# NV28M-P138, DAC, TMDS, LVDS, TVout, 64MB 4MX32 BGA DDR, AGP4X, Dell Mobile

1. Schematics taken from E153-A00.

#### X17

1. Use RUNPWRGD for all PS enabling.

## A01:

## X40

1. Corrected serial ROM hookup.

## A02:

### X42

- 1. Corrected I2C2 hookup at U9 (CH7009).
- 2. Changed R254 to 1.5K 1%. This raises NVVDD to 1.25V.
  3. Connect GPIO1 to 90C387 PD, and disconnect
- SUS\_STAT- from motherboard.
- 4. Change Q2 to FDS6982.

5. Change R287 to 2.67K and R254 to 1.1K when NVVDDSW stuff option is employed, with R254 = 1.5K when no NVVDDSW is used (NOSW stuff option).

6. Removed TP606 to allow better guard trace on thermal sensor D+ and D- lines.

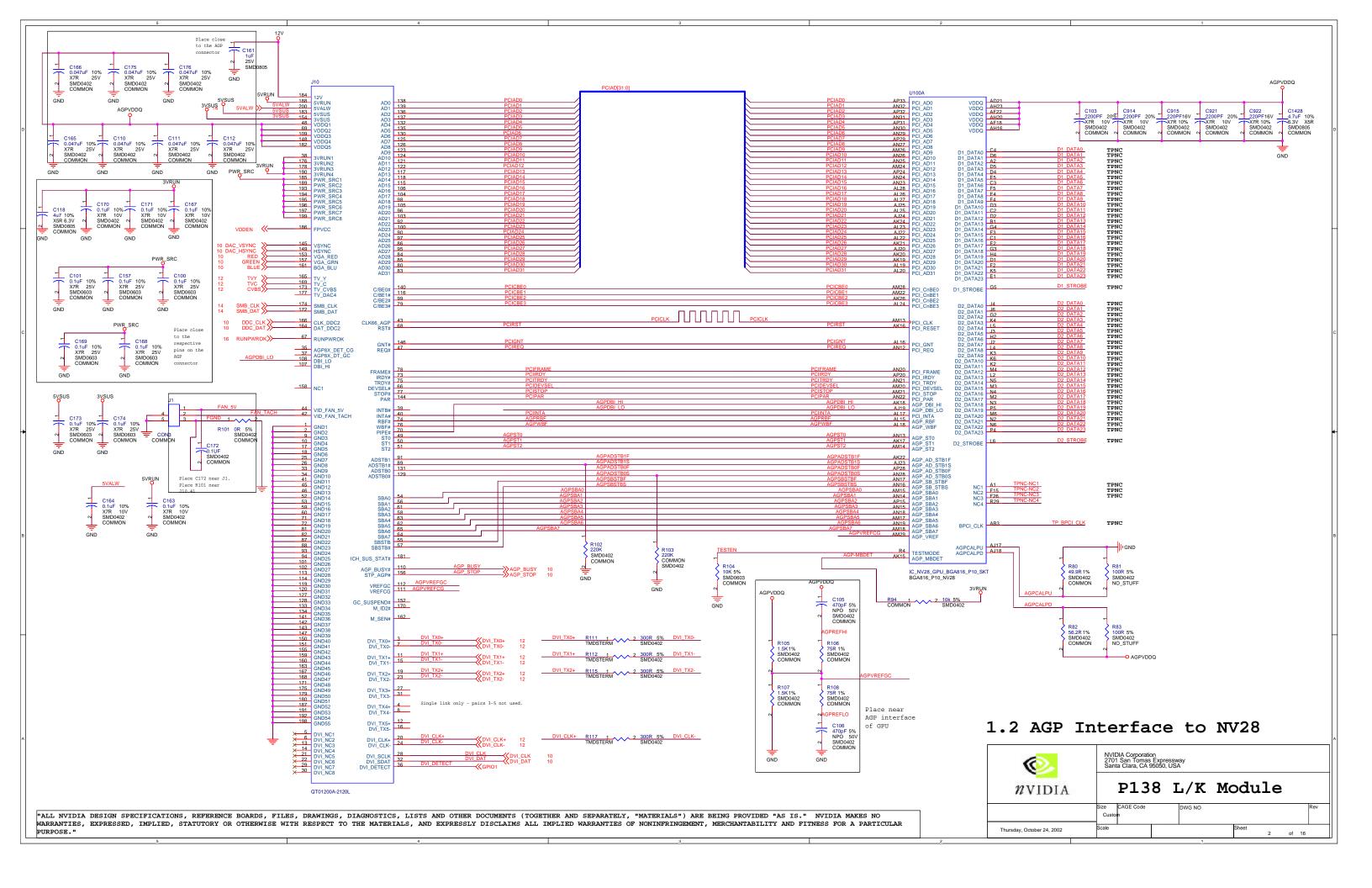
7. Connected CH\_GPIOO to NSM\_DUAL to select single or dual link panels.

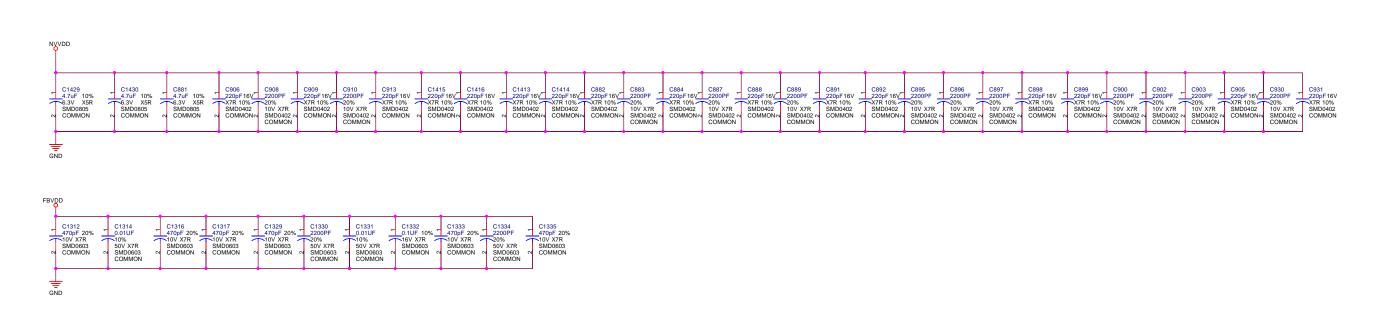
1.1 TOP PAGE

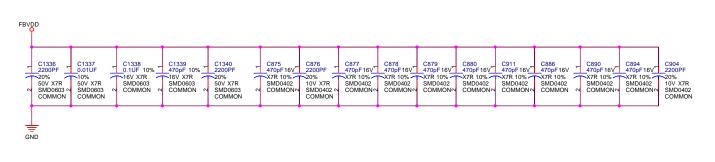
140-10138-0000-A01 602-10138-0000-A01

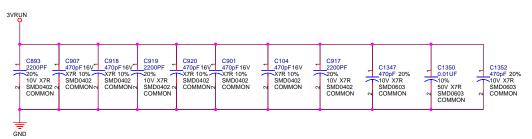
<b>©</b>	NVIDIA Corporation 2701 San Tomas Expressway Santa Clara, CA 95050, USA				
$n_{\text{VIDIA}}$	P138	L/K	Module		
	Size CAGE Code Custom	DWG NO			Rev
Thursday, October 24, 2002	Scale		Sheet 1	of 1	6

"ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF NONINFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE."





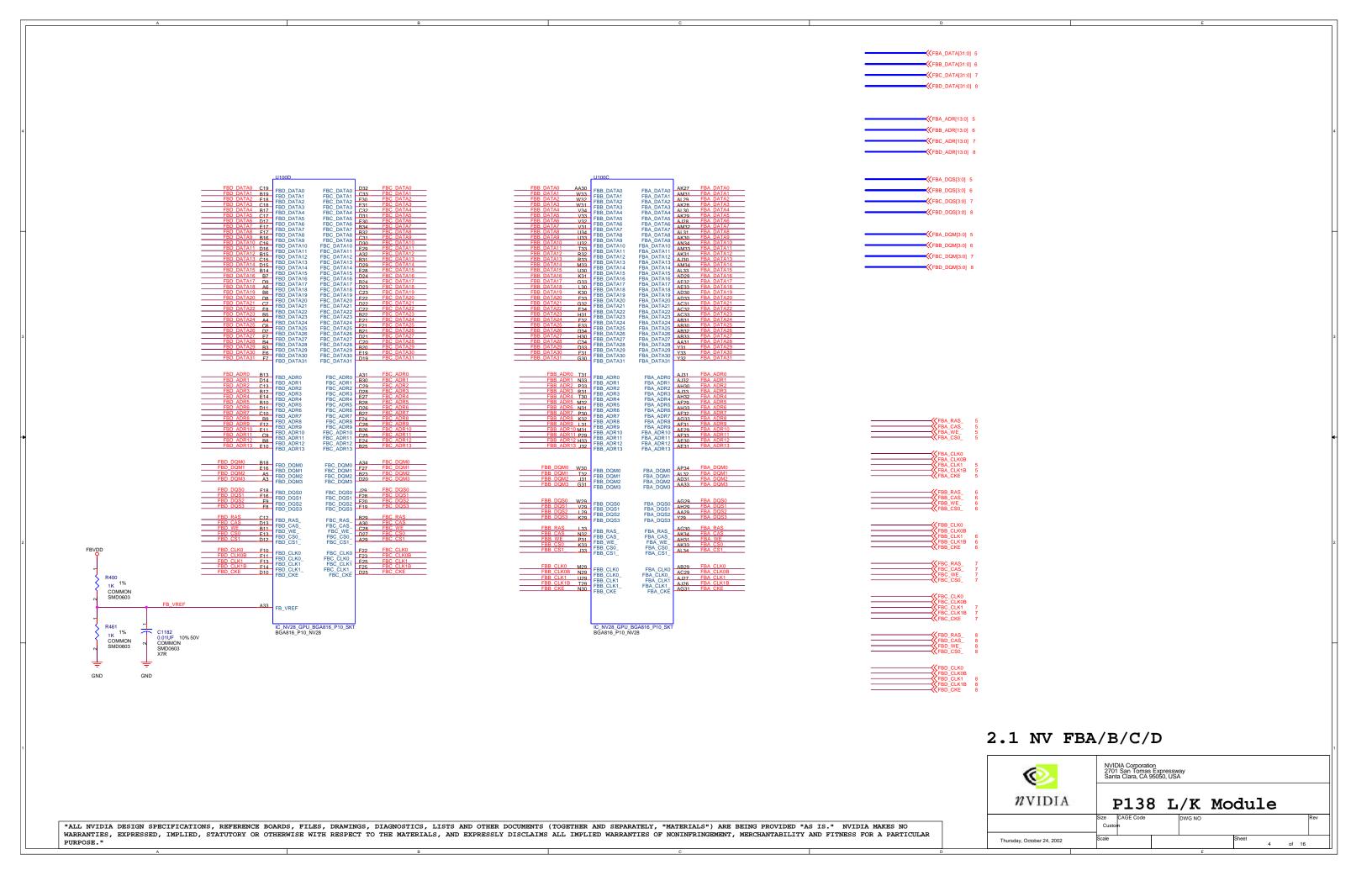


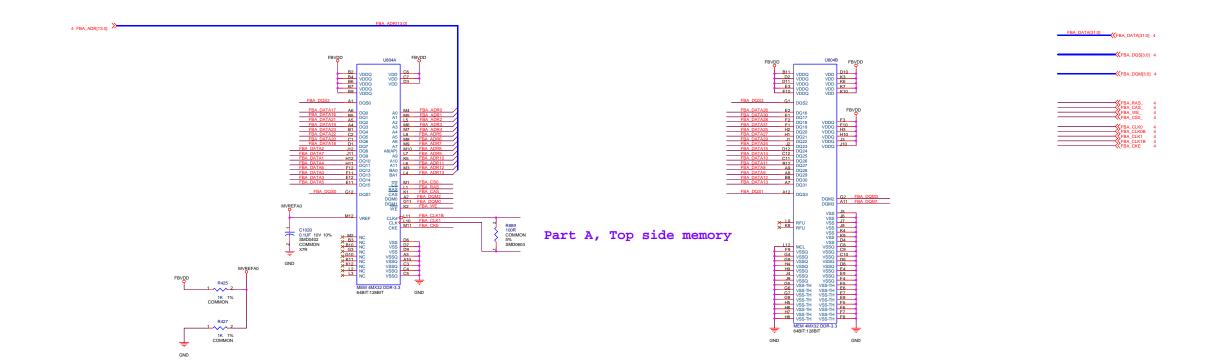


## 2.0 NV DECOUPLING

<b>©</b>	NVIDIA Corporation 2701 San Tomas Santa Clara, CA 9	NVIDIA Corporation 2701 San Tomas Expressway Santa Clara, CA 95050, USA		
nvidia	P138	3 L/K	Module	
	Size CAGE Code Custom	DWG NO		Rev
Wednesday, October 23, 2002	Scale		Sheet 3	of 16

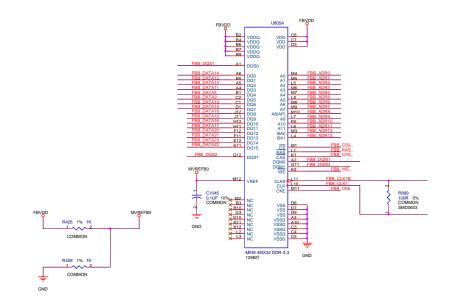
"ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." NVIDIA MAKES NO
WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF NONINFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE."

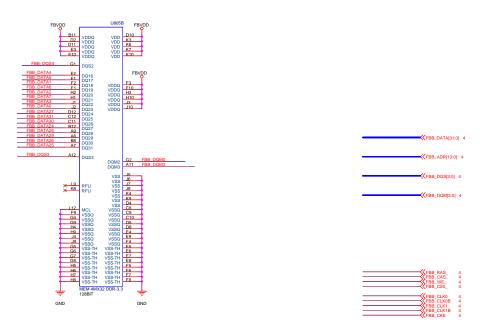




## 2.2 FBA DDR 4MX32 SDRAM

	NVIDIA Corporation 2701 San Tomas Expressway Santa Clara, CA 95050, USA							
NVIDIA	P138 L/K Module				le			
	Size D	CAGE Code	DWG No	)				Rev
Thursday, October 24, 2002	Scale			Sheet	5	of	16	
			1					

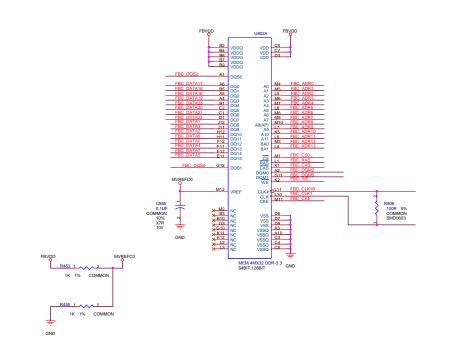


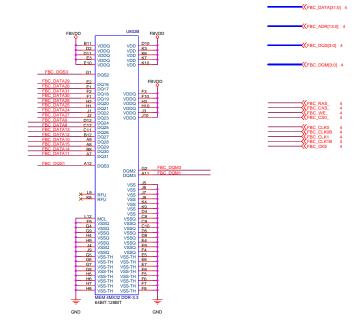


## 2.3 FBB DDR 4MX32 SDRAM



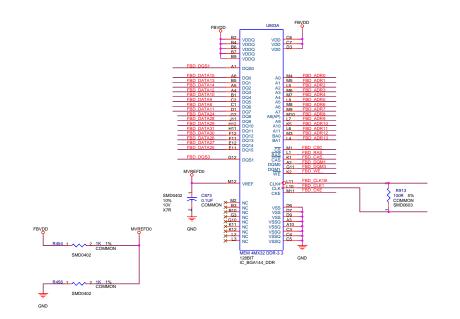
"ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." NVIDIA MAKES NO MARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF NONINFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR NUMBER OF THE PROVIDED TO THE MATERIALS, AND EXPRESSED, MININGENER, MERCHANTABILITY AND FITNESS FOR A PARTICULAR NUMBER OF THE PROVIDED TO THE MATERIALS, AND EXPRESSED OF THE MATERIALS OF THE MA

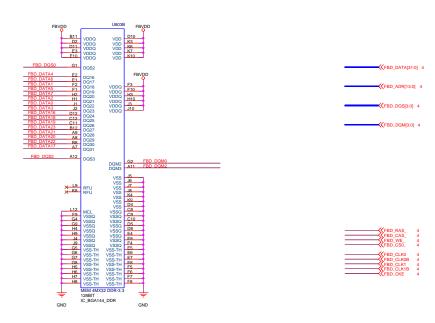




## 2.4 FBC DDR 4MX32 SDRAM

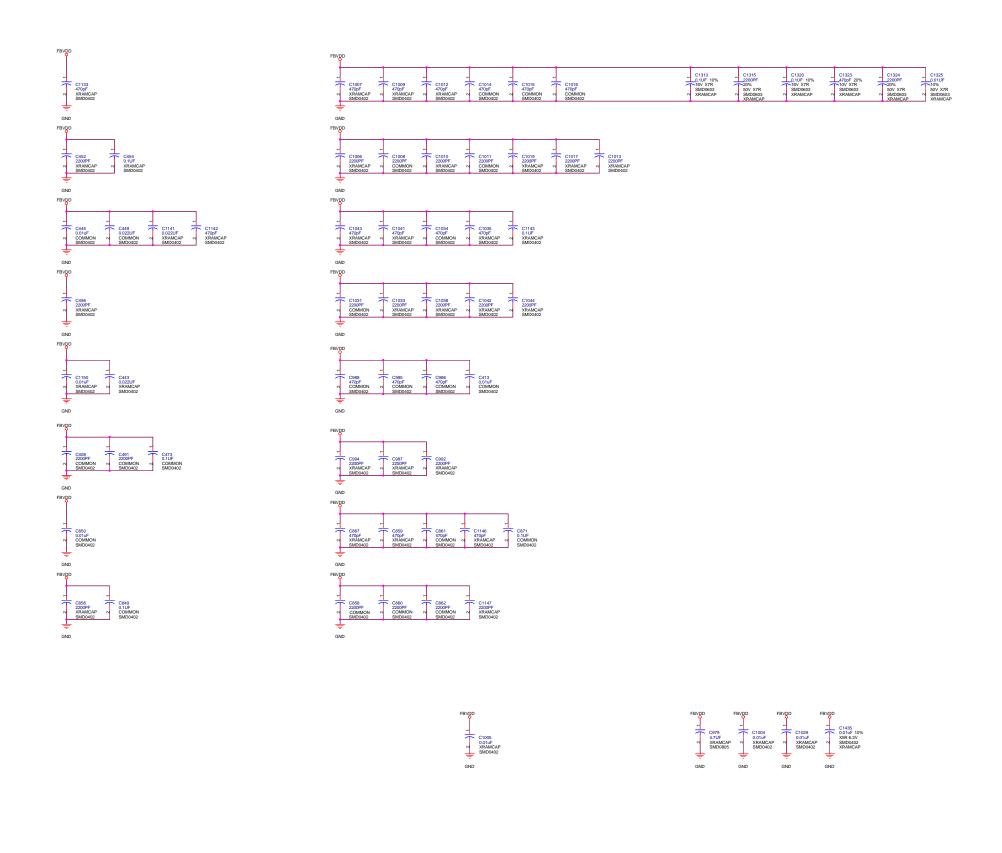






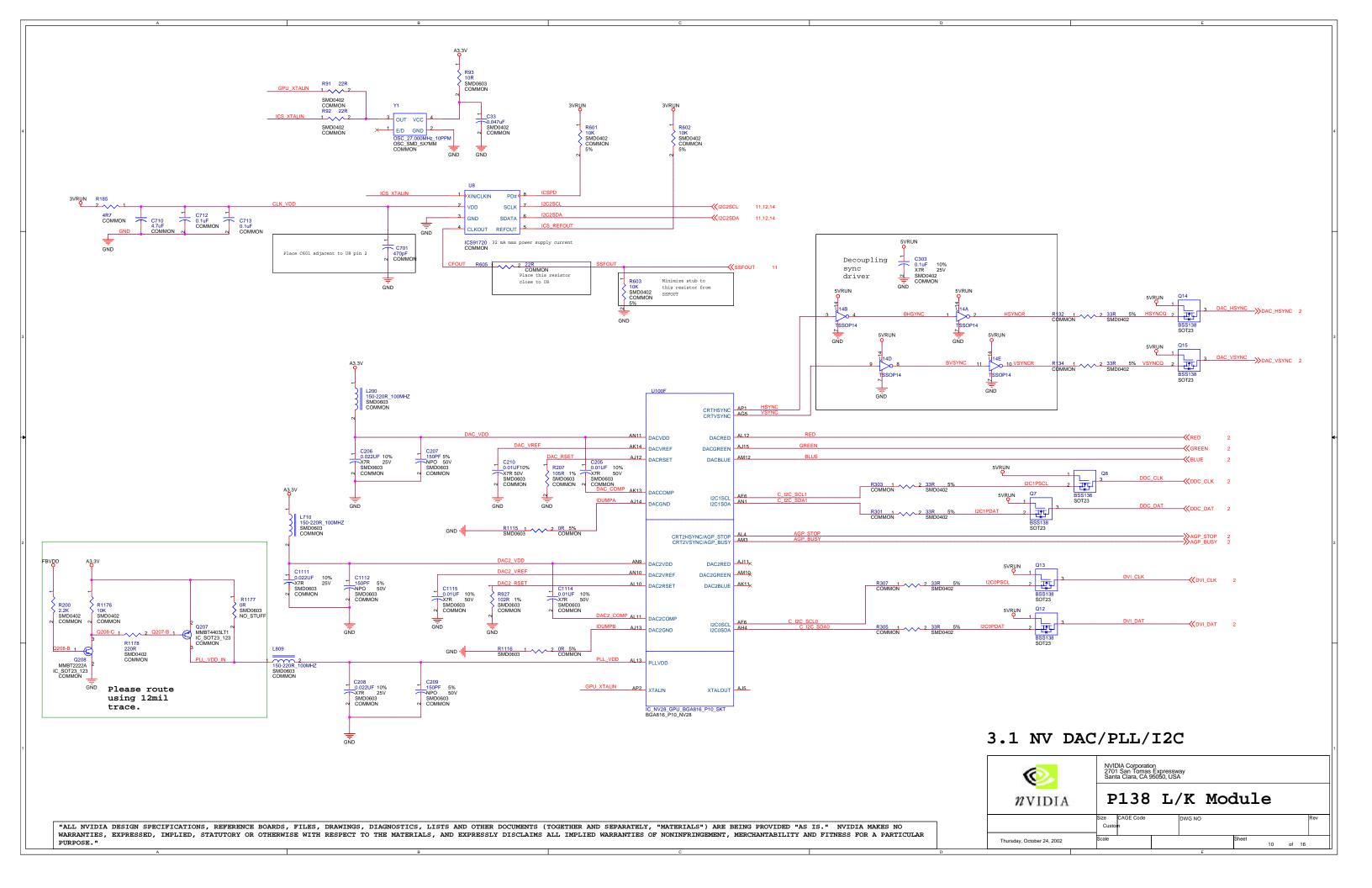
## 2.5 FBD DDR 4MX32 SDRAM

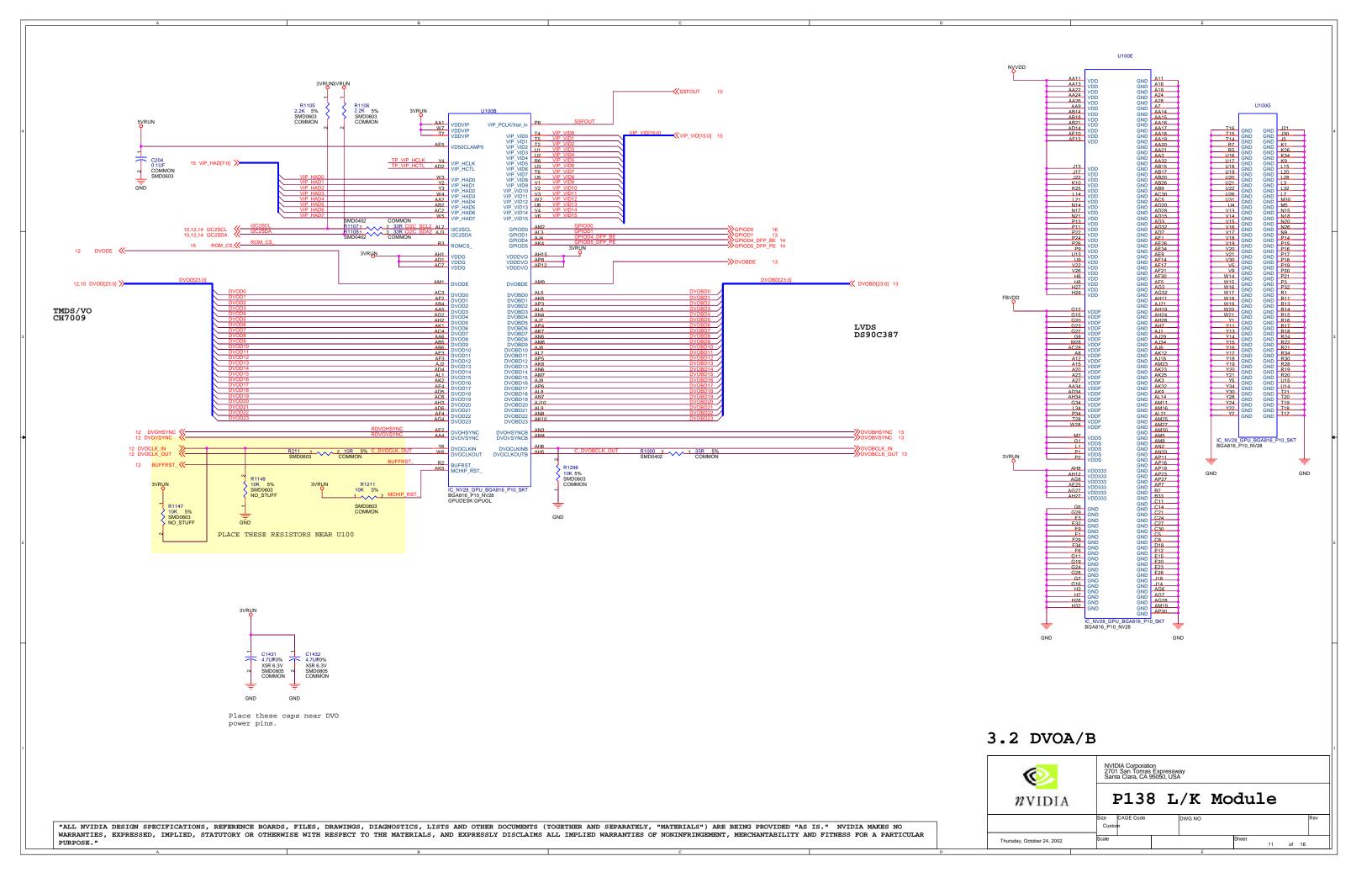


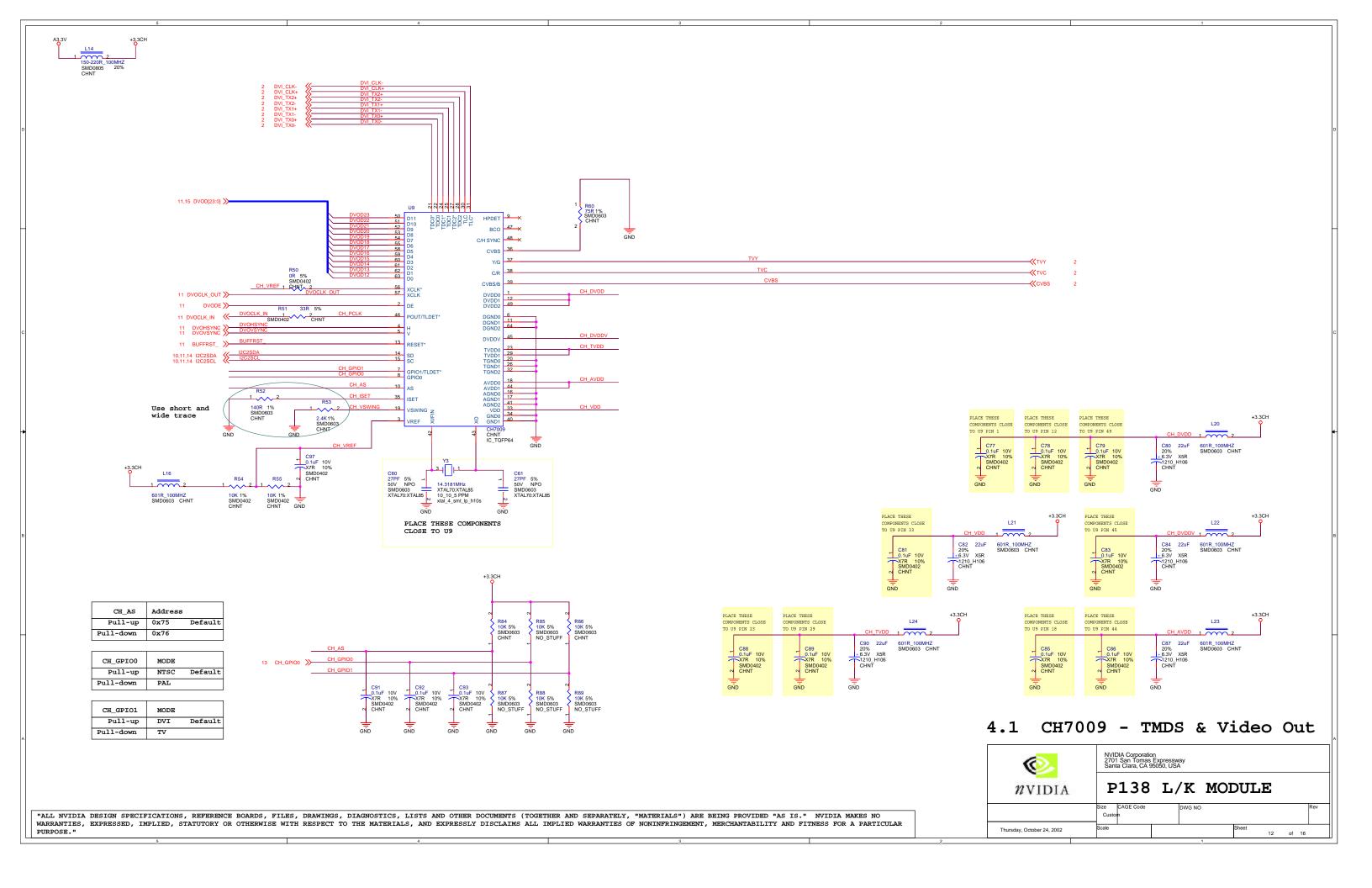


### 2.6 BGA MEMORY DECOUPLING

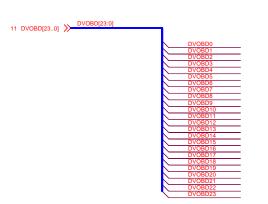
	NVIDIA Corporation 2701 San Tomas Expressway Santa Clara, CA 95050, USA									
NVIDIA	P138 L/K Module			е						
	Size D	CAGE Code		DWG NO						Rev
Wednesday, October 23, 2002	Scale					Sheet	9	of	16	
			E							







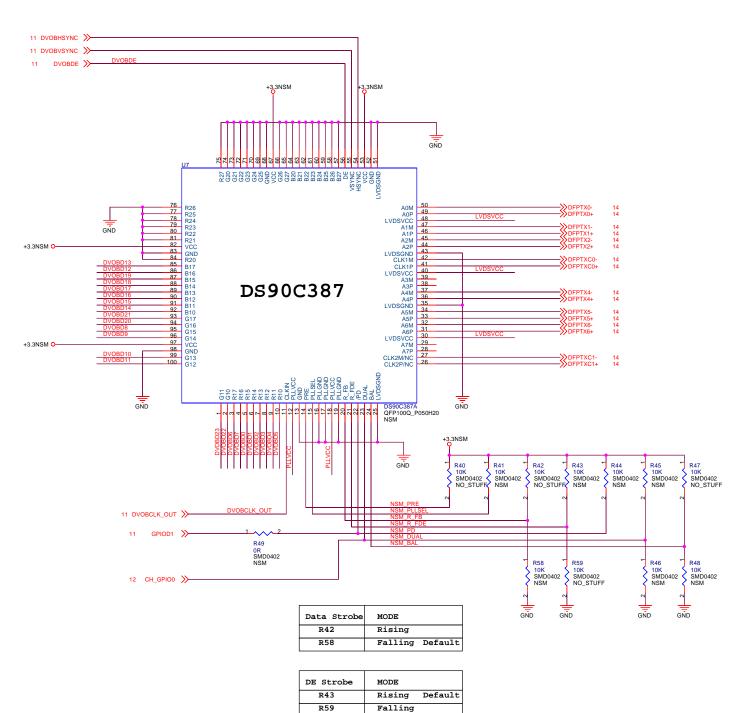


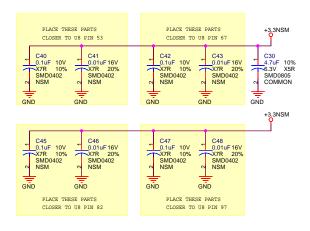


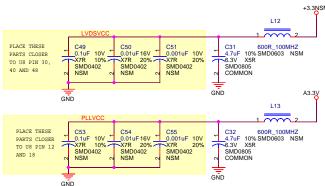
VGA	DVO	NSM
Color	Output	Input
R7	DVOB0	R15
R6	DVOB1	R14
R5	DVOB2	R13
R4	DVOB3	R12
R3	DVOB4	R11
R2	DVOB5	R10
R1	DVOB6	R17
R0	DVOB7	R16
G7	DVOB8	G15
G6	DVOB9	G14
G5	DVOB10	G13
G4	DVOB11	G12
G3	DVOB23	G11
G2	DVOB22	G10
G1	DVOB21	G17
G0	DVOB20	G16
В7	DVOB19	B15
В6	DVOB18	B14
B5	DVOB17	B13
В4	DVOB16	B12
В3	DVOB15	B11
В2	DVOB14	B10
В1	DVOB13	B17
В0	DVOB12	B16



This is for single pixel per clock input mapping ONLY.

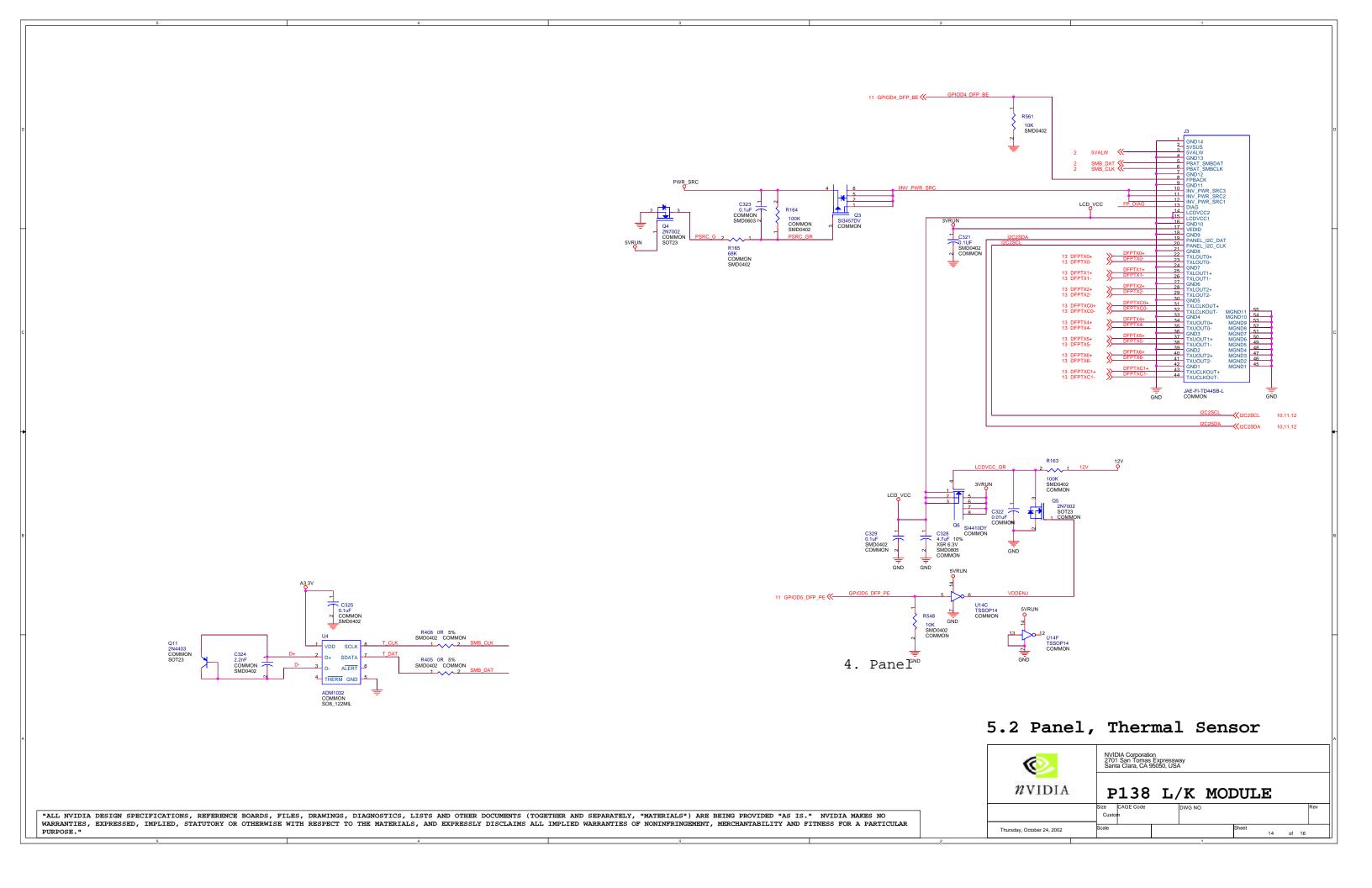


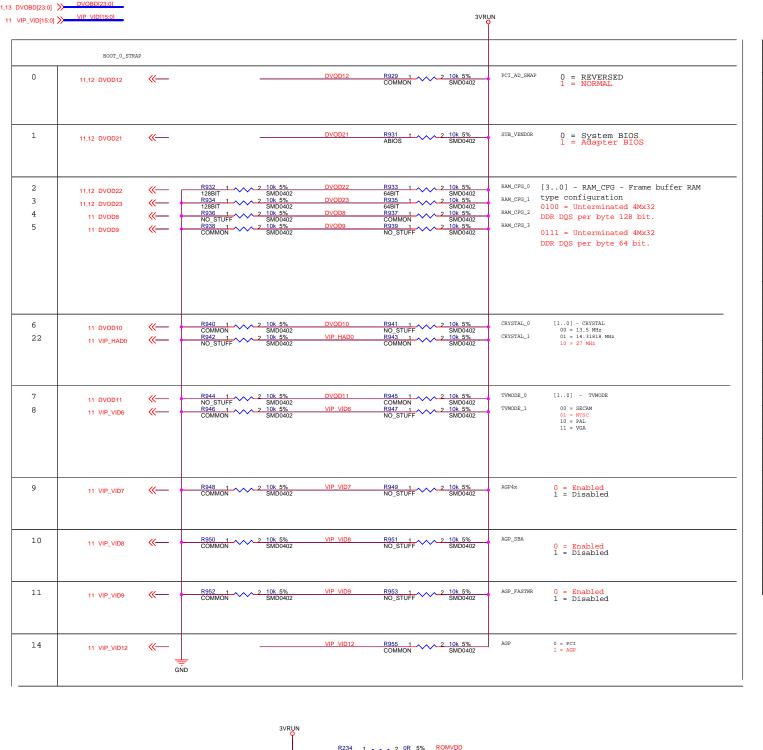


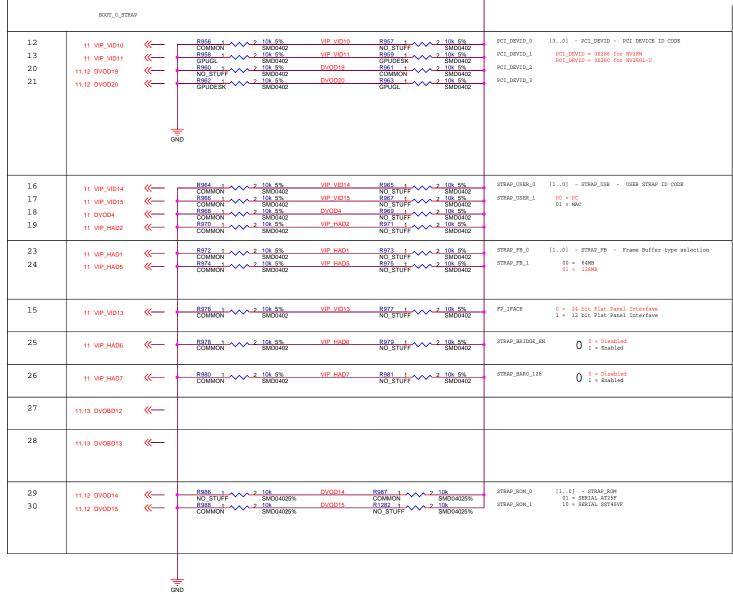


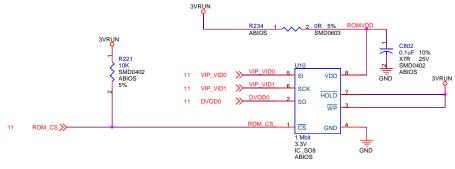
## 4.2 DS90C387 - LVDS











## 6.1 NV STRAP, S-ROM

		NVIDIA Corporation 2701 San Tomas Expressway Santa Clara, CA 95050, USA						
	nvidia	P138	P138 L/K MODU					
		Size CAGE Code Custom	DWG NO	Rev				
	Thursday, October 24, 2002	Scale		Sheet 15 of 16				

"ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF NONINFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR DISCREPANCE OF THE PROPERTY OF THE PROPE

PURPOSE."

11,12 DVOD[23:0] >>

