX14*	AD24	PEX_TX14		
PEX_TX14	48				90DIFF		1	PEX_RX14	AG25	PEX_RX14		
PEX_TX14	46				90DIFF		1	PEX_RX14*	AG26	PEX_RX14		
PEX_RX15	39	PEX_TX15_C	PEX_TX15_C	1	90DIFF	C545 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX15	AE25	PEX_TX15		
PEX_RX15	37	PEX_TX15_C*	PEX_TX15_C	1	90DIFF	C541 .1UF 10V 10% X5R 0402 COMMON	90DIFF	PEX_TX15*	AE26	PEX_TX15		
PEX_TX15	42				90DIFF		1	PEX_RX15	AF27	PEX_RX15		
PEX_TX15	40				90DIFF		1	PEX_RX15*	AE27	PEX_RX15		

PRSNT1 134
PRSNT2 38
PEX_PRSNT2 — R83 0 0402 5% COMMON — PEX_PRSNT2_R — OUT 14<

G1
G98-630-U1 NB
BGA533
CHANGED
1/13 PCI_EXPRESS

PEX_IOVDD AC9 AD7 AD8 AE7 AF7 AG7
PEX_IOVDDQ AB13 AB16 AB17 AB7 AB8 AB9 AC13 AC7 AD6 AE6 AF6 AG6
VDD J10 J12 J13 J9 L9 M11 M17 M9 N11 N12 N13 N14 N15 N16 N17 N19 N9 P11 P12 P13 P14 P15 P16 P17 R11 R12 R13 R14 R15 R16 R17 R9 T11 T17 T9 U19 U9 W10 W12 W13 W18 W19 W9

PLACE UNDER GPU (near BALLS)
C632 .47UF 6.3V 10% X5R 0402 COMMON
C629 .1UF 16V 10% X7R 0402 COMMON
C634 1UF 6.3V 10% X5R 0402 COMMON
C640 1UF 6.3V 10% X5R 0402 COMMON

PLACE near GPU
PEX_VDD
C30 4.7UF 6.3V 10% X5R 0603 COMMON
C28 22UF 6.3V 20% X5R 0805 COMMON
GND

PLACE UNDER GPU (near BALLS)
C626 .47UF 6.3V 10% X5R 0402 COMMON
C619 .1UF 16V 10% X7R 0402 COMMON
C31 1UF 6.3V 10% X5R 0402 COMMON
C606 1UF 6.3V 10% X5R 0402 COMMON

PLACE near GPU
PEX_VDD
C537 4.7UF 6.3V 10% X5R 0603 COMMON
C32 22UF 6.3V 20% X5R 0805 COMMON
GND

PLACE UNDER GPU (near BALLS)
NVVDD
C618 .022UF 6.3V 10% X5R 0402 COMMON
C596 .022UF 6.3V 10% X5R 0402 COMMON
C614 .022UF 6.3V 10% X5R 0402 COMMON
C613 .022UF 6.3V 10% X5R 0402 COMMON
C631 .022UF 6.3V 10% X5R 0402 COMMON
C616 .022UF 6.3V 10% X5R 0402 COMMON
C625 .1UF 6.3V 10% X5R 0402 COMMON
C627 .1UF 6.3V 10% X7R 0402 COMMON
C609 .1UF 6.3V 10% X7R 0402 COMMON
C592 .1UF 6.3V 10% X7R 0402 COMMON
C610 .47UF 6.3V 10% X7R 0603 COMMON
C598 1UF 6.3V 10% X7R 0603 COMMON
C607 4.7UF 6.3V 10% X5R 0603 COMMON
C600 .1UF 6.3V 10% X7R 0402 COMMON
C628 .1UF 6.3V 10% X7R 0402 COMMON
C624 .1UF 6.3V 10% X7R 0402 COMMON
C597 .1UF 6.3V 10% X7R 0402 COMMON
C49 10UF 6.3V 20% X5R 0805 COMMON
C45 22UF 6.3V 20% X5R 0805 COMMON
C48 47UF 4V 20% X5R 0805 COMMON
GND

VDD_SENSE W15 NVVDD_SENSE — 1 — BI 12<>
GND_SENSE W16 GND_SENSE — TP6

3V3_RUN
PLACE UNDER GPU
VDD33 A12 B12 C12 D12 E12 F12
C37 .1UF 6.3V 10% X7R 0402 COMMON
C621 .1UF 6.3V 10% X7R 0402 COMMON
C620 1UF 6.3V 10% X5R 0402 COMMON
GND

PEX_VDD
PLACE UNDER GPU
PEX_PLLVDD AF9 PEX_PLLVDD — 1.1V 16MIL — LB3 10nH 0603 COMMON
C35 .01UF 6.3V 10% X5R 0402 COMMON
C33 .1UF 6.3V 10% X5R 0402 COMMON
C34 1UF 6.3V 10% X5R 0402 COMMON
C36 4.7UF 6.3V 10% X5R 0603 COMMON
GND

PEX_TSTCLK_OUT AF10 PEX_TCLK — PEX_TCLK 1 100DIFF
PEX_TSTCLK_OUT AE10 PEX_TCLK* — PEX_TCLK 1 100DIFF
R70 200 0402 COMMON
GND

RFU AG9 SNN_RFU_AG9

PEX_TERMP AG10 PEX_TERMP
R71 2.49K 0402 1% COMMON
GND

ASSEMBLY	NB9M-GS G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
PAGE DETAIL	PCI EXPRESS INTERFACE

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

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ID	p621	PAGE	2 OF 16
NAME	Thorsten Freund	DATE	13-SEP-2007

GPU MEMORY INTERFACE

GPU MEMORY CONSTRAINTS

NET	NV_IMPEDANCE	NV_CRITICAL
FB_CAL_PD_VDDQ	500HM	2
FB_CAL_PU_GND	500HM	2
FB_CAL_TERM_GND	500HM	2

NET	VOLTAGE	MIN_LINE_WIDTH
FB_VREF	0.9V	16.00
FB_PLLAVDD	1.1V	16.00

G1
G98-630-U1 NB
BGA533
CHANGED

2/13 FRAME_BUFFER

FBA_D<63..0> (BI)

0	FBA_D<0>	D21	FBA_D0
1	FBA_D<1>	C22	FBA_D1
2	FBA_D<2>	B22	FBA_D2
3	FBA_D<3>	A22	FBA_D3
4	FBA_D<4>	C24	FBA_D4
5	FBA_D<5>	B25	FBA_D5
6	FBA_D<6>	A25	FBA_D6
7	FBA_D<7>	A26	FBA_D7
8	FBA_D<8>	D22	FBA_D8
9	FBA_D<9>	E22	FBA_D9
10	FBA_D<10>	E24	FBA_D10
11	FBA_D<11>	D24	FBA_D11
12	FBA_D<12>	D26	FBA_D12
13	FBA_D<13>	D27	FBA_D13
14	FBA_D<14>	C27	FBA_D14
15	FBA_D<15>	B27	FBA_D15
16	FBA_D<16>	D16	FBA_D16
17	FBA_D<17>	E16	FBA_D17
18	FBA_D<18>	D17	FBA_D18
19	FBA_D<19>	F18	FBA_D19
20	FBA_D<20>	D20	FBA_D20
21	FBA_D<21>	F20	FBA_D21
22	FBA_D<22>	E21	FBA_D22
23	FBA_D<23>	F21	FBA_D23
24	FBA_D<24>	C16	FBA_D24
25	FBA_D<25>	B18	FBA_D25
26	FBA_D<26>	C18	FBA_D26
27	FBA_D<27>	D18	FBA_D27
28	FBA_D<28>	C19	FBA_D28
29	FBA_D<29>	C21	FBA_D29
30	FBA_D<30>	B21	FBA_D30
31	FBA_D<31>	A21	FBA_D31
32	FBA_D<32>	P22	FBA_D32
33	FBA_D<33>	P24	FBA_D33
34	FBA_D<34>	R23	FBA_D34
35	FBA_D<35>	R24	FBA_D35
36	FBA_D<36>	T23	FBA_D36
37	FBA_D<37>	U24	FBA_D37
38	FBA_D<38>	V23	FBA_D38
39	FBA_D<39>	V24	FBA_D39
40	FBA_D<40>	N25	FBA_D40
41	FBA_D<41>	N26	FBA_D41
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43	FBA_D<43>	R26	FBA_D43
44	FBA_D<44>	T25	FBA_D44
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47	FBA_D<47>	V27	FBA_D47
48	FBA_D<48>	V22	FBA_D48
49	FBA_D<49>	W22	FBA_D49
50	FBA_D<50>	W23	FBA_D50
51	FBA_D<51>	W24	FBA_D51
52	FBA_D<52>	AA22	FBA_D52
53	FBA_D<53>	AB23	FBA_D53
54	FBA_D<54>	AB24	FBA_D54
55	FBA_D<55>	AC24	FBA_D55
56	FBA_D<56>	W25	FBA_D56
57	FBA_D<57>	W26	FBA_D57
58	FBA_D<58>	W27	FBA_D58
59	FBA_D<59>	AA25	FBA_D59
60	FBA_D<60>	AB25	FBA_D60
61	FBA_D<61>	AB26	FBA_D61
62	FBA_D<62>	AD26	FBA_D62
63	FBA_D<63>	AD27	FBA_D63

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3	FBA_DQM<3>	B19	FBA_DQM3
4	FBA_DQM<4>	T24	FBA_DQM4
5	FBA_DQM<5>	T26	FBA_DQM5
6	FBA_DQM<6>	AA23	FBA_DQM6
7	FBA_DQM<7>	AB27	FBA_DQM7

4<	FBA_DQS_WP0	A24	FBA_DQS_WP0
4<	FBA_DQS_WP1	C25	FBA_DQS_WP1
4<	FBA_DQS_WP2	E19	FBA_DQS_WP2
4<	FBA_DQS_WP3	A19	FBA_DQS_WP3
5<	FBA_DQS_WP4	T22	FBA_DQS_WP4
5<	FBA_DQS_WP5	T27	FBA_DQS_WP5
5<	FBA_DQS_WP6	AA24	FBA_DQS_WP6
5<	FBA_DQS_WP7	AA26	FBA_DQS_WP7
4<	FBA_DQS_RN0	B24	FBA_DQS_RN0
4<	FBA_DQS_RN1	D25	FBA_DQS_RN1
4<	FBA_DQS_RN2	E18	FBA_DQS_RN2
4<	FBA_DQS_RN3	A18	FBA_DQS_RN3
5<	FBA_DQS_RN4	R22	FBA_DQS_RN4
5<	FBA_DQS_RN5	R27	FBA_DQS_RN5
5<	FBA_DQS_RN6	Y24	FBA_DQS_RN6
5<	FBA_DQS_RN7	AA27	FBA_DQS_RN7

FBVDDQ

FBVDDQ	A13
FBVDDQ	B13
FBVDDQ	C13
FBVDDQ	D13
FBVDDQ	D14
FBVDDQ	E13
FBVDDQ	F13
FBVDDQ	F14
FBVDDQ	F15
FBVDDQ	F16
FBVDDQ	F17
FBVDDQ	F19
FBVDDQ	F22
FBVDDQ	H23
FBVDDQ	H26
FBVDDQ	J15
FBVDDQ	J16
FBVDDQ	J18
FBVDDQ	J19
FBVDDQ	L19
FBVDDQ	L23
FBVDDQ	L26
FBVDDQ	M19
FBVDDQ	N22
FBVDDQ	U22
FBVDDQ	Y22

PLACE UNDER GPU

FBVDDQ

C604 .022UF 16V 10% X7R 0402 COMMON	C605 .022UF 16V 10% X7R 0402 COMMON	C580 .022UF 16V 10% X7R 0402 COMMON	C617 .022UF 16V 10% X7R 0402 COMMON	C584 .022UF 16V 10% X7R 0402 COMMON	C585 .022UF 16V 10% X7R 0402 COMMON	C504 1UF 6.3V 10% X5R 0402 COMMON	C54 4.7UF 6.3V 10% X5R 0603 COMMON	GND
C519 .1UF 10V 10% X5R 0402 COMMON	C595 .1UF 10V 10% X5R 0402 COMMON	C508 .1UF 10V 10% X5R 0402 COMMON	C603 .1UF 10V 10% X5R 0402 COMMON	C583 .1UF 10V 10% X5R 0402 COMMON	C65 .1UF 10V 10% X5R 0402 COMMON	C588 1UF 6.3V 10% X5R 0402 COMMON	C534 4.7UF 6.3V 10% X5R 0603 COMMON	GND
C571 4700PF 25V 10% X7R 0402 COMMON	C586 4700PF 25V 10% X7R 0402 COMMON	C591 4700PF 25V 10% X7R 0402 COMMON	C582 4700PF 25V 10% X7R 0402 COMMON	C574 4700PF 25V 10% X7R 0402 COMMON	GND			

FBA_CMD<27..0> (OUT 4< 5<)

FBA_CMD0	F26	FBA_CMD<0>	0
FBA_CMD1	J24	FBA_CMD<1>	1
FBA_CMD2	F25	FBA_CMD<2>	2
FBA_CMD3	M23	FBA_CMD<3>	3
FBA_CMD4	N27	FBA_CMD<4>	4
FBA_CMD5	M27	FBA_CMD<5>	5
FBA_CMD6	K26	FBA_CMD<6>	6
FBA_CMD7	J25	SNN_FBA_CMD7	
FBA_CMD8	J27	FBA_CMD<8>	8
FBA_CMD9	G23	FBA_CMD<9>	9
FBA_CMD10	G26	FBA_CMD<10>	10
FBA_CMD11	J23	FBA_CMD<11>	11
FBA_CMD12	M25	FBA_CMD<12>	12
FBA_CMD13	K27	FBA_CMD<13>	13
FBA_CMD14	G25	FBA_CMD<14>	14
FBA_CMD15	L24	FBA_CMD<15>	15
FBA_CMD16	K23	FBA_CMD<16>	16
FBA_CMD17	K24	FBA_CMD<17>	17
FBA_CMD18	G22	FBA_CMD<18>	18
FBA_CMD19	K25	FBA_CMD<19>	19
FBA_CMD20	H22	FBA_CMD<20>	20
FBA_CMD21	M26	FBA_CMD<21>	21
FBA_CMD22	H24	FBA_CMD<22>	22
FBA_CMD23	F27	FBA_CMD<23>	23
FBA_CMD24	J26	FBA_CMD<24>	24
FBA_CMD25	G24	FBA_CMD<25>	25
FBA_CMD26	G27	SNN_FBA_CMND26	
FBA_CMD27	M24	FBA_CMD<27>	27
RFU	K22	SNN_FBA_CMND28	
RFU	J22	SNN_FBA_RFU_1	
RFU	L22	SNN_FBA_RFU_2	

FBA_CMD<11>
CKE PD
R515 10K 5% 0402 COMMON
GND

FBA_CMD<12>
ODT/RST PD
R516 10K 5% 0402 COMMON
GND

FBA_CLK0	F24	FBA_CLK0	OUT 4<
FBA_CLK0	F23	FBA_CLK0*	OUT 4<
FBA_CLK1	N24	FBA_CLK1	OUT 5<
FBA_CLK1	N23	FBA_CLK1*	OUT 5<

FBVDDQ

FB_CAL_PD_VDDQ	B15	FB_CAL_PD_VDDQ	R77 24.3 1% 0402 COMMON	
FB_CAL_PU_GND	A15	FB_CAL_PU_GND	R79 30.1 1% 0402 COMMON	
FB_CAL_TERM_GND	B16	FB_CAL_TERM_GND	R80 60.4 1% 0402 NO STUFF	GND GND

DDR1	DDR2	DDR3
50R	40R	60R
50R	40R	40R
ns	ns	40R

FBA_DEBUG — M22 — FBA_DEBUG — 50OHM — 3 — R521 10K 5% 0402 COMMON — FBVDDQ

FB_PLLAVDD — R19 — FB_PLLAVDD — 16.00
FB_DLLAVDD — T19

PEX_VDD — LB4 220R@100MHz BEAD_0603 COMMON

C590 1UF 6.3V 10% X5R 0402 COMMON	C41 .1UF 6.3V 10% X5R 0402 COMMON	C43 4.7UF 6.3V 10% X5R 0603 COMMON
GND	GND	GND

PLACE NEAR BALLS

PLACE NEAR GPU

C47 4.7UF 6.3V 10% X5R 0603 COMMON — GND

FBVDDQ

VREF = FBVDDQ * Rbot/(Rtop + Rbot)

R531 1.05K 1% 0402 COMMON (Rtop)
R530 1.05K 1% 0402 COMMON (Rbot)
C608 .1UF 10V 10% X5R 0402 COMMON

FB_VREF — 16.00 — A16 — FB_VREF

GND

COMMAND BUS MAPPING DDR2-FBGA84

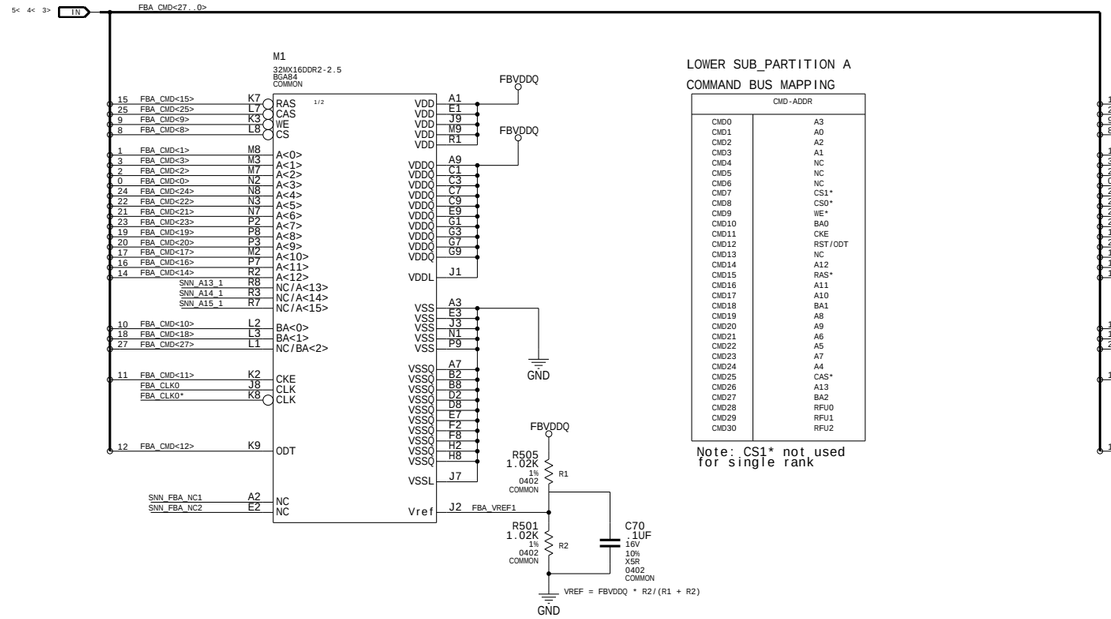
CMD	FB[31..0]	FB[63..32]	CMD	FB[31..0]	FB[63..32]
CMD0	A3	-	CMD16	A11	A11
CMD1	A0	A0	CMD17	A10	A10
CMD2	A2	-	CMD18	BA1	BA1
CMD3	A1	A1	CMD19	A8	A8
CMD4	-	A3	CMD20	A9	A9
CMD5	-	A4	CMD21	A6	A6
CMD6	-	A5	CMD22	A5	-
CMD7	CS1*(BA2)	CS1*(BA2)	CMD23	A7	A7
CMD8	CS0*	CS0*	CMD24	A4	-
CMD9	WE*	WE*	CMD25	CAS*	CAS*
CMD10	BA0	BA0	CMD26	A13	A13
CMD11	CKE	CKE	CMD27	BA2	BA2
CMD12	RST/ODT	RST/ODT	CMD28	RFU0	RFU0
CMD13	-	A2	CMD29	RFU1	RFU1
CMD14	A12	A12	CMD30	RFU2	RFU2
CMD15	RAS*	RAS*			

ASSEMBLY	NB9M-GS G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
PAGE DETAIL	GPU MEMORY INTERFACE

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

NV_PN	600-10621-0001-000 A		
ID	p621	PAGE	3 OF 16
NAME	Thorsten Freund	DATE	13-SEP-2007

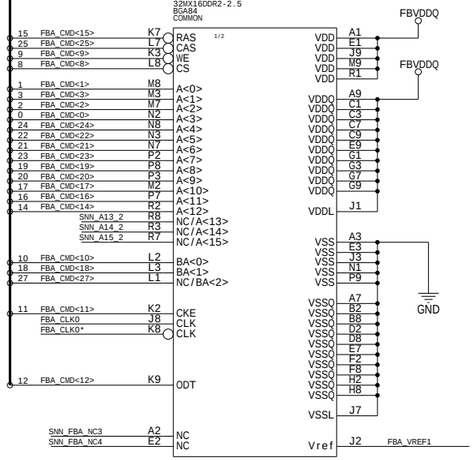
MEMORY LOWER SUB-PARTITION INTERFACE D<31..0>

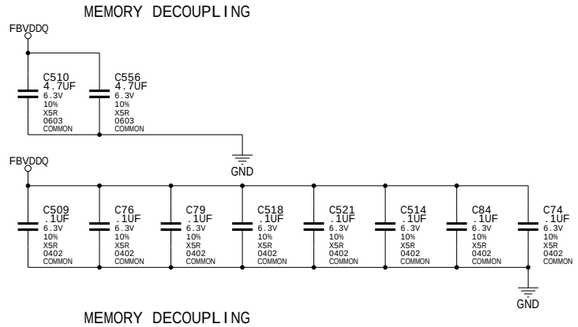


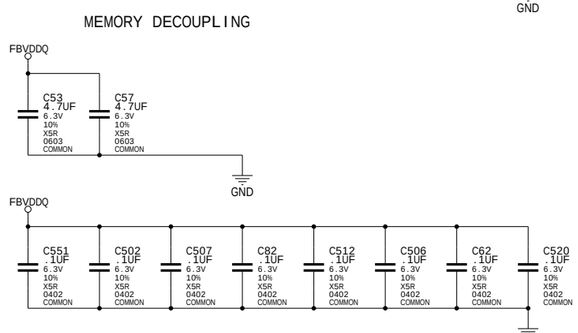
LOWER SUB_PARTITION A
COMMAND BUS MAPPING

CMD-ADDR	
CMD0	A3
CMD1	A0
CMD2	A2
CMD3	A1
CMD4	NC
CMD5	NC
CMD6	NC
CMD7	CS1*
CMD8	CS0*
CMD9	WE*
CMD10	BA0
CMD11	CKE
CMD12	RST/ODT
CMD13	NC
CMD14	A12
CMD15	RAS*
CMD16	A11
CMD17	A10
CMD18	BA1
CMD19	A8
CMD20	A9
CMD21	A6
CMD22	A5
CMD23	A7
CMD24	A4
CMD25	CAS*
CMD26	A13
CMD27	BA2
CMD28	RFU0
CMD29	RFU1
CMD30	RFU2

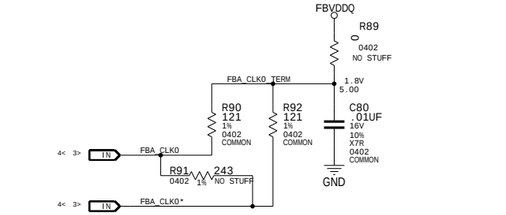
Note: CS1* not used
for single rank







Place vias for both DQS, longest, and shortest
bit of each byte just outside the memory packaged body.



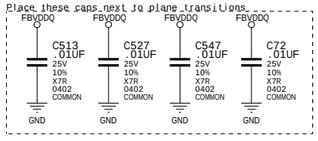
PLACE close to memorires so as to
Minimize the stub length!!
Single resistor termination to be placed on
same pads as 2 resistor termination

MEMORY CONSTRAINTS

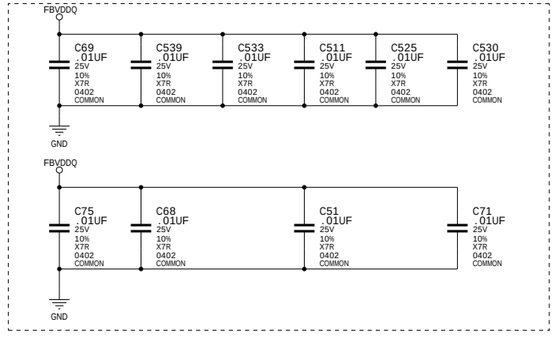
	NET	MIN_LINE_WIDTH	VOLTAGE
B1	FBA_VREF1	16MIL	0.9V

	NET	DIFFPAIR	CRITICAL	IMPEDANCE
4< 3> IN	FBA_CLK0	FBA_CLK0	1	100DIFF
4< 3> IN	FBA_CLK0*	FBA_CLK0	1	100DIFF
3<> IN	FBA_DQS_WP0	FBADQS0	1	100DIFF
3<> IN	FBA_DQS_RN0	FBADQS0	1	100DIFF
3<> IN	FBA_DQS_WP1	FBADQS1	1	100DIFF
3<> IN	FBA_DQS_RN1	FBADQS1	1	100DIFF
3<> IN	FBA_DQS_WP2	FBADQS2	1	100DIFF
3<> IN	FBA_DQS_RN2	FBADQS2	1	100DIFF
3<> IN	FBA_DQS_WP3	FBADQS3	1	100DIFF
3<> IN	FBA_DQS_RN3	FBADQS3	1	100DIFF
5< 4< 3> IN	FBA_CMD<27..0>		2	50OHM
4<> 3<> B1	FBA_D<31..0>		2	50OHM
4<> 3<> B1	FBA_DQM<3..0>		2	50OHM

Place these caps next to plane transitions.



X-cap for CMD BUS

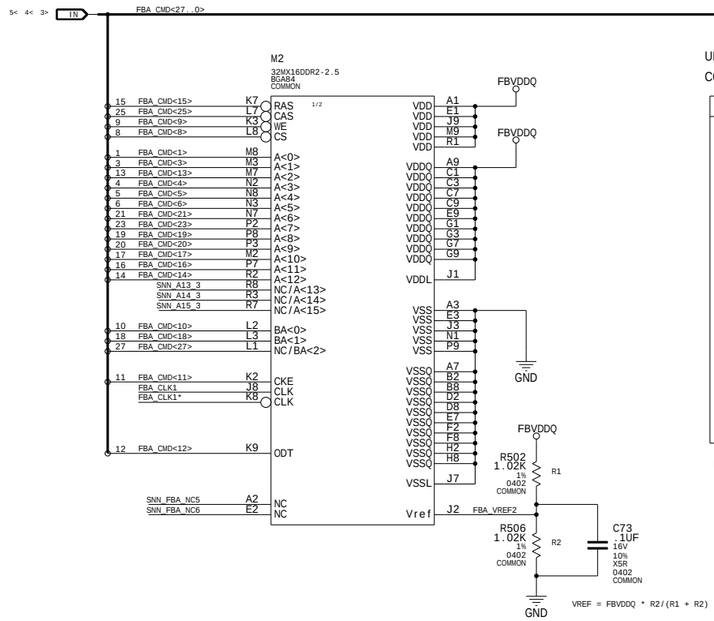


ASSEMBLY	NB9M-GS G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
PAGE DETAIL	MEMORY LOWER SUB-PARTITION INTERFACE

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

NV_PN	600-10621-0001-000 A		
ID	p621	PAGE	4 OF 16
NAME	Thorsten Freund	DATE	13-SEP-2007

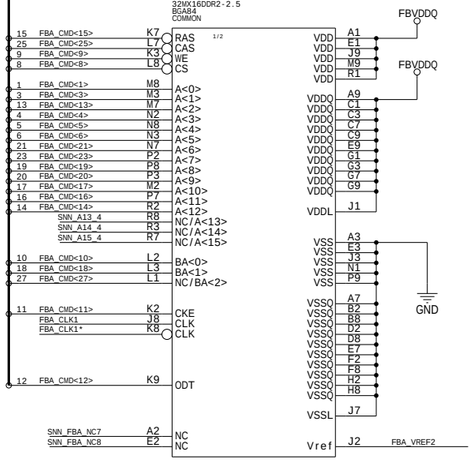
MEMORY UPPER SUB-PARTITION INTERFACE D<63..32>



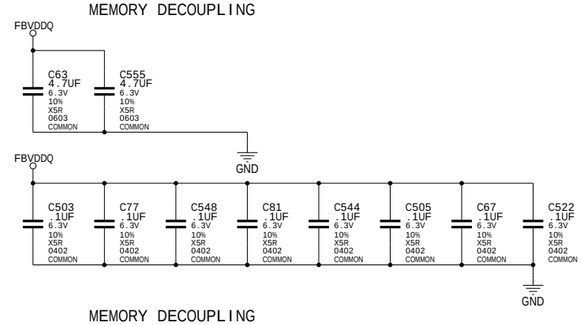
UPPER SUB_PARTITION A
COMMAND BUS MAPPING

CMD-ADDR	
CMD0	NC
CMD1	A0
CMD2	NC
CMD3	A1
CMD4	A3
CMD5	A4
CMD6	A5
CMD7	CS1*
CMD8	CS0*
CMD9	WE*
CMD10	BA0
CMD11	CKE
CMD12	RST/ODT
CMD13	A2
CMD14	A12
CMD15	RAS*
CMD16	A11
CMD17	A10
CMD18	BA1
CMD19	A8
CMD20	A9
CMD21	A6
CMD22	NC
CMD23	A7
CMD24	NC
CMD25	CAS*
CMD26	A13
CMD27	BA2
CMD28	RFU0
CMD29	RFU1
CMD30	RFU2

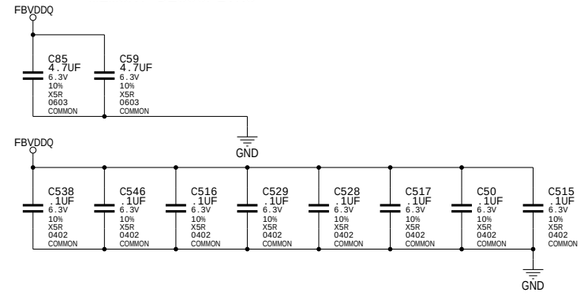
Note: CS1* not used
for single rank

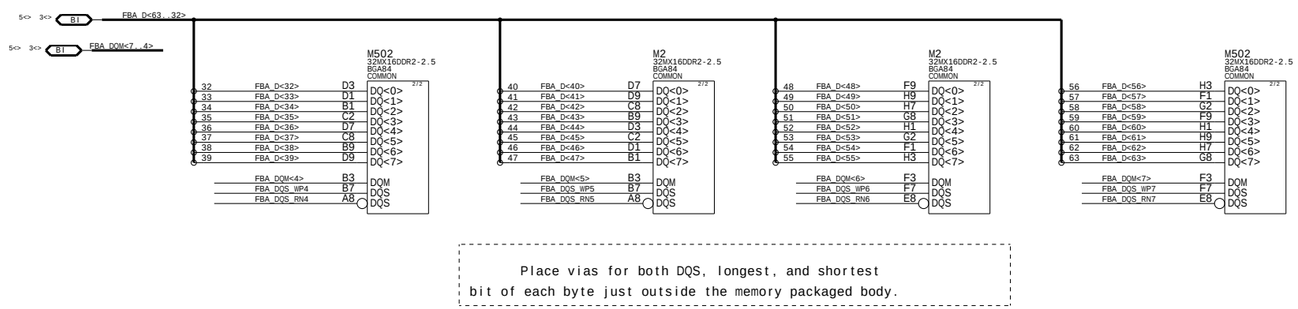


MEMORY DECOUPLING

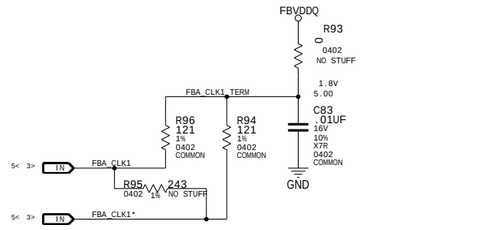


MEMORY DECOUPLING





Place vias for both DQS, longest, and shortest
bit of each byte just outside the memory packaged body.



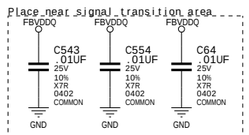
PLACE close to memorires so as to
Minimize the stub length!!
Single resistor termination to be placed on
same pads as 2 resistor termination

MEMORY CONSTRAINTS

	NET	MIN_LINE_WIDTH	VOLTAGE
BI	FBA_VREF2	16MIL	0.9V

	NET	DIFFPAIR	CRITICAL	IMPEDANCE
5< 3> IN	FBA_CLK1	FBA_CLK1	1	100DIFF
5< 3> IN	FBA_CLK1*	FBA_CLK1	1	100DIFF
3<> IN	FBA_DQS_WP4	FBADQS4	1	100DIFF
3<> IN	FBA_DQS_RN4	FBADQS4	1	100DIFF
3<> IN	FBA_DQS_WP5	FBADQS5	1	100DIFF
3<> IN	FBA_DQS_RN5	FBADQS5	1	100DIFF
3<> IN	FBA_DQS_WP6	FBADQS6	1	100DIFF
3<> IN	FBA_DQS_RN6	FBADQS6	1	100DIFF
3<> IN	FBA_DQS_WP7	FBADQS7	1	100DIFF
3<> IN	FBA_DQS_RN7	FBADQS7	1	100DIFF
5< 4< 3> IN	FBA_CMD<27..0>		2	50OHM
5<> 3<> BI	FBA_D<63..32>		2	50OHM
5<> 3<> BI	FBA_DQM<7..4>		2	50OHM

Place near signal transition area

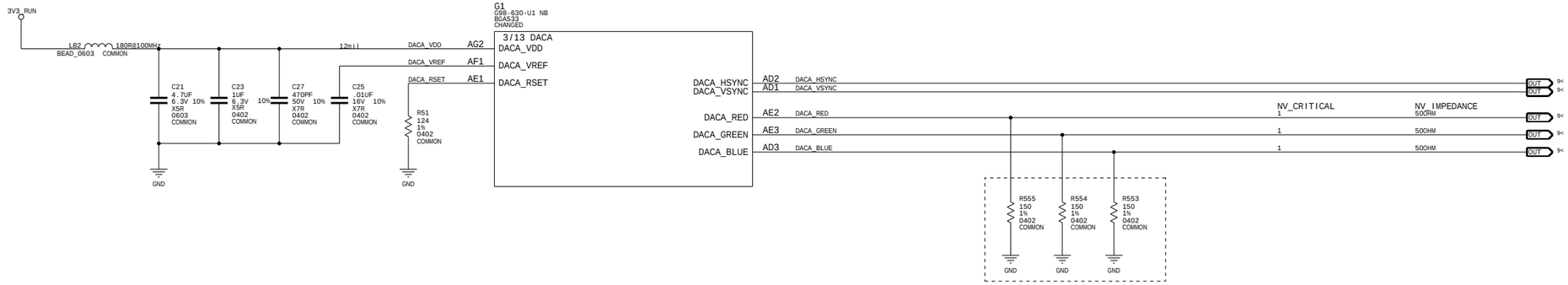


ASSEMBLY	NB9M-GS G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
PAGE DETAIL	MEMORY UPPER SUB-PARTITION INTERFACE

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

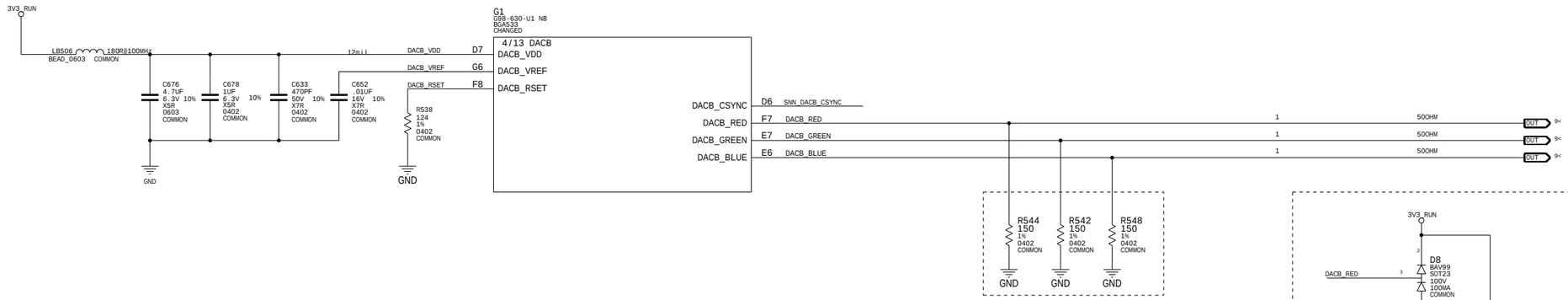
NV_PN	600-10621-0001-000 A		
ID	p621	PAGE	5 OF 16
NAME	Thorsten Freund	DATE	13-SEP-2007

DAC_A



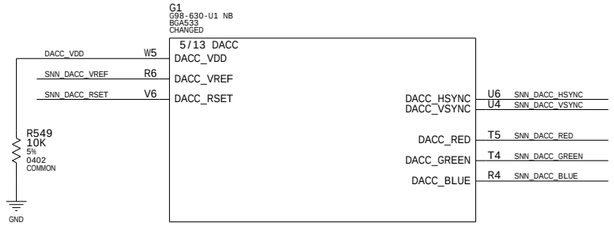
Place close to GPU

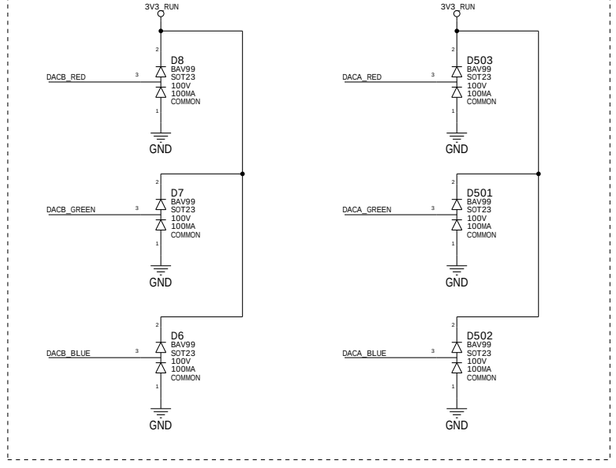
DAC_B



Place close to GPU

DAC_C





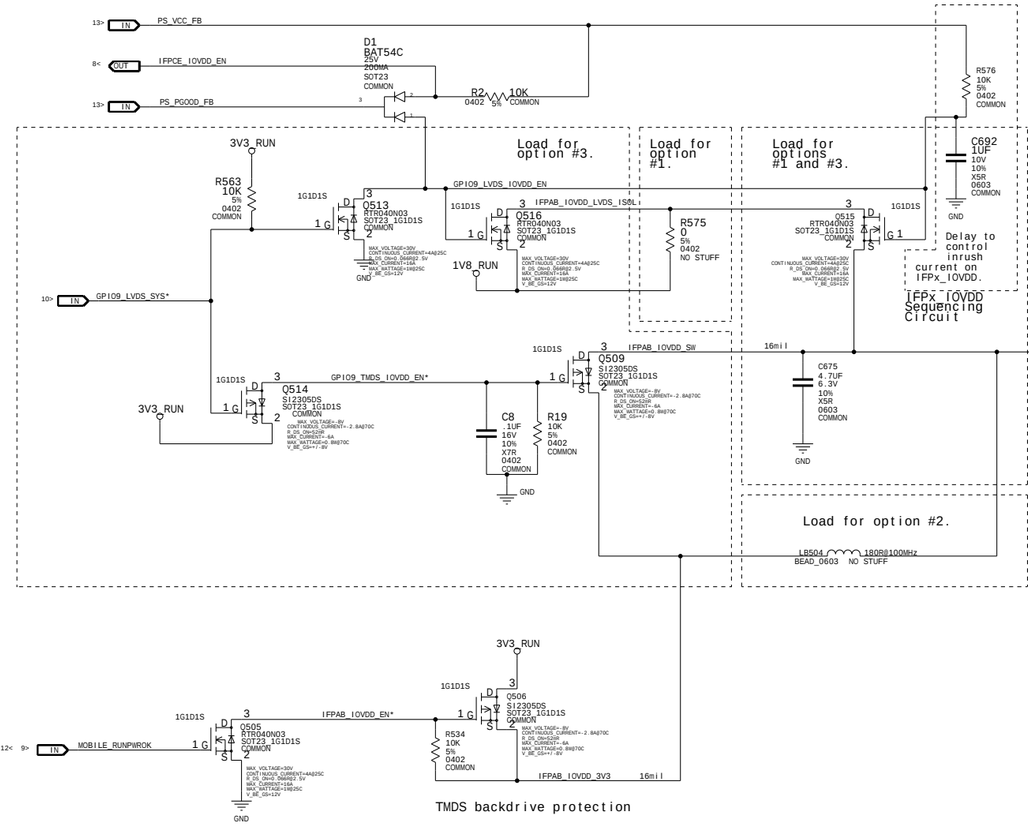
TV DAC ESD PROTECTION

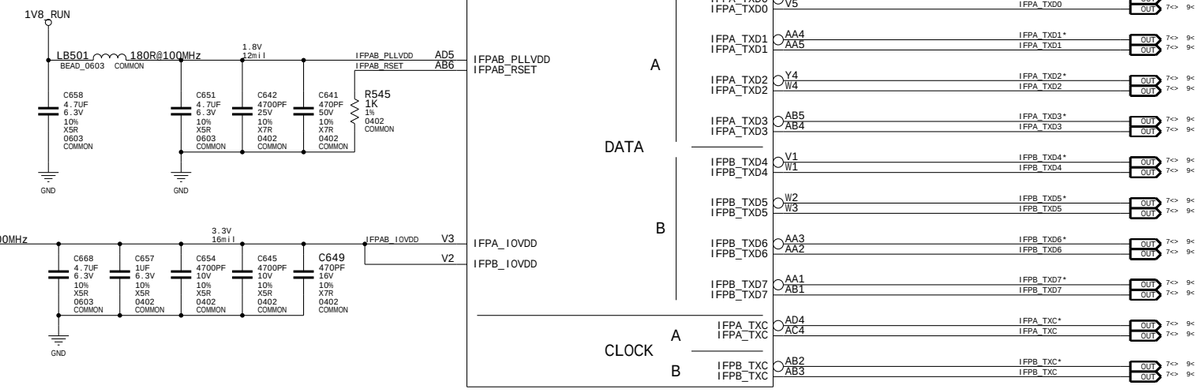
ASSEMBLY	
PAGE DETAIL	DAC A/B

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

NV_PN	600-10621-0001-000 A		
ID	p621	PAGE	6 OF 16
NAME	Thorsten Freund	DATE	13-SEP-2007

LVDS/TMDS(link A&B)



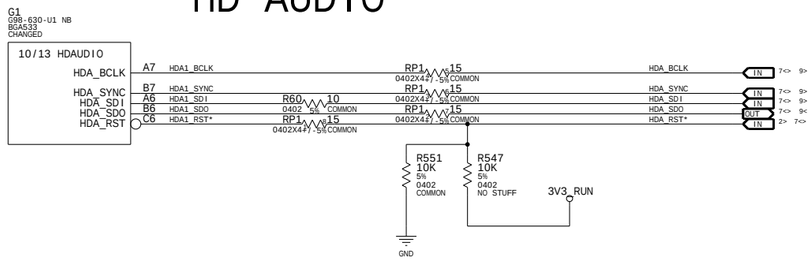


(LVDS & HD AUDIO CONSTRAINTS)

NET NAME	DIFFPAIR	NV_CRITICAL_NET	NV_IMPEDANCE
IFPA_TXD0*	IFPATXD0	1	100DIFF
IFPA_TXD0	IFPATXD0	1	100DIFF
IFPA_TXD1*	IFPATXD1	1	100DIFF
IFPA_TXD1	IFPATXD1	1	100DIFF
IFPA_TXD2*	IFPATXD2	1	100DIFF
IFPA_TXD2	IFPATXD2	1	100DIFF
IFPA_TXD3*	IFPATXD3	1	100DIFF
IFPA_TXD3	IFPATXD3	1	100DIFF
IFPB_TXD4*	IFPBTXD4	1	100DIFF
IFPB_TXD4	IFPBTXD4	1	100DIFF
IFPB_TXD5*	IFPBTXD5	1	100DIFF
IFPB_TXD5	IFPBTXD5	1	100DIFF
IFPB_TXD6*	IFPBTXD6	1	100DIFF
IFPB_TXD6	IFPBTXD6	1	100DIFF
IFPB_TXD7*	IFPBTXD7	1	100DIFF
IFPB_TXD7	IFPBTXD7	1	100DIFF
IFPA_TXC*	IFPATXC	1	100DIFF
IFPA_TXC	IFPATXC	1	100DIFF
IFPB_TXC*	IFPBTXC	1	100DIFF
IFPB_TXC	IFPBTXC	1	100DIFF

	NV_CRITICAL_NET	NV_IMPEDANCE
HDA1_BCLK	2	500HM
HDA1_SYNC	2	500HM
HDA1_SDI	2	500HM
HDA1_SDO	2	500HM
HDA1_RST*	2	500HM
HDA_BCLK	2	500HM
HDA_SYNC	2	500HM
HDA_SDI	2	500HM
HDA_SDO	2	500HM
HDA_RST*	2	500HM

HD AUDIO

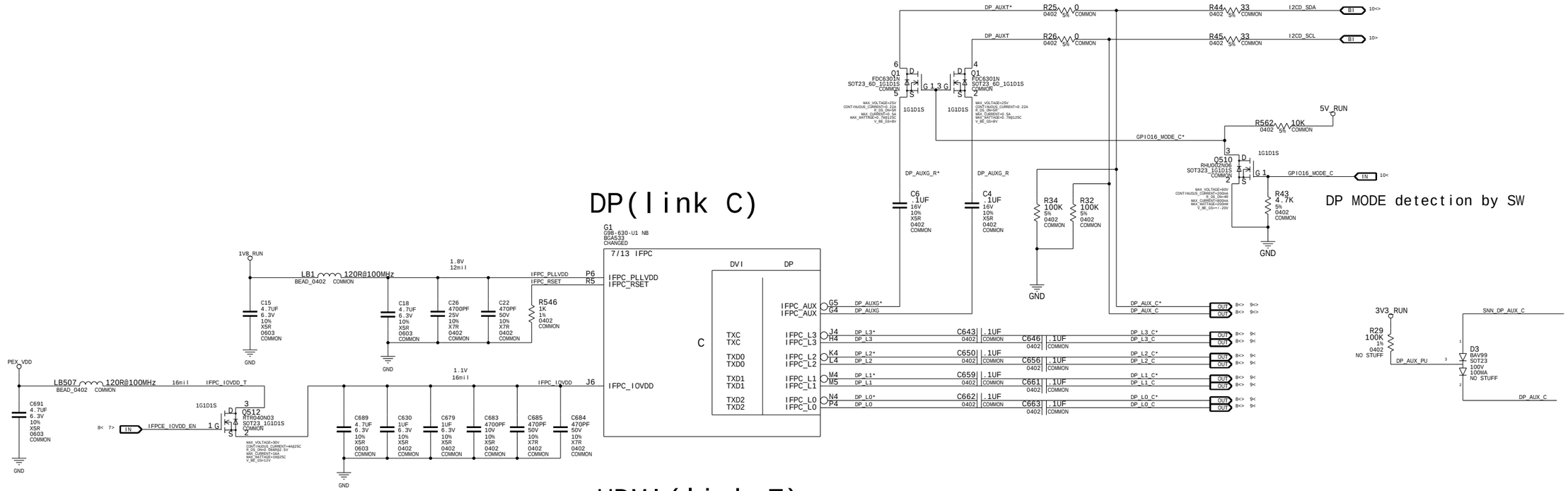


ASSEMBLY	NB9M-GS G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
PAGE DETAIL	LVDS(LINK A/B), HD AUDIO

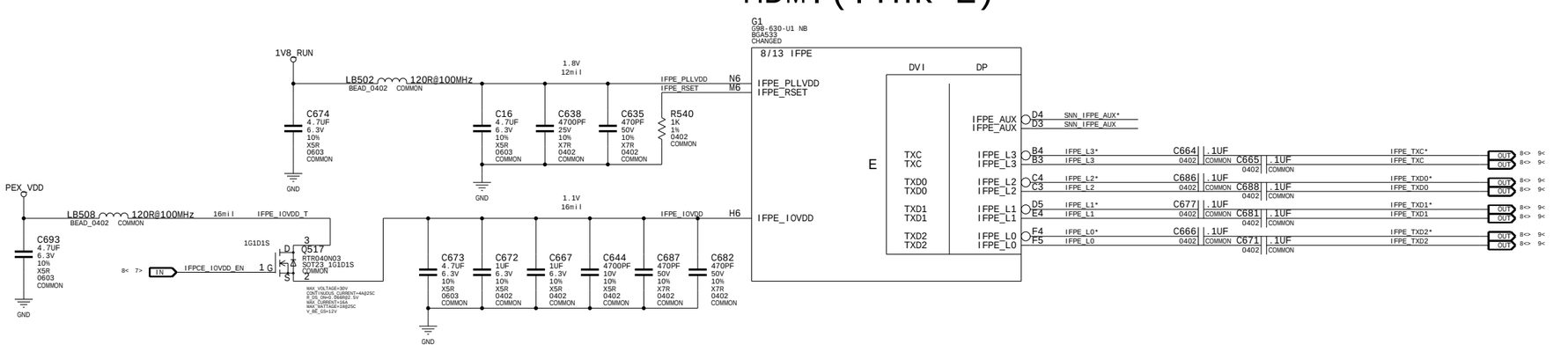
NVIDIA CORPORATION
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050, USA

NV_PN	600-10621-0001-000 A		
ID	p621	PAGE	7 OF 16
NAME	Thorsten Freund	DATE	13-SEP-2007

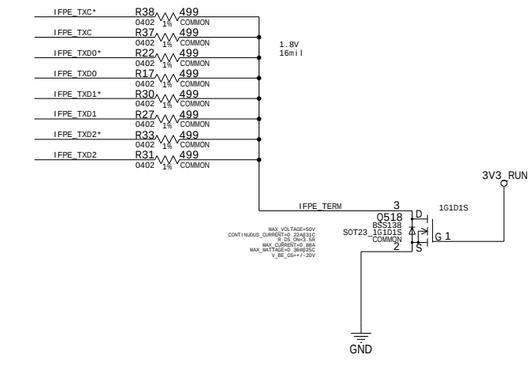
DP(link C)



HDMI(link E)



LinkE BIAS



(HDMI / DP CONSTRAINTS)

NET NAME	DIFFPAIR	NV_CRITICAL_NET	NV_IMPEDANCE
IFPE_L3*	IFPE_L3	1	100DIFF
IFPE_L3	IFPE_L3	1	100DIFF
IFPE_L2*	IFPE_L2	1	100DIFF
IFPE_L2	IFPE_L2	1	100DIFF
IFPE_L1*	IFPE_L1	1	100DIFF
IFPE_L1	IFPE_L1	1	100DIFF
IFPE_L0*	IFPE_L0	1	100DIFF
IFPE_L0	IFPE_L0	1	100DIFF
IFPE_TXC*	IFPETXC	1	100DIFF
IFPE_TXC	IFPETXC	1	100DIFF
IFPE_TXD0*	IFPETXD0	1	100DIFF
IFPE_TXD0	IFPETXD0	1	100DIFF
IFPE_TXD1*	IFPETXD1	1	100DIFF
IFPE_TXD1	IFPETXD1	1	100DIFF
IFPE_TXD2*	IFPETXD2	1	100DIFF
IFPE_TXD2	IFPETXD2	1	100DIFF

NET NAME	DIFFPAIR	NV_CRITICAL_NET	NV_IMPEDANCE
DP_AUXG*	DP_AUX	1	100DIFF
DP_AUXG	DP_AUX	1	100DIFF
DP_AUXG_R*	DP_AUX1	1	100DIFF
DP_AUXG_R	DP_AUX1	1	100DIFF
DP_L3*	DP_L3	1	100DIFF
DP_L3	DP_L3	1	100DIFF
DP_L2*	DP_L2	1	100DIFF
DP_L2	DP_L3	1	100DIFF
DP_L1*	DP_L1	1	100DIFF
DP_L1	DP_L1	1	100DIFF
DP_L0*	DP_L0	1	100DIFF
DP_L0	DP_L0	1	100DIFF

NET NAME	DIFFPAIR	NV_CRITICAL_NET	NV_IMPEDANCE
DP_AUX_C*	DP_AUX3	1	100DIFF
DP_AUX_C	DP_AUX3	1	100DIFF
DP_AUXT*	DP_AUX2	1	100DIFF
DP_AUXT	DP_AUX2	1	100DIFF
DP_L3_C*	DPL3C	1	100DIFF
DP_L3_C	DPL3C	1	100DIFF
DP_L2_C*	DPL2C	1	100DIFF
DP_L2_C	DPL2C	1	100DIFF
DP_L1_C*	DPL1C	1	100DIFF
DP_L1_C	DPL1C	1	100DIFF
DP_L0_C*	DPL0C	1	100DIFF
DP_L0_C	DPL0C	1	100DIFF

ASSEMBLY	NB9M-GS G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
PAGE DETAIL	HDMI, DP

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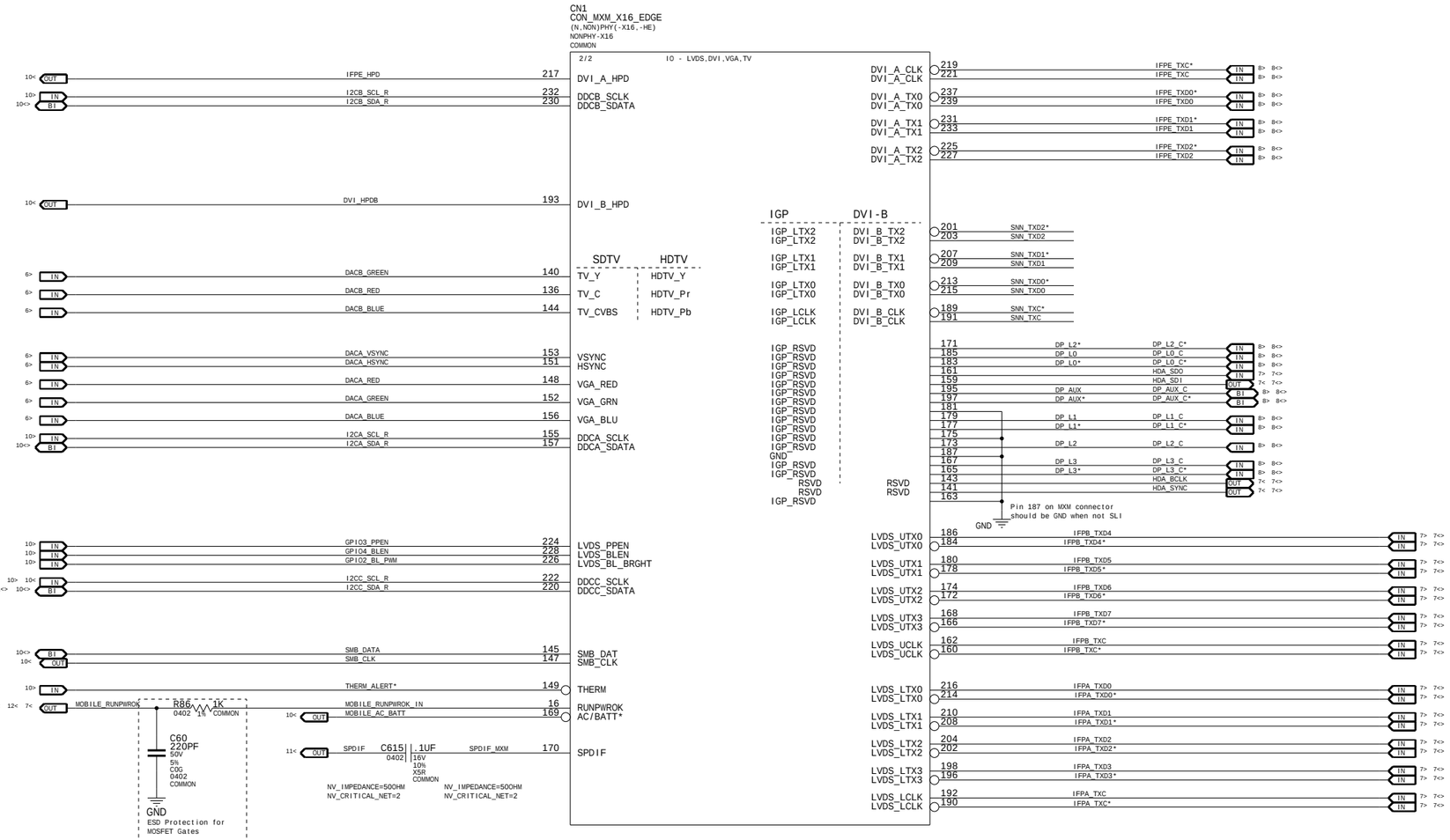
MXM CONNECTOR



ASSEMBLY	NB9M-GS G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
PAGE DETAIL	MXM CONNECTOR

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GPIO, TEMP SENSOR, JTAG

I2C ADDRESS: 0x98H

NOSTUFF for internal sensor

U503 MAX6649MUA SO8_122MIL COMMON

C690 .1UF 16V 10% X7R 0603 COMMON

C680 2200PF 0402 X5R 10V 10% COMMON

9/13 I2C_GPIO_THERM_JTAG

Stuff for connecting ExtThermalSensor to DDCC

R574 0 0402 5% COMMON

R570 0 0402 5% COMMON

R565 0 0402 5% COMMON

R566 0 0402 5% COMMON

R564 200 5% 0402 COMMON

R569 10K 5% 0402 COMMON

R568 2.2K 5% 0402 COMMON

R55 180 5% 0402 COMMON

R59 10K 5% 0402 COMMON

R58 10K 5% 0402 COMMON

R56 270 5% 0402 COMMON

R57 10K 5% 0402 COMMON

Place lab TP together

R567 0 0402 5% NO STUFF

R582 0 0402 5% NO STUFF

NOSTUFF except to connect SMBus to external sensor.

R572 47K 5% 0402 NO STUFF

R578 47K 5% 0402 NO STUFF

R579 0 0402 5% NO STUFF

R581 0 0402 5% NO STUFF

ONLY for IntThermalSensor tied to SMBus

R580 47K 5% 0402 COMMON

R573 47K 5% 0402 COMMON

ONLY FOR IntThermalSensor NOT connected

R48 33 0402 5% COMMON

R49 33 0402 5% COMMON

R47 33 0402 5% COMMON

R46 33 0402 5% COMMON

R53 33 0402 5% COMMON

R54 33 0402 5% COMMON

R40 0 0402 5% COMMON

R41 10K 5% 0402 COMMON

R4 10K 5% 0402 COMMON

R21 10K 5% 0402 COMMON

R11 10K 5% 0402 COMMON

as per HDMI spec
1k5 < R < 2k2

R35 4.7K 5% 0402 COMMON

R36 4.7K 5% 0402 COMMON

R1 4.7K 5% 0402 COMMON

R7 4.7K 5% 0402 COMMON

R3 2.2K 5% 0402 COMMON

R8 2.2K 5% 0402 COMMON

R6 10K 5% 0402 COMMON

R5 100K 5% 0402 COMMON

D2 BAV99 SOT23 70V 215MA COMMON

R13 10K 5% 0402 COMMON

R50 100K 5% 0402 COMMON

D4 BAV99 SOT23 70V 215MA COMMON

R16 10K 5% 0402 COMMON

R42 100K 5% 0402 COMMON

D5 BAV99 215MA 70V SOT23 COMMON

ASSEMBLY	NB9M-GS G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
PAGE DETAIL	GPIO, JTAG, TEMP SENSOR

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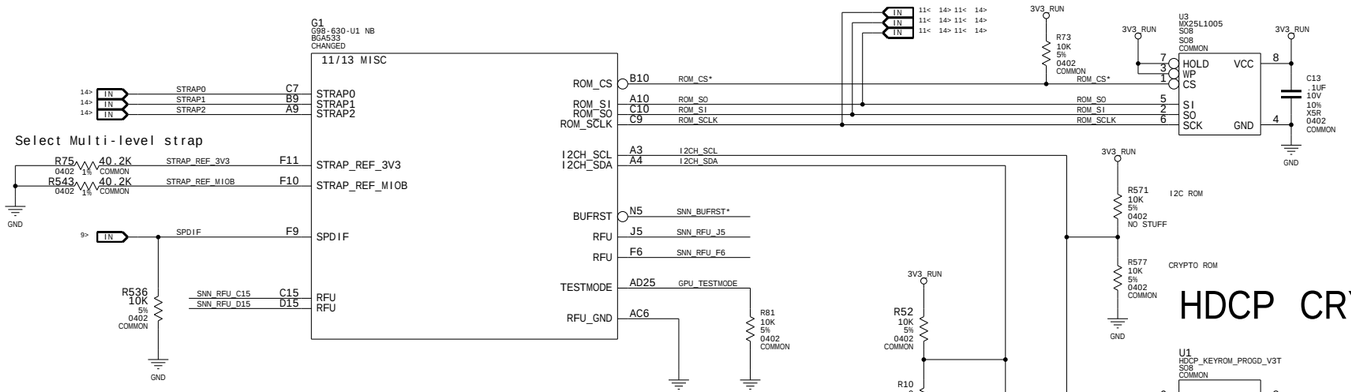
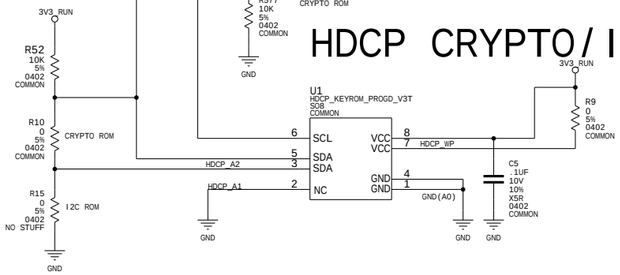
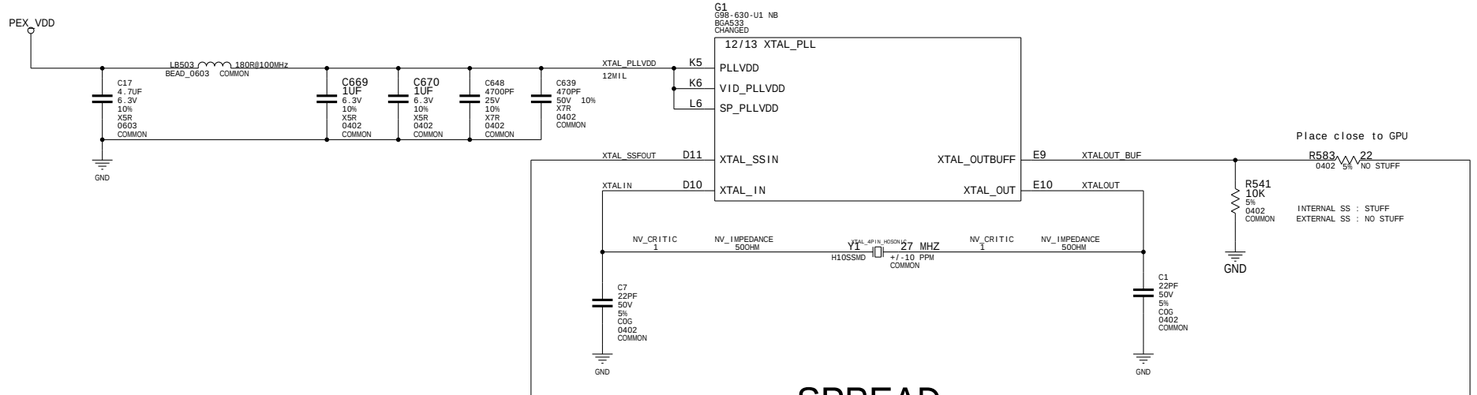
VBIOS ROM



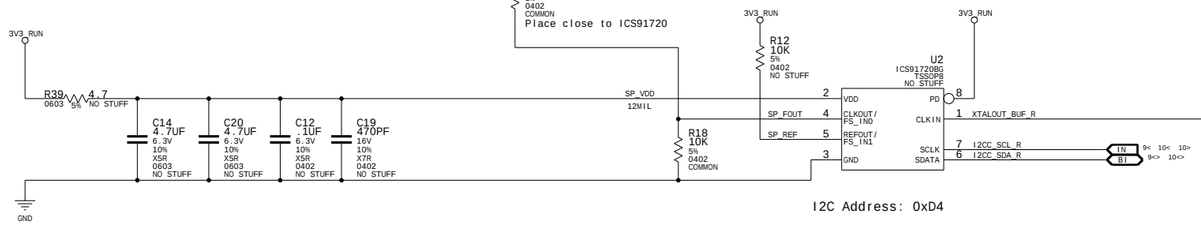
HDCP CRYPTO/I2C ROM



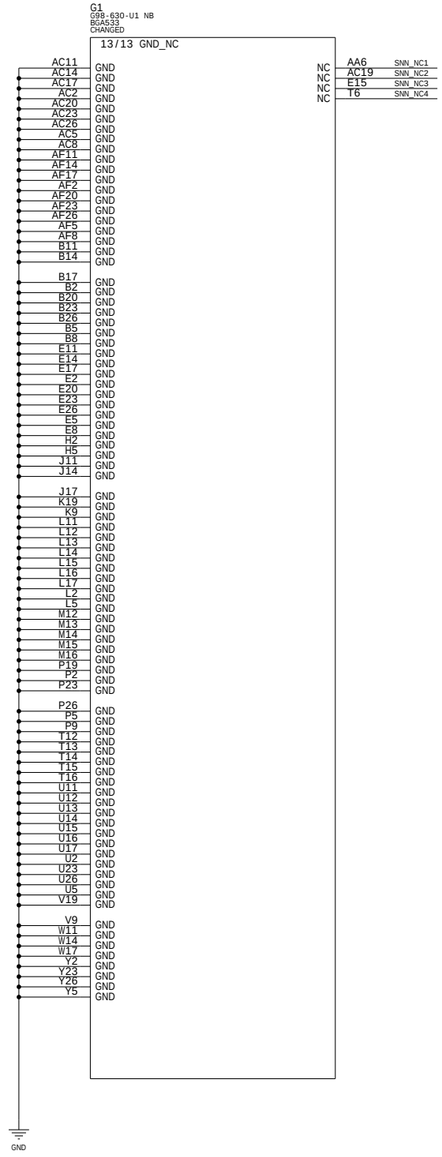
XTAL



SPREAD



I2C Address: 0xD4



ASSEMBLY	NB9M-GS G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
PAGE DETAIL	VBIOS & HDCP ROM, XTAL, SPREAD SPECTRUM, SPDIF

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NVVDD SWITCHER

Input Ripple approx 3.7A

NVVDD = 0.9V ~ 1.2V

Vout = (1 + Rt/Rb) x 0.6

VOLTAGE NODE PROPERTIES

	VOLTAGE	SOURCE POWER NET	MIN LINE WIDTH	MAX CURRENT	
3V3_RUN	3.3V	TRUE	12MIL	1.5A	3V3_RUN
1V8_RUN	1.8V	TRUE	16MIL	3.5A	1V8_RUN
5V_RUN	5.0V	TRUE	12MIL	0.5A	5V_RUN
PWR_SRC	22V	TRUE	30MIL	4A	PWR_SRC
NVVDD	1.2V		16MIL	10A	NVVDD
PEX_VDD	1.1V		16MIL	2.5A	PEX_VDD
FBVDDQ	1.8V		12MIL	5A	FBVDDQ
GND	0V		12MIL		GND

G98M	RTop	RBot	GPIO5	GPIO6
0.9V	3k01	5k9	Low	Low
1.0V	3k01	5k9 || 19k1	High	Low
1.1V	3k01	5k9 || 8k87	Low	High
1.2V	3k01	5k9 || 19k1 ||8k87	High	High

ASSEMBLY	NB9M-GS G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
PAGE DETAIL	NVVDD POWER SUPPLY

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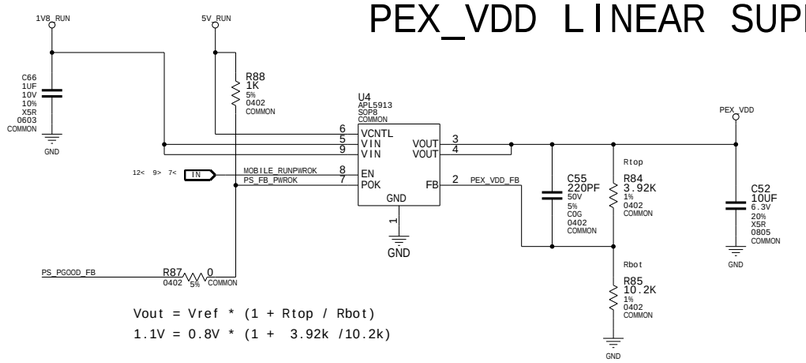
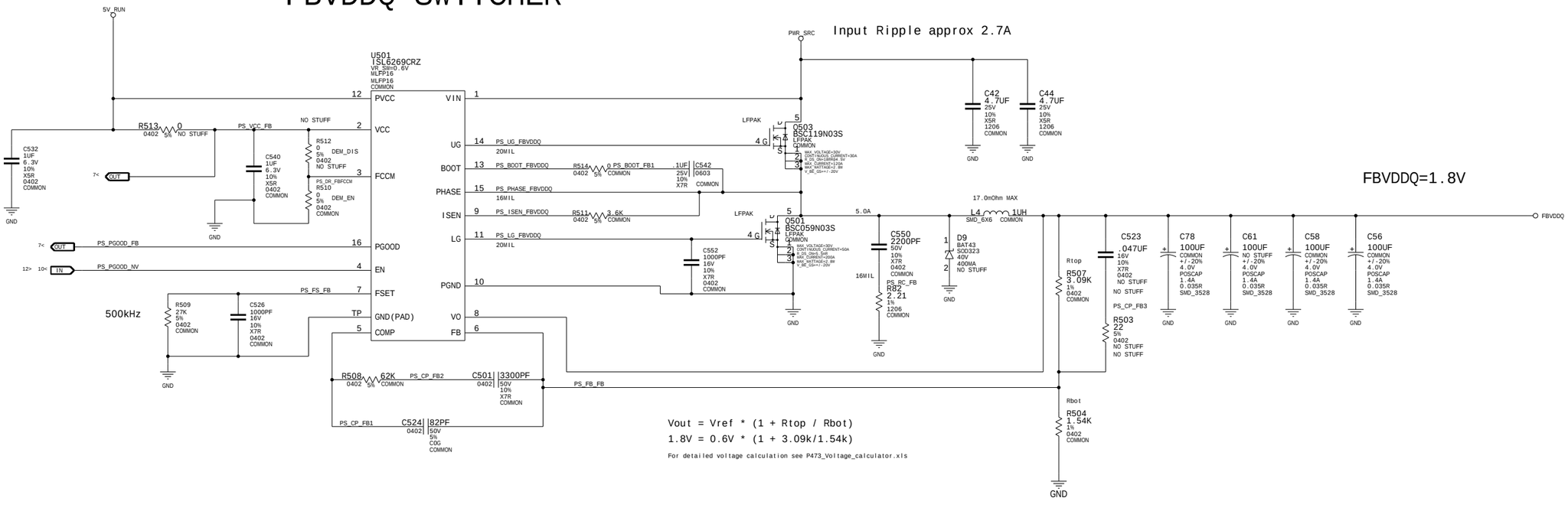
PEX_VDD LINEAR SUPPLY



Vout = Vref * (1 + Rtop / Rbot)

1.1V = 0.8V * (1 + 3.92k /10.2k)

FBVDDQ SWITCHER



FBVDDQ=1.8V

Vout = Vref * (1 + Rtop / Rbot)

1.8V = 0.6V * (1 + 3.09k/1.54k)

For detailed voltage calculation see P473_Voltage_calculator.xls

ASSEMBLY	NB9M-GS G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
PAGE DETAIL	PEX, FBVDDQ POWER SUPPLY

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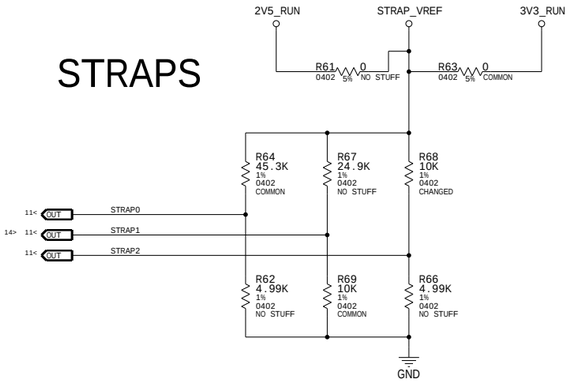
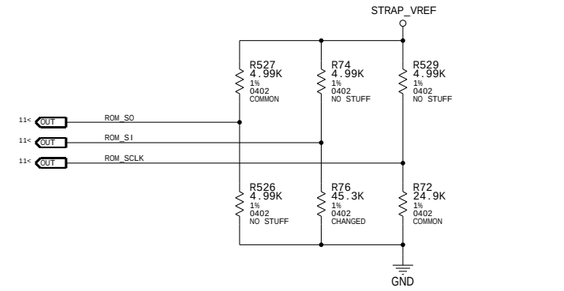
STRAPS





STRAP0	USER_BIT0	0xF: 45K PU (unused)
	USER_BIT1	
	USER_BIT2	
	USER_BIT3	
STRAP1	3GIO_PADCFG_LUT_ADR0	
	3GIO_PADCFG_LUT_ADR1	0x0: Desktop default (normal swing) - 5k PD
	3GIO_PADCFG_LUT_ADR2	0x1: Mobile default (low swing) - 10k PD
	3GIO_PADCFG_LUT_ADR3	acc. to //hw/tesla_g98b/manuals/dev_ext_devices.ref
STRAP2	PCI_DEVID_0	all 4 bits set by HW strapping
	PCI_DEVID_1	0x06E8: 5K PU (NB9M-GE)
	PCI_DEVID_2	0x06E9: 10K PU (NB9M-GS)
	PCI_DEVID_3	
ROM_SO	TV_MODE_BIT0	0x0: NTSC-M
	TV_MODE_BIT1	5K PU
	TV_MODE_BIT2	
	XCLK_277	1:
ROM_SI	RAM_CFG_0	128 MB (4pcs. 16Mx16) / 256 MB (4pcs. 32Mx16)
	RAM_CFG_1	
	RAM_CFG_2	
	RAM_CFG_3	
ROM_SCLK	PCI_DEVID_EXT	0:
	SUB_VENDOR	1: SUB_VENDOR BIOS
	SLOT_CLK_CONFIG	0:
	PEX_PLL_EN_TERM100	0: TERM100 DISABLED

RAM_CFG[3:0] Definitions (128 MB, 4pcs. 16Mx16)

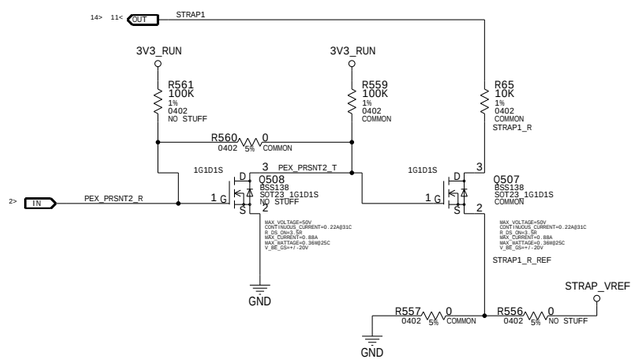
RAM_CFG[3:0]	Definitions
0000	Elpida
0001	Samsung
0010	Qimonda
0011	Hynix
0100	Nanya

RAM_CFG[3:0] Definitions (256 MB, 4pcs. 32Mx16)

RAM_CFG[3:0]	Definitions	
0100	25k PD	Elpida
0101	30k PD	Samsung
0110	35k PD	Qimonda
0111	45k PD	Hynix

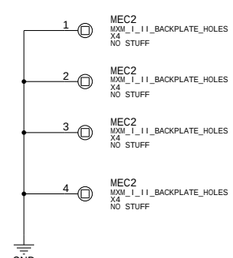
25K PD

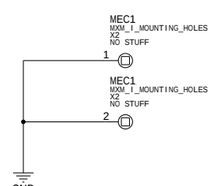
PEX SWING LEVEL



PEX_PRSNT2_R	R_STRAP1	3_GIO_PADCFG_LUT<3..0>
GND	10k	0x1 MOBILE_DEFAULT
FLOAT	5k (10k ll 10k)	0x0 DESKTOP_DEFAULT

MECHANIC





ASSEMBLY	NB9M-GS G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
PAGE DETAIL	STRAPS

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Title: Basenet Report
Design: p621
Date: Aug 27 12:32:38 2007

Base nets and synonyms for
p621_lib.P621(@p621_lib.p621(sch_1))

Base Signal	Location([Zone][dir])
DACA_BLUE	6.1G> 6.4G 9.3A<
DACA_GREEN	6.1G> 6.4G 9.3A<
DACA_HSYNC	6.1G> 9.3A<
DACA_RED	6.1G> 6.3G 9.3A<
DACA_RSET	6.1C
DACA_VDD	6.1C
DACA_VREF	6.1C
DACA_VSYNC	6.1G> 9.3A<
DACB_BLUE	6.3G> 6.4F 9.3A<
DACB_GREEN	6.3G> 6.4F 9.2A<
DACB_RED	6.3F 6.3G> 9.3A<
DACB_RSET	6.2C
DACB_VDD	6.2C
DACB_VREF	6.2C
DACC_VDD	6.4C
DP_AUXG	8.2E 8.5D<>
DP_AUXG*	8.2E 8.5D<>
DP_AUXG_R	8.1E 8.5D<>
DP_AUXG_R*	8.1E 8.5D<>
DP_AUXT	8.1E 8.5F<>
DP_AUXT*	8.1E 8.5F<>
DP_AUX_C	8.2F> 8.2H 8.5F<> 9.3F<>
DP_AUX_C*	8.2F> 8.5F<> 9.3F<>
DP_AUX_PU	8.2G
DP_L0	8.2E 8.5D<>
DP_L0*	8.2E 8.5D<>
DP_L0_C	8.2F> 8.5F<> 9.3F<
DP_L0_C*	8.2F> 8.5F<> 9.3F<
DP_L1	8.2E 8.5D<>
DP_L1*	8.2E 8.5D<>
DP_L1_C	8.2F> 8.5F<> 9.3F<
DP_L1_C*	8.2F> 8.5F<> 9.3F<
DP_L2	8.2E 8.5D<>
DP_L2*	8.2E 8.5D<>
DP_L2_C	8.2F> 8.5F<> 9.3F<
DP_L2_C*	8.2F> 8.5F<> 9.3F<
DP_L3	8.2E 8.5D<>
DP_L3*	8.2E 8.5D<>
DP_L3_C	8.2F> 8.5F<> 9.3F<
DP_L3_C*	8.2F> 8.5F<> 9.3F<
DVI_HPDB	9.2A> 10.4H<
FBA_CLK0	3.3E> 4.2A 4.2E 4.3G< 4.5A<
FBA_CLK0*	3.3E> 4.2A 4.2E 4.3G< 4.5A<
FBA_CLK0_TERM	4.3G
FBA_CLK1	3.3E> 5.2A 5.2E 5.4G< 5.5A<
FBA_CLK1*	3.3E> 5.2A 5.2E 5.4G< 5.5A<
FBA_CLK1_TERM	5.3G
FBA_CMD<0>	3.2E 4.1A 4.1E
FBA_CMD<27..0>	3.2F> 4.1A< 4.5A< 5.1A< 5.5A<
FBA_CMD<1>	3.2E 4.1A 4.1E 5.1A 5.1E
FBA_CMD<2>	3.2E 4.1A 4.1E
FBA_CMD<3>	3.2E 4.1A 4.1E 5.1A 5.1E
FBA_CMD<4>	3.2E 5.1A 5.1E
FBA_CMD<5>	3.2E 5.1A 5.1E
FBA_CMD<6>	3.2E 5.1A 5.1E
FBA_CMD<8>	3.2E 4.1A 4.1E 5.1A 5.1E
FBA_CMD<9>	3.2E 4.1A 4.1E 5.1A 5.1E
FBA_CMD<10>	3.2E 4.2A 4.2E 5.2A 5.2E
FBA_CMD<11>	3.2E 3.2F 4.2A 4.2E 5.2A 5.2E
FBA_CMD<12>	3.3E 3.3F 4.2A 4.2E 5.2A 5.2E
FBA_CMD<13>	3.3E 5.1A 5.1E
FBA_CMD<14>	3.3E 4.2A 4.2E 5.2A 5.2E
FBA_CMD<15>	3.3E 4.1A 4.1E 5.1A 5.1E
FBA_CMD<16>	3.3E 4.2A 4.2E 5.2A 5.2E
FBA_CMD<17>	3.3E 4.2A 4.2E 5.2A 5.2E
FBA_CMD<18>	3.3E 4.2A 4.2E 5.2A 5.2E
FBA_CMD<19>	3.3E 4.2A 4.2E 5.2A 5.2E
FBA_CMD<20>	3.3E 4.2A 4.2E 5.2A 5.2E
FBA_CMD<21>	3.3E 4.1A 4.1E 5.2A 5.2E
FBA_CMD<22>	3.3E 4.1A 4.1E
FBA_CMD<23>	3.3E 4.2A 4.2E 5.2A 5.2E
FBA_CMD<24>	3.3E 4.1A 4.1E
FBA_CMD<25>	3.3E 4.1A 4.1E 5.1A 5.1E
FBA_CMD<27>	3.3E 4.2A 4.2E 5.2A 5.2E
FBA_D<0>	3.1C 4.3B
FBA_D<31..0>	4.3A<> 4.5A<> 3.1C<>
FBA_D<63..0>	3.1C<> 5.3A<> 5.5A<>
FBA_D<1>	3.1C 4.3B
FBA_D<2>	3.1C 4.3B
FBA_D<3>	3.1C 4.3B
FBA_D<4>	3.1C 4.3B
FBA_D<5>	3.1C 4.3B
FBA_D<6>	3.1C 4.3B
FBA_D<7>	3.1C 4.3B
FBA_D<8>	3.1C 4.3C
FBA_D<9>	3.1C 4.3C
FBA_D<10>	3.1C 4.3C
FBA_D<11>	3.1C 4.3C
FBA_D<12>	3.1C 4.3C
FBA_D<13>	3.1C 4.3C
FBA_D<14>	3.1C 4.3C
FBA_D<15>	3.1C 4.3C
FBA_D<16>	3.1C 4.3D
FBA_D<17>	3.1C 4.3D
FBA_D<18>	3.1C 4.3D
FBA_D<19>	3.1C 4.3D
FBA_D<20>	3.1C 4.3D
FBA_D<21>	3.2C 4.3D
FBA_D<22>	3.2C 4.3D
FBA_D<23>	3.2C 4.3D
FBA_D<24>	3.2C 4.3D
FBA_D<25>	3.2C 4.3D
FBA_D<26>	3.2C 4.3D
FBA_D<27>	3.2C 4.3D
FBA_D<28>	3.2C 4.3D
FBA_D<29>	3.2C 4.3D
FBA_D<30>	3.2C 4.3D
FBA_D<31>	3.2C 4.3D
FBA_D<32>	3.2C 5.3B
FBA_D<63..32>	3.1C<> 5.3A<> 5.5A<>
FBA_D<33>	3.2C 5.3B
FBA_D<34>	3.2C 5.3B
FBA_D<35>	3.2C 5.3B
FBA_D<36>	3.2C 5.3B
FBA_D<37>	3.2C 5.3B
FBA_D<38>	3.2C 5.3B
FBA_D<39>	3.2C 5.3B
FBA_D<40>	3.2C 5.3C
FBA_D<41>	3.2C 5.3C
FBA_D<42>	3.2C 5.3C
FBA_D<43>	3.2C 5.3C
FBA_D<44>	3.2C 5.3C
FBA_D<45>	3.2C 5.3C
FBA_D<46>	3.2C 5.3C
FBA_D<47>	3.2C 5.3C
FBA_D<48>	3.2C 5.3D
FBA_D<49>	3.2C 5.3D
FBA_D<50>	3.2C 5.3D
FBA_D<51>	3.3C 5.3D
FBA_D<52>	3.3C 5.3D
FBA_D<53>	3.3C 5.3D
FBA_D<54>	3.3C 5.3D
FBA_D<55>	3.3C 5.3D
FBA_D<56>	3.3C 5.3E
FBA_D<57>	3.3C 5.3E
FBA_D<58>	3.3C 5.3E
FBA_D<59>	3.3C 5.3E
FBA_D<60>	3.3C 5.3E
FBA_D<61>	3.3C 5.3E
FBA_D<62>	3.3C 5.3E
FBA_D<63>	3.3C 5.3E
FBA_DEBUG	3.4E
FBA_DQM<0>	3.3C 4.4B
FBA_DQM<3..0>	4.3A<> 4.5A<> 3.3C<> 5.3A<> 5.5A<>
FBA_DQM<7..0>	3.3C<> 5.3A<> 5.5A<>
FBA_DQM<1>	3.3C 4.4C
FBA_DQM<2>	3.3C 4.4D
FBA_DQM<3>	3.3C 4.4D
FBA_DQM<4>	3.3C 5.4B
FBA_DQM<7..4>	3.3C<> 5.3A<> 5.5A<>
FBA_DQM<5>	3.3C 5.4C
FBA_DQM<6>	3.3C 5.4D
FBA_DQM<7>	3.3C 5.4E
FBA_DQS_RN0	3.4C<> 4.4B 4.5A<
FBA_DQS_RN1	3.4C<> 4.4C 4.5A<
FBA_DQS_RN2	3.4C<> 4.4D 4.5A<
FBA_DQS_RN3	3.4C<> 4.4D 4.5A<
FBA_DQS_RN4	3.4C<> 5.4B 5.5A<
FBA_DQS_RN5	3.4C<> 5.4C 5.5A<
FBA_DQS_RN6	3.4C<> 5.4D 5.5A<
FBA_DQS_RN7	3.4C<> 5.4E 5.5A<
FBA_DQS_WP0	3.3C<> 4.4B 4.5A<
FBA_DQS_WP1	3.3C<> 4.4C 4.5A<
FBA_DQS_WP2	3.3C<> 4.4D 4.5A<
FBA_DQS_WP3	3.3C<> 4.4D 4.5A<
FBA_DQS_WP4	3.4C<> 5.4B 5.5A<
FBA_DQS_WP5	3.4C<> 5.4C 5.5A<
FBA_DQS_WP6	3.4C<> 5.4D 5.5A<
FBA_DQS_WP7	3.4C<> 5.4E 5.5A<
FBA_VREF1	4.2C 4.2F 4.4A<>
FBA_VREF2	5.2B 5.2F 5.4A<>
FB_CAL_PD_VDDQ	3.1A<> 3.4E
FB_CAL_PU_GND	3.2A<> 3.4E
FB_CAL_TERM_GND	3.2A<> 3.4E
FB_PLLAVDD	3.2A<> 3.4E
FB_VREF	3.2A<> 3.5C
GND_SENSE	2.4F
GPIO0_HPDAB	10.3D 10.4G
GPIO1_DP_HPDC	10.3D
GPIO2_BL_PWM	9.4A< 10.3F>
GPIO3_PPEN	9.3A< 10.3F>
GPIO3_PPEN_GPU	10.3D
GPIO4_BLEN	9.3A< 10.3F>
GPIO4_BLEN_GPU	10.3D
GPIO5_NVVDDCTL0	10.3F> 12.4A<
GPIO6_NVVDDCTL1	10.3F> 12.4A<
GPIO8_SLOWDOWNM*	10.2D
GPIO8_THERM_ALERT*	10.3D
GPIO9_LVDS_IOVDD_EN	7.2B
GPIO9_LVDS_SYS*	7.2A< 10.3E>
GPIO9_TMDS_IOVDD_EN*	7.2B
GPIO12_AC_DET	10.3D
GPIO15_DVI_A_HPDE	10.3D
GPIO16_MODE_C	8.1G< 10.3E<
GPIO16_MODE_C*	8.1F
GPU_TESTMODE	11.2C
HDA1_BCLK	7.4F 7.5D<>
HDA1_RST*	7.4F 7.5D<>
HDA1_SDI	7.4F 7.5D<>
HDA1_SDO	7.4F 7.5D<>
HDA1_SYNC	7.4F 7.5D<>
HDA_BCLK	7.4H< 7.5D<> 9.3F>
HDA_RST*	2.4A> 7.4H< 7.5D<>
HDA_SDI	7.4H< 7.5D<> 9.3F>
HDA_SDO	7.4H> 7.5D<> 9.3F<
HDA_SYNC	7.4H< 7.5D<> 9.3F>
HDCP_A2	11.2D
HDCP_WP	11.2E
I2CA_SCL	10.2D
I2CA_SCL_R	9.3A< 10.2H>
I2CA_SDA	10.2D
I2CA_SDA_R	9.3A<> 10.2H<>
I2CB_SCL	10.2D
I2CB_SCL_R	9.2A< 10.3H>
I2CB_SDA	10.3D
I2CB_SDA_R	9.2A<> 10.3H<>
I2CC_SCL	10.3D
I2CC_SCL_R	9.4A< 10.2A< 10.3H> 11.5E<
I2CC_SDA	10.3D
I2CC_SDA_R	9.4A<> 10.2A<> 10.3H<> 11.5E<>
I2CD_SCL	8.1G<> 10.3H>
I2CD_SDA	8.1G<> 10.3H<>
I2CH_SCL	11.1C
I2CH_SDA	11.2C
I2CS_SCL	10.3C
I2CS_SDA	10.3C
IFPAB_IOVDD	7.2F
IFPAB_IOVDD_3V3	7.3B
IFPAB_IOVDD_EN*	7.3B
IFPAB_IOVDD_LVDS_I SOL	7.2B
IFPAB_IOVDD_SW	7.2C
IFPAB_PLLVDD	7.1F
IFPAB_RSET	7.1F
IFPA_TXC	7.2H> 7.5B<> 9.4F<
IFPA_TXC*	7.2H> 7.5B<> 9.4F<
IFPA_TXD0	7.1H> 7.4B<> 9.4F<
IFPA_TXD0*	7.1H> 7.4B<> 9.4F<
IFPA_TXD1	7.1H> 7.4B<> 9.4F<
IFPA_TXD1*	7.1H> 7.4B<> 9.4F<
IFPA_TXD2	7.2H> 7.5B<> 9.4F<
IFPA_TXD2*	7.2H> 7.5B<> 9.4F<
IFPA_TXD3	7.2H> 7.5B<> 9.4F<
IFPA_TXD3*	7.2H> 7.5B<> 9.4F<
IFPB_TXC	7.3H> 7.5B<> 9.4F<
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IFPB_TXD4	7.2H> 7.5B<> 9.3F<
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IFPB_TXD7	7.2H> 7.5B<> 9.4F<
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IFPCE_IOVDD_EN	7.1A> 8.3A< 8.4A<
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IFPC_IOVDD	8.2C
IFPC_IOVDD_T	8.2B
IFPC_PLLVDD	8.2C
IFPC_RSET	8.2C
IFPE_HPD	9.2A> 10.3H<
IFPE_IOVDD	8.4C
IFPE_IOVDD_T	8.4B
IFPE_L0	8.4E 8.5B<>
IFPE_L0*	8.4E 8.5B<>
IFPE_L1	8.4E 8.5B<>
IFPE_L1*	8.4E 8.5B<>
IFPE_L2	8.4E 8.5B<>
IFPE_L2*	8.4E 8.5B<>
IFPE_L3	8.3E 8.5B<>
IFPE_L3*	8.3E 8.5B<>
IFPE_PLLVDD	8.3C
IFPE_RSET	8.3C
IFPE_TERM	8.4H
IFPE_TXC	8.3G 8.4F> 8.5B<> 9.2F<
IFPE_TXC*	8.3F> 8.3G 8.5B<> 9.2F<
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IFPE_TXD2*	8.4F> 8.4G 8.5B<> 9.2F<
JTAG_TCLK	10.3C
JTAG_TDI	10.3C
JTAG_TDO	10.3C
JTAG_TMS	10.3C
JTAG_TRST	10.3C
MOBILE_AC_BATT	9.4B> 10.3E<
MOBILE_RUNPWROK	7.3A< 9.4A> 12.2A< 13.2A<
MOBILE_RUNPWROK_IN	9.4B
NVVDD	12.2F
NVVDD_CTL0	12.4C
NVVDD_CTL0_R	12.4C
NVVDD_CTL1	12.4C
NVVDD_CTL1_R	12.4C
NVVDD_SENSE	2.4G<> 12.3E<>
PEX_PLLVDD	2.4F
PEX_PRSNT2	2.5C
PEX_PRSNT2_R	2.5D> 14.4A<
PEX_PRSNT2_T	14.4B
PEX_REFCLK	2.2E
PEX_REFCLK*	2.2E
PEX_RST	2.2D
PEX_RX0	2.2E
PEX_RX0*	2.2E
PEX_RX1	2.2E
PEX_RX1*	2.2E
PEX_RX2	2.2E
PEX_RX2*	2.2E
PEX_RX3	2.3E
PEX_RX3*	2.3E
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PEX_RX14*	2.5E
PEX_RX15	2.5E
PEX_RX15*	2.5E
PEX_TCLK	2.5F
PEX_TCLK*	2.5F
PEX_TERMP	2.5F
PEX_TX0	2.2E
PEX_TX0*	2.2E
PEX_TX0_C	2.2C
PEX_TX0_C*	2.2C
PEX_TX1	2.2E
PEX_TX1*	2.2E
PEX_TX1_C	2.2C
PEX_TX1_C*	2.2C
PEX_TX2	2.2E
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PEX_TX4_C*	2.3C
PEX_TX5	2.3E
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PEX_TX5_C	2.3C
PEX_TX5_C*	2.3C
PEX_TX6	2.3E
PEX_TX6*	2.3E
PEX_TX6_C	2.3C
PEX_TX6_C*	2.3C
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PEX_TX14_C	2.5C
PEX_TX14_C*	2.5C
PEX_TX15	2.5E
PEX_TX15*	2.5E
PEX_TX15_C	2.5C
PEX_TX15_C*	2.5C
PEX_VDD_FB	13.2B
PS_BOOT_FB1	13.3C
PS_BOOT_FBVDDQ	13.3C
PS_BOOT_NV1	12.2C
PS_BOOT_NVVDD	12.2C
PS_CP_FB1	13.5B
PS_CP_FB2	13.4B
PS_CP_FB3	13.4E
PS_CP_NVVDD1	12.3B
PS_CP_NVVDD2	12.3B
PS_CP_NVVDD3	12.3D
PS_DR_FBFCCM	13.4B
PS_DR_NVFCCM	12.2B
PS_FB_FB	13.4C
PS_FB_NVVDD	12.4D
PS_FB_PWROK	13.2A
PS_FS_FB	13.4B
PS_FS_NVVDD	12.3B
PS_ISEN_FBVDDQ	13.4C
PS_ISEN_NVVDD	12.2C
PS_LG_FBVDDQ	13.4C
PS_LG_NVVDD	12.2C
PS_PGOOD_FB	7.1A< 13.2A 13.4A>
PS_PGOOD_NV	10.2F< 12.2A> 13.4A<
PS_PHASE_FBVDDQ	13.4C
PS_PHASE_NVVDD	12.2C
PS_RC_FB	13.4D
PS_RC_NVVDD	12.3E
PS_UG_FBVDDQ	13.3C
PS_UG_NVVDD	12.2C
PS_VCC_FB	7.1A< 13.4A>
PS_VCC_NVVDD	12.2B
ROM_CS*	11.1C 11.1D
ROM_SCLK	11.1D< 11.1D< 14.3A>
ROM_SI	11.1D< 11.1D< 14.3A>
ROM_SO	11.1D< 11.1D< 14.3A>
SMB_CLK	9.4A> 10.4B<
SMB_DATA	9.4A<> 10.4B<>
SNN_A13_1	4.2B
SNN_A13_2	4.2E
SNN_A13_3	5.2A
SNN_A13_4	5.2E
SNN_A14_1	4.2B
SNN_A14_2	4.2E
SNN_A14_3	5.2A
SNN_A14_4	5.2E
SNN_A15_1	4.2B
SNN_A15_2	4.2E
SNN_A15_3	5.2A
SNN_A15_4	5.2E
SNN_BUFRST*	11.2C
SNN_DACB_CSYNC	6.3D
SNN_DACC_BLUE	6.4D
SNN_DACC_GREEN	6.4D
SNN_DACC_HSYNC	6.4D
SNN_DACC_RED	6.4D
SNN_DACC_RSET	6.4C
SNN_DACC_VREF	6.4C
SNN_DACC_VSYNC	6.4D
SNN_DP_AUX_C	8.2G
SNN_FBA_CMD7	3.2E
SNN_FBA_CMND26	3.3E
SNN_FBA_CMND28	3.3E
SNN_FBA_NC1	4.2A
SNN_FBA_NC2	4.2A
SNN_FBA_NC3	4.2E
SNN_FBA_NC4	4.2E
SNN_FBA_NC5	5.2A
SNN_FBA_NC6	5.2A
SNN_FBA_NC7	5.2E
SNN_FBA_NC8	5.2E
SNN_FBA_RFU_1	3.3E
SNN_FBA_RFU_2	3.3E
SNN_GPIO7	10.3D
SNN_GPIO10	10.3D
SNN_GPIO11	10.3D
SNN_GPIO13	10.3D
SNN_GPIO14	10.3D
SNN_GPIO17_CEC_DET_C	10.3D
SNN_GPIO18_MODE_E	10.4D
SNN_GPIO19_CEC_DET_E	10.4D
SNN_I2CE_SCL	10.3D
SNN_I2CE_SDA	10.3D
SNN_IFPE_AUX	8.3E
SNN_IFPE_AUX*	8.3E
SNN_NC1	11.1H
SNN_NC2	11.1H
SNN_NC3	11.1H
SNN_NC4	11.1H
SNN_RFU_AE9	2.1E
SNN_RFU_AG9	2.5F
SNN_RFU_C15	11.2A
SNN_RFU_D15	11.2A
SNN_RFU_F6	11.2C
SNN_RFU_J5	11.2C
SNN_TXC	9.3E
SNN_TXC*	9.3E
SNN_TXD0	9.2E
SNN_TXD0*	9.2E
SNN_TXD1	9.2E
SNN_TXD1*	9.2E
SNN_TXD2	9.2E
SNN_TXD2*	9.2E
SPDIF	9.4B> 11.2A<
SPDIF_MXM	9.4C
SP_FOUT	11.5D
SP_REF	11.5D
SP_VDD	11.5C
STRAP0	11.1A< 14.1A>
STRAP1	11.1A< 14.1A> 14.4A>
STRAP1_R	14.4C
STRAP1_R_REF	14.4C
STRAP2	11.1A< 14.2A>
STRAP_REF_3V3	11.2A
STRAP_REF_MIOB	11.2A
THERM	10.3C
THERM*	10.2C
THERM_ALERT*	9.4A< 10.2G>
THERM_ALERTM*	10.2D
THERM_SCL	10.2C
THERM_SDA	10.2C
THERM_VDD	10.2D
XTALIN	11.4C
XTALOUT	11.4E
XTALOUT_BUF	11.4E
XTALOUT_BUF_R	11.5D
XTAL_PLLVDD	11.3C
XTAL_SSFOUT	11.4C

ASSEMBLY	NB9M-GS G98M ?/400MHz, 256MB(64bit) GDDR2 32Mx16 84FBGA, LVDS + HDMI + SD/HD(TV_OUT) + VGA
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