P78, NV17, 4Mx32 DDR, 64MB, RGB, TV-out, ~~video capture,~~ AGP4X

PCI DEVICE ID = 0X171 FOR NV17-128D.

PRIMARY ** VGA1 DAC A ** LFH1 TMDS A I2C_A.
SECONDARY ** S-VIDEO/TV-OUT DAC B ** LFH2 VGA2 TMDS B I2C_B
VIDCAP ** VIP 7113 I2C_C.
9pin DIN ** RGB2 I2C_C.

X01: P78-A00
New file Created P71-X39+memory of P75 and new Mem PS

X02: P78-A00
Memory Address bus termination removed

X03: P78-A00
Cleanup- Design Review updates

X04: P78-A00
Mem Data/DQM bus Swapped on 11/14/01

X05: P78-A00
IFP PLLVDD REGULATOR ADDED
FBBCLK0 and 1 interchanged
P78-A00

X06: P78-A00
to Memory U201/U203
Mem clock Pullups not required-R243 to R250 removed.
MVREF res package changed from 0603 to 0402 for R219,R220 to R222, R239 to R242
U201- nets FBD19,20,21 swapped

X07: P78-A00
For I2C-2 Pull up/Protection
R1033 to 1036(4 pcs), 0603 addeded
L602, L603 (2pcs), 0805 added.
C883,C884 (2pcs), 0603 added
D505, D506 (2pcs), sot23 added.

X08: P78-A00
Changed the power for GPU Frame buffer decaps. Should be FBVDDQ/FBVDD.
Deleted C868, C846 - TH part no space.
L602, L603- Package changed from 0805 to 0603.
GPU VDDDVO, C529, C530 AND DVOVREF TO 3.3V instead of A3.3V

X09: P78-A00
ADDED ONE MORE REGULATOR FOR IFP PLLVDD
C885, C886 -0805 ADDED
R1038,R1039-0402 ADDED
U825 ADDED
R1028, R1029, R1031, R1032 PACKAGE CHANGED TO 0402.

X10: P78-A00-Final Review
C419, C886 removed.-Not required

X11: P78-A00
R1040 Pull Down for Hotswap input added

X12: P78-A00
R616 added in series to Core switcher 12V input

X13: P78-A00
R201 AND C293 to be on FBVDD/Q instead of 3.3V

X14: P78-A00-PCB X-Released
Moved C618 CAP from 12V to 12V_IN

X15: P78-A00 -SCH X-Released
Memory Power R69 to support 2.8V or 2.5V Sku.
R69 CHANGED TO 154R FROM 150R FOR 2.8V
Bracket component added to SCH

NVVDD more comments added in PS sheet
Mem PScomments edited in PS sheet

X17: P78-A00
Y300 Should be 18pF XTAL
C320,C321- New tuned values are 18pF
New Discrete VGA filter component values changed to 10pF-68nH-No cap- 68nH-10pF.
NO_STUFF Integrated filter components.

U511 memory regulator o/p current spec lowerd to 2.0A and Added new NVPN for 2.5V.
C145 No_stuff
U701-More substitute added
P300-DB15 and Bracket replaced with new PN.

X18: P78-A00
VGA Filter 10pF to be stuffed, missed in X17

X19: P78-A00
Add note in SCH that SAA7113 is not supported in this design
Heat sink M2 changed from 45x45mm to 53x64mm

X20: P78-A00
PCI Device ID bit labels were reversed, Corrected.
FOR LFH we need 15pF caps for C335, C329, C332, C341, C344, C338 in VGA Filter
R1031, R1032, R1038, R1039, resistor values corrected.

P78-A01-X01
Add D-FF buffer to PCIRST_ signal. Added U101.
Add R325, series termination res to XTALBUFF signal
Add R111, C146 smoothing ckt to PCIRST.
Add R112 to by pass D-FF ckt.
Replaced pkg IND_SMD0805_FLT with SMD0805 for L316-L318, L305, L307, L308
ADD SS Control circuit for 3.3V rail coming delayed
(No problem observed in P78 but in other Pxx)
Added Q2, Q3, D25, R618-R620
AGPSTOP pulled to 3.3V from AGPVDDQ

P78-A01-X02
Add R113 & R114 to D-FF ckt and Asynchronously Reset the o/p D-FF using PCIRST_

Stuff Option	Meaning
COMMON	Common to all assemblies
NO STUFF	Not present in any assembly
VIDCAP	Video In - Video Out, or Video Capture
LFH	LFH BOTH CHANNELS, NO TV, NO VIDCAP
TV	Second DAC channel goes to Svideo connector as TV Out
TVO	4pin DIN for TV Only
VGA1	Filter cap for VGA SKU
1117	Fixed 1117 linear regulator for A3.3V
1117_ADJ	Adjustable 1117 linear regulator for A3.3V
NO_1117	Connect A3.3V to 3.3V. No 1117 regulator.
IFPREG0	2.8V FOR IFP0PLLVD FOR LFH
IFPREG1	2.8V FOR IFP1PLLVD FOR LFH
IFPREG3V	IFP PLLVDD REGULATORS INPUT 3.3V
IFPREG5V	IFP PLLVDD REGULATORS INPUT 5V
ONE_IFPREG	COMMON 2.8V REGULATOR FOR IFP0PLLVD AND IFP1PLLVDD
IFP03V	A3.3V FOR IFP0PLLVD, DON'T USE IFPREG0, FOR TV
IFP13V	A3.3V FOR IFP1PLLVD, DON'T USE IFPREG1, FOR TV
NV17-128D	STRAP OPTION 0X171
CLAMP1	VGA1 Sync/I2C Clamping diodes
RGB_PROT	RGB Protection diodes on primary DAC outputs
CLAMP2	VGA2 Sync/I2C Clamping diodes
RGB2_PROT	RGB Protection diodes on secondary DAC outputs
CLAMP3	VIDCAP I2C/Video In Clamping diodes
TVCLAMP	TV Red/Green Clamping diodes
GPU	GPU ONLY
NV17-128D	IDSTRAP OPTION-171H
MEMORY	Memory only
M2-8V	Memory & PS output 2.8V
M2-5V	Memory & PS output 2.5V
BUF_RESET	PCIRST through D-FF circuit

PAGE OVERVIEW

VIDEO CAPTURE USING SAA7113 IS NOT SUPPORTED IN P78

REFER BOM FOR CORRECT NVPNs

140-10078-0000-A01
602-10078-0000-A01

NVIDIA Corporation
3535 Monroe St
Santa Clara, CA 95051, USA

P78, NV17, 4MX32 DDR, 64MB, LFH/RGB, TV-out, Video Capture, AGP4X

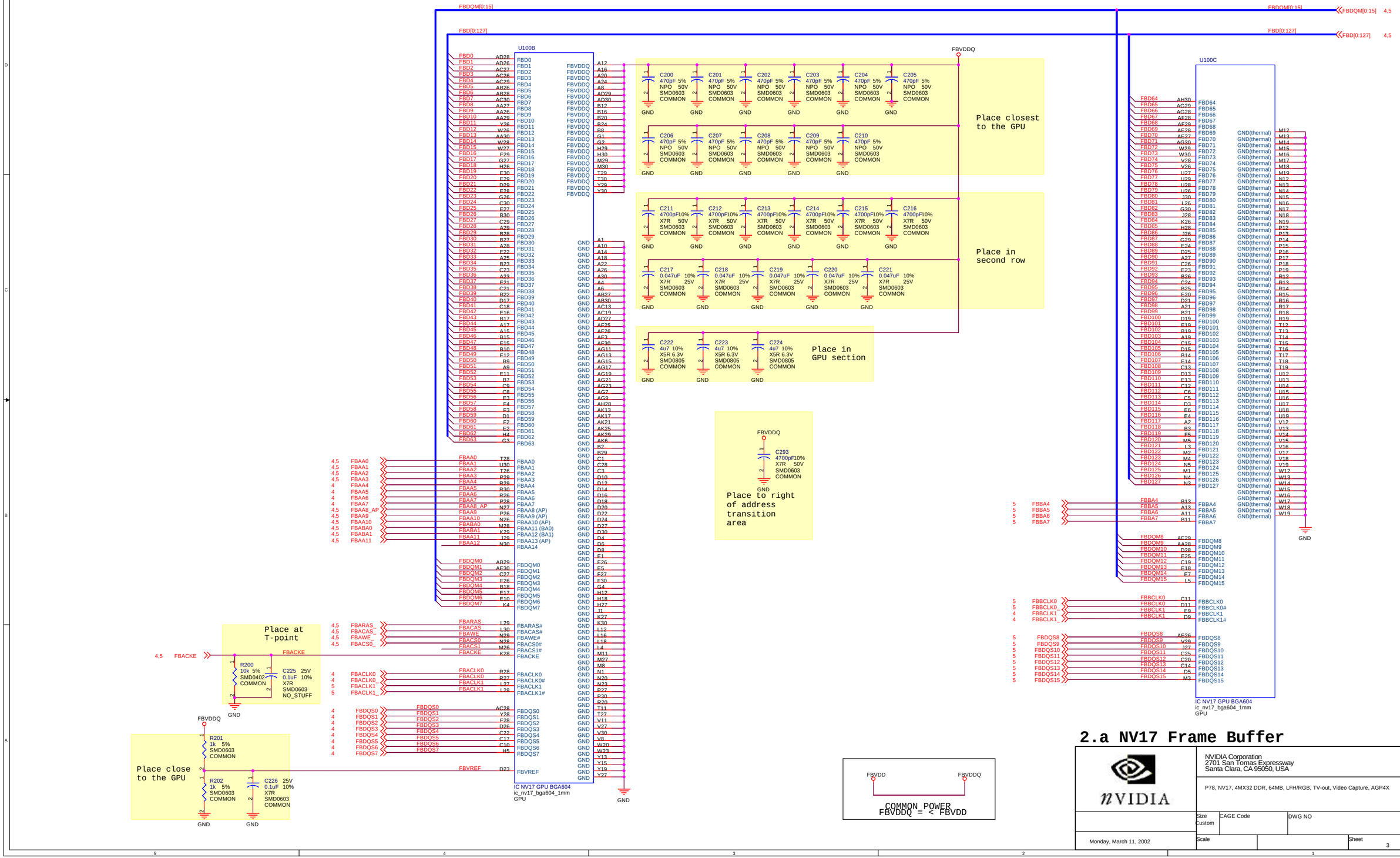
Size	CAGE Code	DWG NO	Rev
Custom			17

Monday, March 11, 2002 | Scale | Sheet 1 of 12

{Item}\t{Quantity}\t{Reference}\t{Value}\t{Assembly}\t{MAIN}\t{NVPN}\t{Source Package}\t{AVL1}\t{AVL2}\t{AVL3}\t{AVL4}\t{AVL5}
Item\tQuantity\tReference\tValue\tAssembly\tMAIN\tNVPN\tSource Package\tAVL1\tAVL2\tAVL3\tAVL4\tAVL5

1. AGP interface, core decoupling

NVIDIA Corporation 2701 San Tomas Expressway Santa Clara, CA 95050, USA	
P78, NV17, 4MX32 DDR, 64MB, LFH/RGB, TV-out, Video Capture, AGP4X	
Size: Custom	CAGE Code
DWG NO	Rev: 2
Monday, March 11, 2002	Scale
Sheet: 2 of 12	



2.a NV17 Frame Buffer

NVIDIA Corporation
2701 San Tomas Expressway
Santa Clara, CA 95050, USA

P78, NV17, 4MX32 DDR, 64MB, LFH/RGB, TV-out, Video Capture, AGP4X

Size	CAGE Code	DWG NO	Rev
Custom			01

Monday, March 11, 2002

Scale

Sheet 3 of 12

MEM_Strap: 1101: 4Mx32 DDR SDRAM, DQS per 8 bits, dll-on, low drive strength

MFBDQM[0:3]

FBDQM[0:15]

FBD[0:127]

Place close to memory

U200

MEM 1/2/4MX32
IC_BGA144_DDR
MEMORY

U201

MEM 1/2/4MX32
IC_BGA144_DDR
MEMORY

Place close to memory

Place close to memory

Memory decoupling

Place in memory section

Place at end of stub

Memory decoupling

More Memory decoupling

COMMON POWER
FBVDDQ = < FBVDD

2.b Frame Buffer 0..63

NVIDIA Corporation
2701 San Tomas Expressway
Santa Clara, CA 95050, USA

P78, NV17, 4MX32 DDR, 64MB, LFH/RGB, TV-out, Video Capture, AGP4X

Size	CAGE Code	DWG NO	Rev
Custom			6

Monday, March 11, 2002

Scale

Sheet 4 of 12

MEM_Strap: 1101: 4Mx32 DDR SDRAM, DQS per 8 bits, dll-on, low drive strength

MFBDQM[8:11]

FBDQM[0:15]
FBDQ[0:127]

Place close to memory

MFBDQM8 R223 1 2 15R 5% FBDQM8
MFBDQM9 COMMON SMD0402 R225 1 2 15R 5% FBDQM9
MFBDQM10 R227 1 2 15R 5% COMMON SMD0402 FBDQM10
MFBDQM11 COMMON SMD0402 R229 1 2 15R 5% FBDQM11
COMMON SMD0402

U202

FBAA0 M4 FBAA1 M5 FBAA2 L5 FBAA3 M6 FBBA4 M7 FBBA5 L8 FBBA6 M8 FBAA7 M9 FBAA8_AP M10 FBABA0 M3 FBABA1 L4 FBAA9 L7 FBAA10 K5 FBAA11 L6 MFBDQM10 A2 MFBDQM8 G11 MFBDQM11 G2 MFBDQM9 A11 FBARAS L1 FBACAS K1 FBAWE K2 FBACS0 M1 FBACLK1 L10 FBACLK1 L11 FBACKE M11 L12 M12

A0 A1 A2 A3 A4 A5 A6 A7 A8(AP) BA0 BA1 A9 A10 A11 DQM0 DQM1 DQM2 DQM3 RAS CAS WE CS CLK CLK# CKE MCL VREF

DQ0 DQ1 DQ2 DQ3 DQ4 DQ5 DQ6 DQ7 DQ8 DQ9 DQ10 DQ11 DQ12 DQ13 DQ14 DQ15 DQ16 DQ17 DQ18 DQ19 DQ20 DQ21 DQ22 DQ23 DQ24 DQ25 DQ26 DQ27 DQ28 DQ29 DQ30 DQ31 DQS0 DQS1 DQS2 DQS3

A6 MFBD81 B5 MFBD83 A5 MFBD84 A4 MFBD80 B1 MFBD82 C2 MFBD86 C1 MFBD87 D1 MFBD85 J12 MFBD64 J11 MFBD66 H12 MFBD71 H11 MFBD65 F12 MFBD69 E11 MFBD68 E12 MFBD70 E11 MFBD67 F2 MFBD92 E1 MFBD88 F2 MFBD89 F1 MFBD94 H2 MFBD95 H1 MFBD91 J1 MFBD93 J2 MFBD90 D12 MFBD79 C12 MFBD72 C11 MFBD78 B12 MFBD73 A9 MFBD75 A8 MFBD77 B8 MFBD74 A7 MFBD76 A1 MFBDQS10 G12 MFBDQS8 F12 MFBDQS11 A12 MFBDQS9

RN234A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN234B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
RN236A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN226B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
RN226D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN228A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN228C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN228D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN238A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN238C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN241B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
RN241A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN241C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN241D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN231A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN231C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN231B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
RN231D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN233A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN233C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN233B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
RN233D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
R255 1 2 15R 5% COMMON SMD0402
R254 1 2 15R 5% COMMON SMD0402
R256 1 2 15R 5% COMMON SMD0402

RN234C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN234D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN236C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN236D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN226A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN226C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN228B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
RN228D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN238B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
RN238D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN241B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
RN241D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN231C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN231D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN233C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN233D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
R235 1 2 15R 5% COMMON SMD0402
R256 1 2 15R 5% COMMON SMD0402

FBDQS10 FBDQS8 FBDQS11 FBDQS9

NC1 NC2 NC3 NC4 NC5 NC6 NC7 NC8 NC9

NC/TH1 NC/TH2 NC/TH3 NC/TH4 NC/TH5 NC/TH6 NC/TH7 NC/TH8 NC/TH9 NC/TH10 NC/TH11 NC/TH12 NC/TH13 NC/TH14 NC/TH15 NC/TH16

VDD VDDQ VSS VSSQ

MEM 1/2/4MX32
IC_BGA144_DDR
MEMORY

FBACLK1 R231 68R 5% SMD0603 COMMON FBACLK1
FBACKE R232 68R 5% SMD0603 COMMON FBBCLK0

FBVDDQ

Place close to memory

R239 1K 5% SMD0402 COMMON MVREF2 R241 1K 5% SMD0402 COMMON C273 0.1uF 10% X7R 25V SMD0402 COMMON

Memory decoupling

C263 0.022uF 10% X7R 50V SMD0402 COMMON
C264 0.022uF 10% X7R 50V SMD0402 COMMON
C265 0.022uF 10% X7R 50V SMD0402 COMMON
C266 0.022uF 10% X7R 50V SMD0402 COMMON
C271 4u7 10% X5R 6.3V SMD0805 COMMON
C274 220pF 5% NPO 50V SMD0402 COMMON
C275 220pF 5% NPO 50V SMD0402 COMMON
C276 220pF 5% NPO 50V SMD0402 COMMON
C277 220pF 5% NPO 50V SMD0402 COMMON
C278 0.1uF 10% X7R 25V SMD0402 COMMON
C285 4700pF 10% X7R 50V SMD0402 COMMON
C286 4700pF 10% X7R 50V SMD0402 COMMON
C287 4700pF 10% X7R 50V SMD0402 COMMON
C288 4700pF 10% X7R 50V SMD0402 COMMON
C289 0.1uF 10% X7R 25V SMD0402 COMMON
C290 4u7 10% X5R 6.3V SMD0805 COMMON

Place in memory section

C823 0.022uF 10% X7R 50V SMD0402 COMMON
C824 0.022uF 10% X7R 50V SMD0402 COMMON
C825 0.022uF 10% X7R 50V SMD0402 COMMON
C826 0.022uF 10% X7R 50V SMD0402 COMMON
C827 0.022uF 10% X7R 50V SMD0402 COMMON
C828 0.022uF 10% X7R 50V SMD0402 COMMON
C829 0.022uF 10% X7R 50V SMD0402 COMMON
C830 0.022uF 10% X7R 50V SMD0402 COMMON
C831 0.022uF 10% X7R 50V SMD0402 COMMON
C832 0.022uF 10% X7R 50V SMD0402 COMMON
C833 0.022uF 10% X7R 50V SMD0402 COMMON

More Memory decoupling

MFBDQM[12:15]

Place close to memory

MFBDQM12 R224 1 2 15R 5% FBDQM12
MFBDQM13 COMMON SMD0402 R226 1 2 15R 5% FBDQM13
MFBDQM14 R228 1 2 15R 5% COMMON SMD0402 FBDQM14
MFBDQM15 COMMON SMD0402 R230 1 2 15R 5% FBDQM15
COMMON SMD0402

U203

FBAA0 M4 FBAA1 M5 FBAA2 L5 FBAA3 M6 FBBA4 M7 FBBA5 L8 FBBA6 M8 FBAA7 M9 FBAA8_AP M10 FBABA0 M3 FBABA1 L4 FBAA9 L7 FBAA10 K5 FBAA11 L6 MFBDQM13 A2 MFBDQM15 G11 MFBDQM14 G2 MFBDQM12 A11 FBARAS L1 FBACAS K1 FBAWE K2 FBACS0 M1 FBBCLK0 L10 FBBCLK0 L11 FBACKE M11 L12 M12

A0 A1 A2 A3 A4 A5 A6 A7 A8(AP) BA0 BA1 A9 A10 A11 DQM0 DQM1 DQM2 DQM3 RAS CAS WE CS CLK CLK# CKE MCL VREF

DQ0 DQ1 DQ2 DQ3 DQ4 DQ5 DQ6 DQ7 DQ8 DQ9 DQ10 DQ11 DQ12 DQ13 DQ14 DQ15 DQ16 DQ17 DQ18 DQ19 DQ20 DQ21 DQ22 DQ23 DQ24 DQ25 DQ26 DQ27 DQ28 DQ29 DQ30 DQ31 DQS0 DQS1 DQS2 DQS3

A6 MFBD109 B5 MFBD105 A5 MFBD107 A4 MFBD104 B1 MFBD108 C2 MFBD110 C1 MFBD106 D1 MFBD111 J12 MFBD122 J11 MFBD125 H12 MFBD121 H11 MFBD127 F12 MFBD124 F11 MFBD123 E12 MFBD120 E11 MFBD126 F2 MFBD119 E1 MFBD115 F2 MFBD112 F1 MFBD113 H2 MFBD114 H1 MFBD116 J1 MFBD117 J2 MFBD118 D12 MFBD100 C12 MFBD101 C11 MFBD96 B12 MFBD97 A9 MFBD98 A8 MFBD102 B8 MFBD99 A7 MFBD103 A1 MFBDQS13 G12 MFBDQS15 F12 MFBDQS14 A12 MFBDQS12

RN230A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN230B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
RN232A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN232B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
RN232D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN239A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN239C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN240A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN240C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN237A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN237C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN235B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
RN227A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN229A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN229C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN229B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
R1027 1 2 15R 5% COMMON SMD0402
R1021 1 2 15R 5% COMMON SMD0402
R1025 1 2 15R 5% COMMON SMD0402
R236 1 2 15R 5% COMMON SMD0402

RN230C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN230D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN232C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN232D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN239B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
RN239D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN240B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
RN240D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN237B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
RN237D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN235A 1 8 15R 5% COMMON IC_8P4R_RESARRAY
RN235D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN227C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN227B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
RN227D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN229D 4 5 15R 5% COMMON IC_8P4R_RESARRAY
RN229C 3 6 15R 5% COMMON IC_8P4R_RESARRAY
RN229B 2 7 15R 5% COMMON IC_8P4R_RESARRAY
R1027 1 2 15R 5% COMMON SMD0402
R1021 1 2 15R 5% COMMON SMD0402
R236 1 2 15R 5% COMMON SMD0402

FBDQS13 FBDQS15 FBDQS14 FBDQS12

NC/TH1 NC/TH2 NC/TH3 NC/TH4 NC/TH5 NC/TH6 NC/TH7 NC/TH8 NC/TH9 NC/TH10 NC/TH11 NC/TH12 NC/TH13 NC/TH14 NC/TH15 NC/TH16

VDD VDDQ VSS VSSQ

MEM 1/2/4MX32
IC_BGA144_DDR
MEMORY

FBBCLK0 R232 68R 5% SMD0603 COMMON FBBCLK0

FBVDDQ

Place close to memory

R240 1K 5% SMD0402 COMMON MVREF3 R242 1K 5% SMD0402 COMMON C279 0.1uF 10% X7R 25V SMD0402 COMMON

Memory decoupling

C267 0.022uF 10% X7R 50V SMD0402 COMMON
C268 0.022uF 10% X7R 50V SMD0402 COMMON
C269 0.022uF 10% X7R 50V SMD0402 COMMON
C270 0.022uF 10% X7R 50V SMD0402 COMMON
C272 4u7 10% X5R 6.3V SMD0805 COMMON
C280 220pF 5% NPO 50V SMD0402 COMMON
C281 220pF 5% NPO 50V SMD0402 COMMON
C282 220pF 5% NPO 50V SMD0402 COMMON
C283 220pF 5% NPO 50V SMD0402 COMMON
C284 0.1uF 10% X7R 25V SMD0402 COMMON
C291 4700pF 10% X7R 50V SMD0402 COMMON
C292 4700pF 10% X7R 50V SMD0402 COMMON
C299 4700pF 10% X7R 50V SMD0402 COMMON
C294 4700pF 10% X7R 50V SMD0402 COMMON
C295 0.1uF 10% X7R 25V SMD0402 COMMON
C296 4u7 10% X5R 6.3V SMD0805 COMMON

Place in memory section

C293->C299

C834 0.022uF 10% X7R 50V SMD0402 COMMON
C835 0.022uF 10% X7R 50V SMD0402 COMMON
C836 0.022uF 10% X7R 50V SMD0402 COMMON
C837 0.022uF 10% X7R 50V SMD0402 COMMON
C838 0.022uF 10% X7R 50V SMD0402 COMMON
C839 0.022uF 10% X7R 50V SMD0402 COMMON
C840 0.022uF 10% X7R 50V SMD0402 COMMON
C841 0.022uF 10% X7R 50V SMD0402 COMMON
C842 0.022uF 10% X7R 50V SMD0402 COMMON
C843 0.022uF 10% X7R 50V SMD0402 COMMON
C844 0.022uF 10% X7R 50V SMD0402 COMMON

FBACLK1 FBACLK1_ FBBCLK0 FBBCLK0_

FBARAS_ FBACAS_ FBAWE_ FBACS0_ FBACKE

FBAA0 FBAA1 FBAA2 FBAA3 FBBA4 FBBA5 FBBA6 FBBA7 FBAA8_AP FBABA0 FBABA1 FBAA9 FBAA10 FBAA11

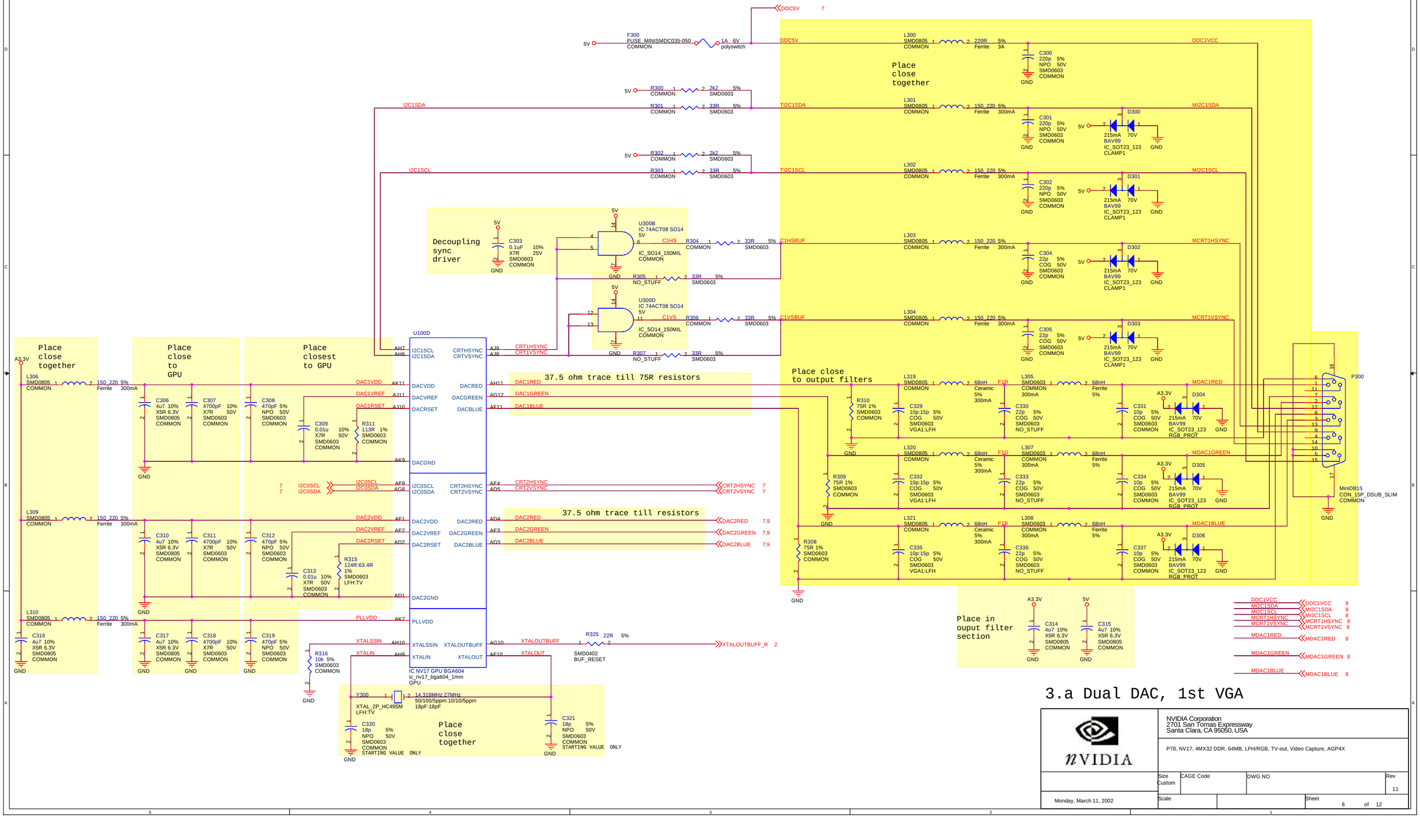
2.c Frame Buffer 64...127

NVIDIA Corporation
2701 San Tomas Expressway
Santa Clara, CA 95050, USA

P78, NV17, 4MX32 DDR, 64MB, LFH/RGB, TV-out, Video Capture, AGP4X

Size	CAGE Code	DWG NO	Rev
Custom			6
Scale		Sheet	
		5 of 12	

Monday, March 11, 2002



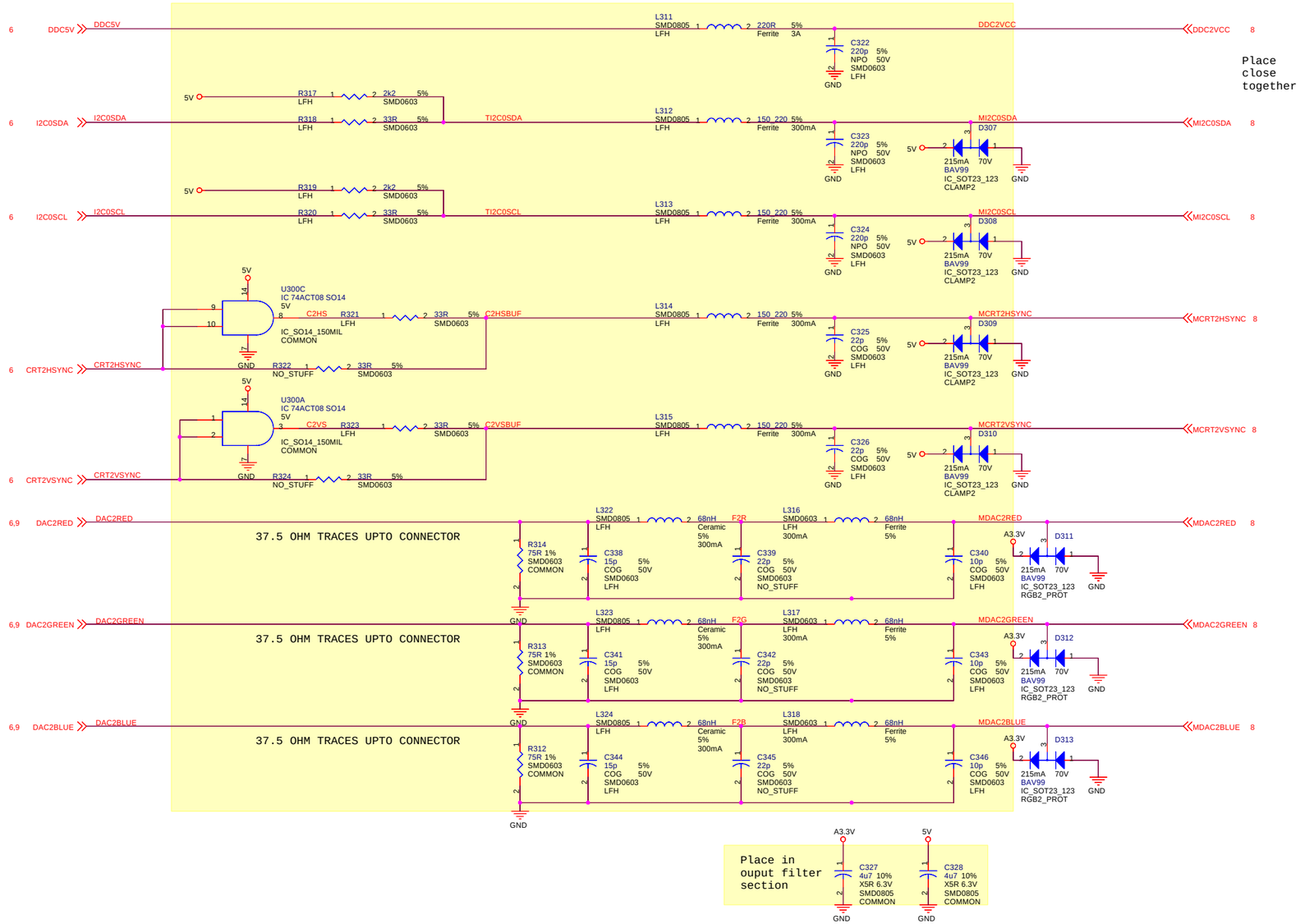
3.a Dual DAC, 1st VGA

NVIDIA Corporation
2701 San Tomas Expressway
Santa Clara, CA 95050, USA

P78, NV17, 4MX32 DDR, 64MB, LFH/RGB, TV-out, Video Capture, AGP4X

Size	CAGE Code	DWG NO	Rev
Custom			11

Monday, March 11, 2002 — Scale — Sheet 6 of 12

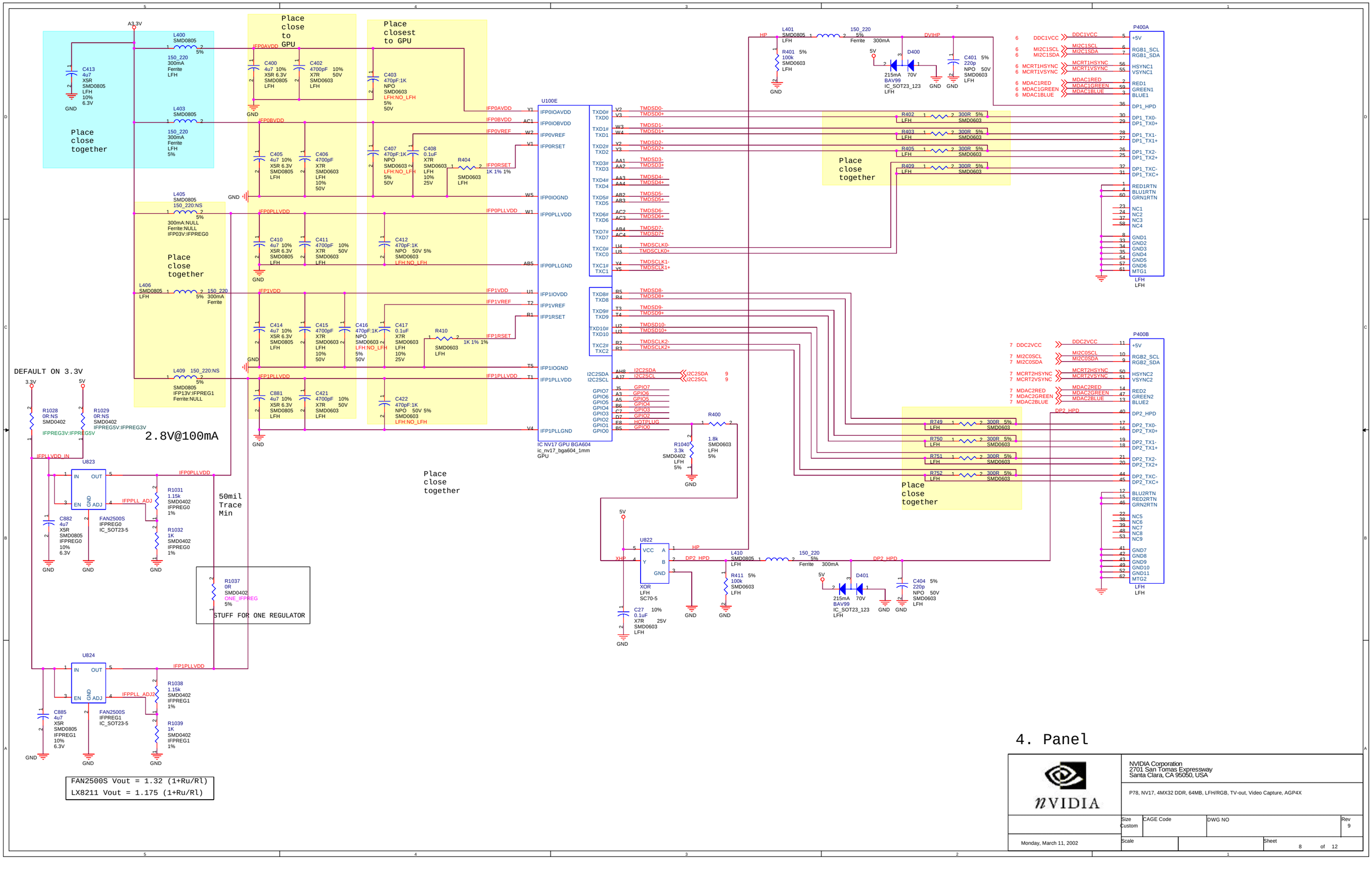


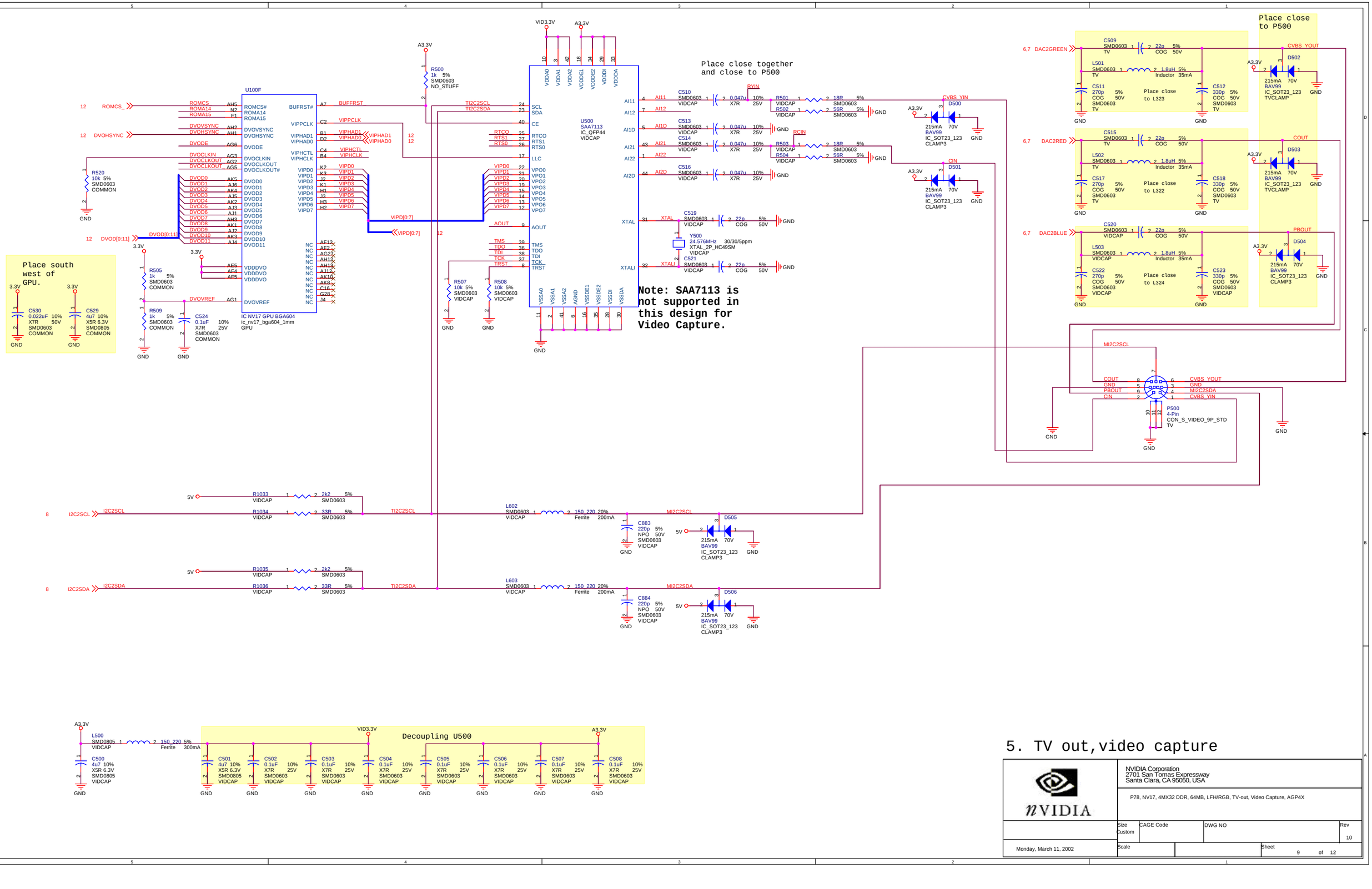
3.b Dual DAC, 2nd LFH

NVIDIA Corporation
2701 San Tomas Expressway
Santa Clara, CA 95050, USA

P71, NV17, 4MX16 SDR, 64MB, LFH/RGB, TV-out, video capture, AGP4x

Size	CAGE Code	DWG NO	Rev
Custom			11
Monday, March 11, 2002	Scale		Sheet 7 of 12


A3.3V
Place close to GPU
Place closest to GPU
Place close together
L400 SMD0805 150_220 300mA Ferrite LFH 5%
L403 SMD0805 150_220 300mA Ferrite LFH 5%
C413 4u7 XSR SMD0805 LFH 10% 6.3V
C400 4u7 10% X5R 6.3V SMD0805 LFH
C402 4700pF 10% X7R 50V SMD0603 LFH
C403 470pF:1K NPO SMD0603 LFH:NO_LFH 5% 50V
C405 4u7 10% X5R 6.3V SMD0805 LFH
C406 4700pF X7R SMD0603 LFH 10% 50V
C407 470pF:1K NPO SMD0603 LFH:NO_LFH 5% 50V
C408 0.1uF X7R SMD0603 LFH 10% 25V
R404 SMD0603 LFH 1K 1% 1%
IFP0AVDD
IFP0BVDD
IFP0VREF
IFP0RSET
IFP0IOGND
IFP0PLLVDD
IFP0PLLGND
L405 SMD0805 150_220:NS 300mA:NULL Ferrite:NULL IFP03V:IFPREG0
C410 4u7 10% X5R 6.3V SMD0805 LFH
C411 4700pF X7R SMD0603 LFH
C412 470pF:1K NPO 50V 5% SMD0603 LFH:NO_LFH
L406 SMD0805 LFH 150_220 300mA Ferrite 5%
IFP1VDD
IFP1VREF
IFP1RSET
IFP1IOGND
IFP1PLLVDD
IFP1PLLGND
C414 4u7 10% X5R 6.3V SMD0805 LFH
C415 4700pF X7R SMD0603 LFH 10% 50V
C416 470pF:1K NPO SMD0603 LFH:NO_LFH 5% 50V
C417 0.1uF X7R SMD0603 LFH 10% 25V
R410 SMD0603 LFH 1K 1% 1%
L409 150_220:NS SMD0805 IFP13V:IFPREG1 Ferrite:NULL
C881 4u7 10% X5R 6.3V SMD0805 LFH
C421 4700pF X7R SMD0603 LFH
C422 470pF:1K NPO 50V 5% SMD0603 LFH:NO_LFH
U100E
IC NV17 GPU BGA604 ic_nv17_bga604_1mm GPU
TXD0# TXD0 TXD1# TXD1 TXD2# TXD2 TXD3# TXD3 TXD4# TXD4 TXD5# TXD5 TXD6# TXD6 TXD7# TXD7 TXC0# TXC0 TXC1# TXC1
TXD8# TXD8 TXD9# TXD9 TXD10# TXD10 TXC2# TXC2
I2C2SDA I2C2SCL
GPIO7 GPIO6 GPIO5 GPIO4 GPIO3 GPIO2 GPIO1 GPIO0
HOTPLUG
R400 1.8k SMD0603 LFH 5%
R1040 3.3k SMD0402 LFH 5%
TMDSD0- TMDSD0+ TMDSD1- TMDSD1+ TMDSD2- TMDSD2+ TMDSD3- TMDSD3+ TMDSD4- TMDSD4+ TMDSD5- TMDSD5+ TMDSD6- TMDSD6+ TMDSD7- TMDSD7+ TMDSCLK0- TMDSCLK0+ TMDSCLK1- TMDSCLK1+
TMDSD8- TMDSD8+ TMDSD9- TMDSD9+ TMDSD10- TMDSD10+ TMDSCLK2- TMDSCLK2+
I2C2SDA I2C2SCL
HP
L401 SMD0805 LFH 150_220 Ferrite 300mA 5%
R401 5% 100k SMD0603 LFH
D400 BAV99 IC_SOT23_123 LFH 215mA 70V
DVIHP
C401 5% 220p NPO 50V SMD0603 LFH
R402 R403 R405 R409 300R 5% LFH SMD0603
Place close together
P400A
DDC1VCC MI2C1SCL MI2C1SDA MCRT1HSYNC MCRT1VSYNC MDAC1RED MDAC1GREEN MDAC1BLUE
+5V RGB1_SCL RGB1_SDA HSYNC1 VSYNC1 RED1 GREEN1 BLUE1 DP1_HPD DP1_TX0- DP1_TX0+ DP1_TX1- DP1_TX1+ DP1_TX2- DP1_TX2+ DP1_TXC- DP1_TXC+ RED1RTN BLU1RTN GRN1RTN NC1 NC2 NC3 NC4 GND1 GND2 GND3 GND4 GND5 GND6 MTG1
LFH
P400B
DDC2VCC MI2C0SCL MI2C0SDA MCRT2HSYNC MCRT2VSYNC MDAC2RED MDAC2GREEN MDAC2BLUE
+5V RGB2_SCL RGB2_SDA HSYNC2 VSYNC2 RED2 GREEN2 BLUE2 DP2_HPD DP2_TX0- DP2_TX0+ DP2_TX1- DP2_TX1+ DP2_TX2- DP2_TX2+ DP2_TXC- DP2_TXC+ BLU2RTN RED2RTN GRN2RTN NC5 NC6 NC7 NC8 NC9 GND7 GND8 GND9 GND10 GND11 MTG2
LFH
R749 R750 R751 R752 300R 5% LFH SMD0603
Place close together
DEFAULT ON 3.3V
3.3V 5V
R1028 0R:NS SMD0402 IFPREG3V:IFPREG5V
R1029 0R:NS SMD0402 IFPREG5V:IFPREG3V
2.8V@100mA
IFPLLVDD_IN
U823
IN OUT EN GND ADJ
IFPPLL_ADJ
IFP0PLLVDD
C882 4u7 X5R SMD0805 IFPREG0 10% 6.3V
FAN2500S IFPREG0 IC_SOT23-5
R1031 1.15k SMD0402 IFPREG0 1%
R1032 1K SMD0402 IFPREG0 1%
50mil Trace Min
R1037 0R SMD0402 ONE_IFPREG 5%
STUFF FOR ONE REGULATOR
U824
IFP1PLLVDD
C885 4u7 X5R SMD0805 IFPREG1 10% 6.3V
FAN2500S IFPREG1 IC_SOT23-5
R1038 1.15k SMD0402 IFPREG1 1%
R1039 1K SMD0402 IFPREG1 1%
FAN2500S Vout = 1.32 (1+Ru/Rl)
LX8211 Vout = 1.175 (1+Ru/Rl)
U822
VCC A Y B GND
XOR LFH SC70-5
C27 10% 0.1uF X7R 25V SMD0603 LFH
L410 SMD0805 LFH 150_220 Ferrite 300mA 5%
R411 5% 100k SMD0603 LFH
D401 BAV99 IC_SOT23_123 LFH 215mA 70V
C404 5% 220p NPO 50V SMD0603 LFH
GND
Place close together
4. Panel
NVIDIA Corporation
2701 San Tomas Expressway
Santa Clara, CA 95050, USA
P78, NV17, 4MX32 DDR, 64MB, LFH/RGB, TV-out, Video Capture, AGP4X
Size Custom
CAGE Code
DWG NO
Rev 9
Monday, March 11, 2002
Scale
Sheet 8 of 12



5. TV out,video capture

NVIDIA Corporation
2701 San Tomas Expressway
Santa Clara, CA 95050, USA

P78, NV17, 4MX32 DDR, 64MB, LFH/RGB, TV-out, Video Capture, AGP4X

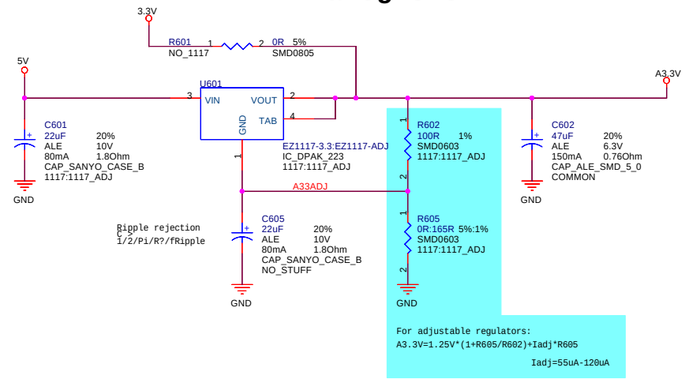
Size	CAGE Code	DWG NO	Rev
Custom			10

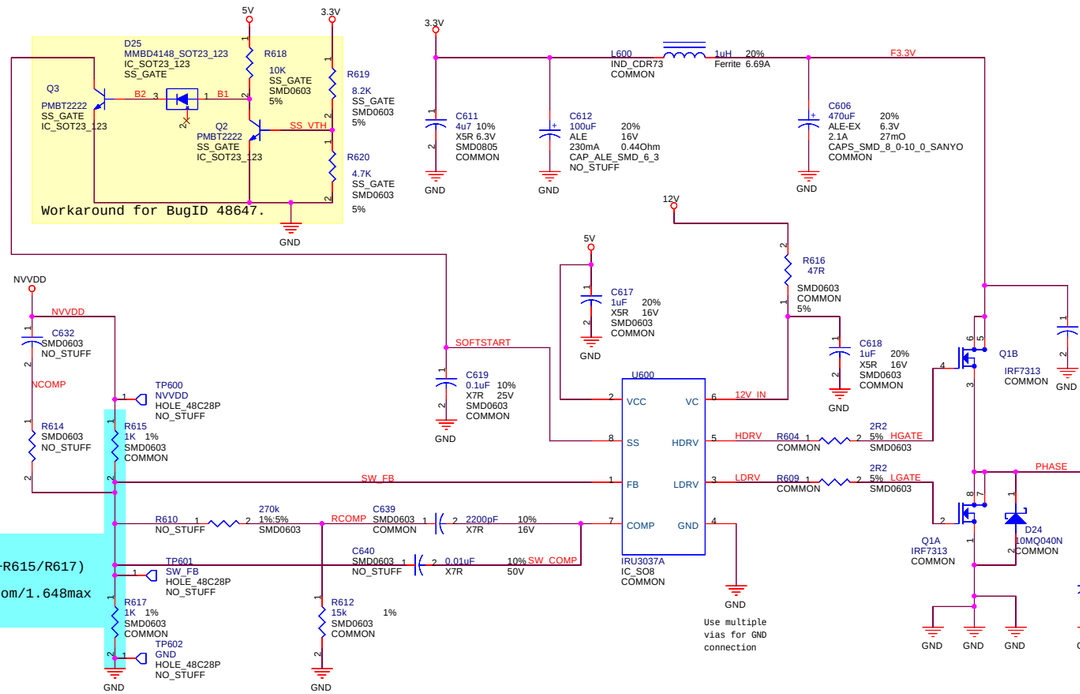
Monday, March 11, 2002

Scale

Sheet 9 of 12

Analog 3.3V





FOR DESKTOP-NV17
NVVDD DESIGN TARGET 1.575min/1.675max
NVVDD QUAL TARGET 1.550min/1.700max

NVVDD=1.60V +/-50mV /4A

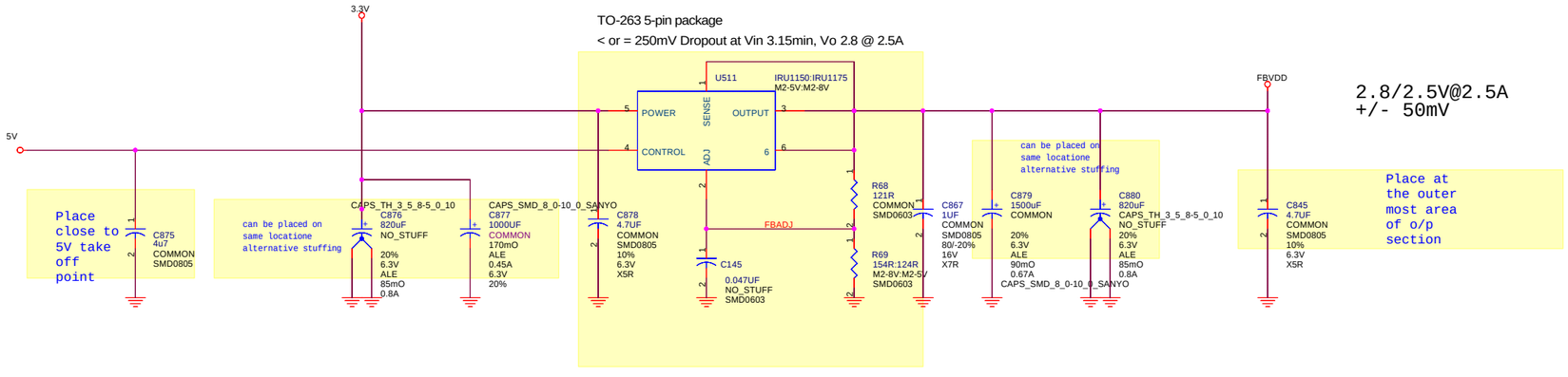
6. Power supply

NVIDIA	NVIDIA Corporation 2701 San Tomas Expressway Santa Clara, CA 95050, USA		
	P78, NV17, 4MX32 DDR, 64MB, LFH/RGB, TV-out, Video Capture, AGP4X		
	Size: Custom	CAGE Code	DWG NO / Rev: 16
Monday, March 11, 2002	Scale		Sheet: 10 of 12

Note: Repeated on memory sheets also

FBVDD — FBVDDQ

COMMON POWER
FBVDDQ = < FBVDD



Vo = 1.25 * (1+ R69/R68) + Iadj * R69

Iadj = 50uA

M2-8V = 2.512/2.54/2.563- Mem Limit 2.66 to 2.94

M2-5V = 2.817/2.85/2.881- Mem Limit 2.375 to 2.625

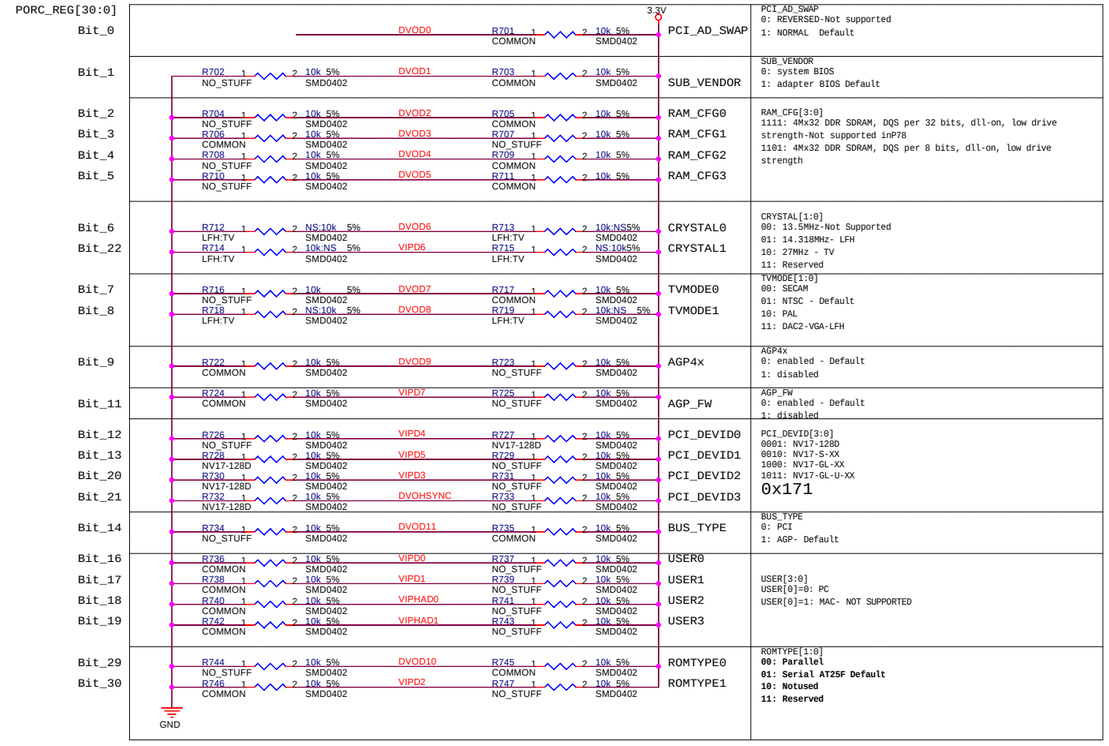
6.a MEMORY power supply

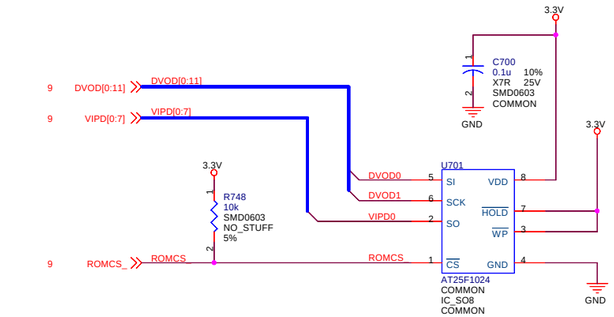
NVIDIA Corporation
3535 Monroe St
Santa Clara, CA 95051, USA

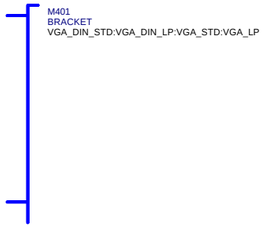
P78, NV17, 4MX32 DDR, 64MB, LFH/RGB, TV-out, Video Capture, AGP4X

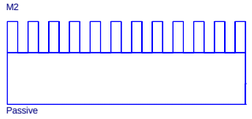
Size	CAGE Code	DWG NO	Rev
C			16

Monday, March 11, 2002 — Scale — Sheet 11 of 12









COMMON
110-00018-0000-000
HEATSINK, PASSIVE, MECH HOLD DOWN, 53mm X 64mm

7. BIOS, Strapping

NVIDIA Corporation
2701 San Tomas Expressway
Santa Clara, CA 95050, USA

P78, NV17, 4MX32 DDR, 64MB, LFH/RGB, TV-out, Video Capture, AGP4X

Size	CAGE Code	DWG NO	Rev
Custom			17

Monday, March 11, 2002

Scale

Sheet 12 of 12