P455-A01 DT SKU7 Board

P455-A01, G71-GT2, 512MB 16Mx32 GDDR3 (700Mhz), DVI-I-DL, DVI-I-DL, HDTV w/ HDCP

Table of Contents:

Page 1: Overview
Page 2: PCI Express 1.0
Page 3: MEMORY: GPU Partition A/B
Page 4: MEMORY: GPU Partition C/D
Page 5: FBA Partition
Page 6: FBB Partition
Page 7: FBC Partition
Page 8: FBD Partition
Page 9: FrameBuffer Net Properties
Page 10: DACA Interface
Page 11: DACC Interface
Page 12: IFP A/B and C/D Interface
Page 13: DACB and Stereo Interface
Page 14: Video Capture (Philips SAA7115)
Page 15: Multi-use IO(MIO) Interface
Page 16: GPIO, I2C, ROM, HDMI, and XTAL
Page 17: Strapping Configuration
Page 18: Power/GND and Decoupling
Page 19: Power Supply I: A2V5, DDC5V, SAA7115, TMDS Supplies
Page 20: Power Supply II: PEX Input Filters, External 12V Power, NVVDD VID Control
Page 21: Power Supply III: FBVDDQ and PEX1V2
Page 22: Power Supply IV: NVVDD
Page 23: Thermal Diode, Fan Control
Page 24: Mechanical: Bracket/Thermal Solution

REVISION HISTORY:

X1	RevA: Initial Release

sku	VARIANT	NVPN	ASSEMBLY
B	BASE	600-10455-base-100	P455 - BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO STUFF ASSEMBLY NOTES AND BOMNOT FINAL
1	SKU0000	600-10455-0000100	G71GT - 256MB8Mx32 GDDR3, DVI-I -DL + DVI-I -DL + HDTV, 450/700 MHz
2	SKU0002	600-10455-0002100	G71GS - 256MB8Mx32 GDDR3 DVI-I-DL +DVI-I-DL + HDTV, 450/700 MHz for Dell HNGA
3	SKU0500	600-50455-0500100	G71GL-U - 256MB-8Mx32 GDDR3, DVI-I -DL +DVI-I -DL +STEREO, 450/700 MHz
4	SKU0501	600-50455-0501100	G71GL-Std - 256MB 8Mx32 GDDR3, DVI-I -DL +DVI-I -DL +HDTV, 375/600 MHz
5	SKU0006	600-10455-0006100	G71GT2 - 256MB8Mx32 GDDR3 DVI-I -DL + DVI-I -DL + HDTV, 550/700 MHz
6	SKU0007	600-10455-0007100	G71GT2-H 512MB 16Mx32 GDDR3, DVI-I -DL + DVI-I -DL + HDTV, w/HDCP 550/700 MHz
7	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
8	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
9	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
10	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
11	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
12	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
13	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
14	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
15	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>

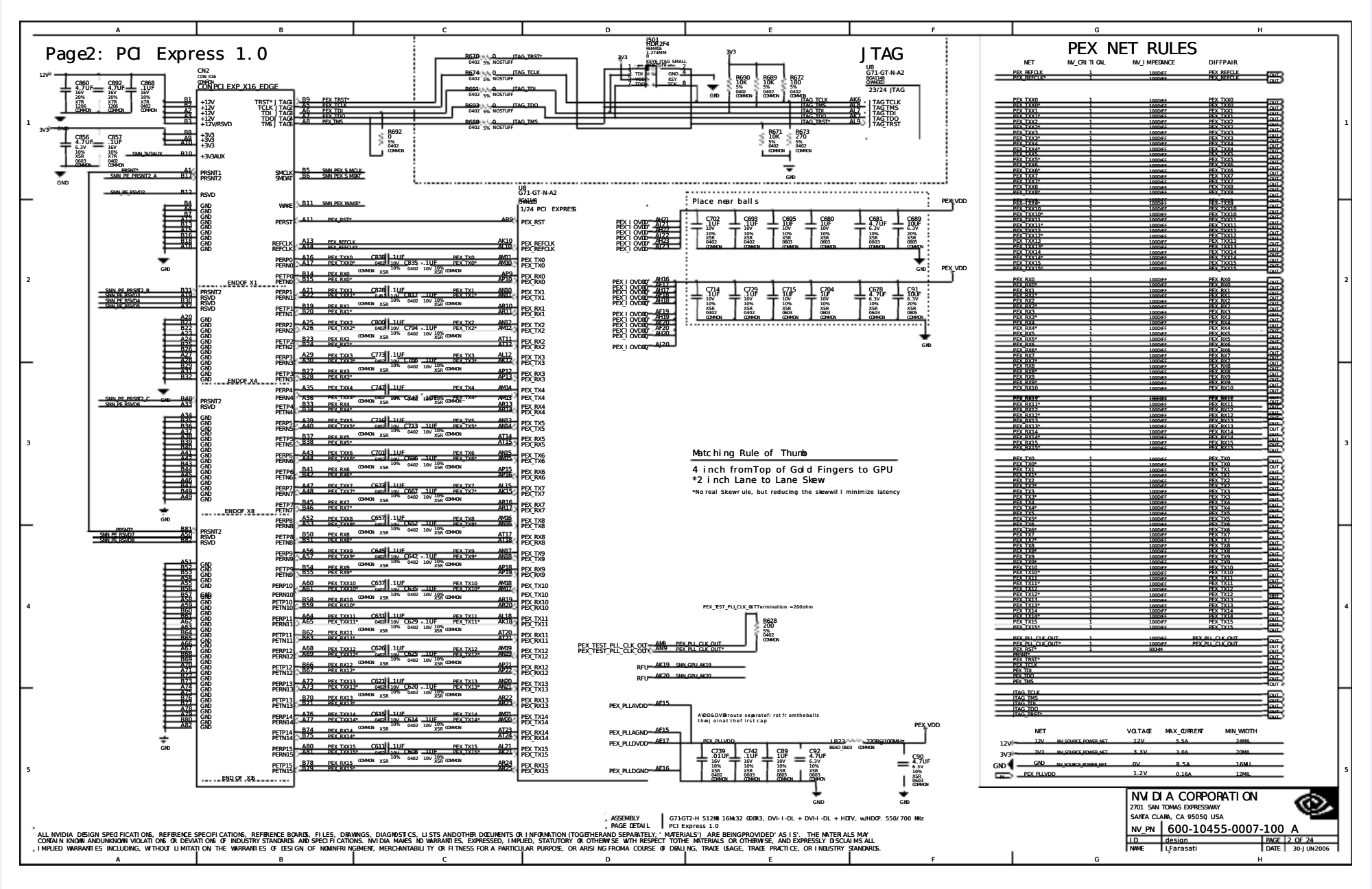
ASSEMBLY: G71GT2-H 512MB 16Mx32 GDDR3, DVI-I-DL + DVI-I -DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL: Overview

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

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

NV_PN	600-10455-0007-100 A		
ID	design	PAGE	1 OF 24
NAME	LFarasati	DATE	30-JUN-2006

Page2: PCI Express 1.0



NET	NV_CRITICAL	NV_IMPEDANCE	DIFFPAIR
PEX_REFCLK	1	100DIFF	PEX_REFCLK
PEX_REFCLK*	1	100DIFF	PEX_REFCLK
PEX_TX0	1	100DIFF	PEX_TX0
PEX_TX0*	1	100DIFF	PEX_TX0
PEX_TX1	1	100DIFF	PEX_TX1
PEX_TX1*	1	100DIFF	PEX_TX1
PEX_TX2	1	100DIFF	PEX_TX2
PEX_TX2*	1	100DIFF	PEX_TX2
PEX_TX3	1	100DIFF	PEX_TX3
PEX_TX3*	1	100DIFF	PEX_TX3
PEX_TX4	1	100DIFF	PEX_TX4
PEX_TX4*	1	100DIFF	PEX_TX4
PEX_TX5	1	100DIFF	PEX_TX5
PEX_TX5*	1	100DIFF	PEX_TX5
PEX_TX6	1	100DIFF	PEX_TX6
PEX_TX6*	1	100DIFF	PEX_TX6
PEX_TX7	1	100DIFF	PEX_TX7
PEX_TX7*	1	100DIFF	PEX_TX7
PEX_TX8	1	100DIFF	PEX_TX8
PEX_TX8*	1	100DIFF	PEX_TX8
PEX_TX9	1	100DIFF	PEX_TX9
PEX_TX9*	1	100DIFF	PEX_TX9
PEX_TX10	1	100DIFF	PEX_TX10
PEX_TX10*	1	100DIFF	PEX_TX10
PEX_TX11	1	100DIFF	PEX_TX11
PEX_TX11*	1	100DIFF	PEX_TX11
PEX_TX12	1	100DIFF	PEX_TX12
PEX_TX12*	1	100DIFF	PEX_TX12
PEX_TX13	1	100DIFF	PEX_TX13
PEX_TX13*	1	100DIFF	PEX_TX13
PEX_TX14	1	100DIFF	PEX_TX14
PEX_TX14*	1	100DIFF	PEX_TX14
PEX_TX15	1	100DIFF	PEX_TX15
PEX_TX15*	1	100DIFF	PEX_TX15
PEX_RX0	1	100DIFF	PEX_RX0
PEX_RX0*	1	100DIFF	PEX_RX0
PEX_RX1	1	100DIFF	PEX_RX1
PEX_RX1*	1	100DIFF	PEX_RX1
PEX_RX2	1	100DIFF	PEX_RX2
PEX_RX2*	1	100DIFF	PEX_RX2
PEX_RX3	1	100DIFF	PEX_RX3
PEX_RX3*	1	100DIFF	PEX_RX3
PEX_RX4	1	100DIFF	PEX_RX4
PEX_RX4*	1	100DIFF	PEX_RX4
PEX_RX5	1	100DIFF	PEX_RX5
PEX_RX5*	1	100DIFF	PEX_RX5
PEX_RX6	1	100DIFF	PEX_RX6
PEX_RX6*	1	100DIFF	PEX_RX6
PEX_RX7	1	100DIFF	PEX_RX7
PEX_RX7*	1	100DIFF	PEX_RX7
PEX_RX8	1	100DIFF	PEX_RX8
PEX_RX8*	1	100DIFF	PEX_RX8
PEX_RX9	1	100DIFF	PEX_RX9
PEX_RX9*	1	100DIFF	PEX_RX9
PEX_RX10	1	100DIFF	PEX_RX10
PEX_RX10*	1	100DIFF	PEX_RX10
PEX_RX11	1	100DIFF	PEX_RX11
PEX_RX11*	1	100DIFF	PEX_RX11
PEX_RX12	1	100DIFF	PEX_RX12
PEX_RX12*	1	100DIFF	PEX_RX12
PEX_RX13	1	100DIFF	PEX_RX13
PEX_RX13*	1	100DIFF	PEX_RX13
PEX_RX14	1	100DIFF	PEX_RX14
PEX_RX14*	1	100DIFF	PEX_RX14
PEX_RX15	1	100DIFF	PEX_RX15
PEX_RX15*	1	100DIFF	PEX_RX15
PEX_TX0	1	100DIFF	PEX_TX0
PEX_TX0*	1	100DIFF	PEX_TX0
PEX_TX1	1	100DIFF	PEX_TX1
PEX_TX1*	1	100DIFF	PEX_TX1
PEX_TX2	1	100DIFF	PEX_TX2
PEX_TX2*	1	100DIFF	PEX_TX2
PEX_TX3	1	100DIFF	PEX_TX3
PEX_TX3*	1	100DIFF	PEX_TX3
PEX_TX4	1	100DIFF	PEX_TX4
PEX_TX4*	1	100DIFF	PEX_TX4
PEX_TX5	1	100DIFF	PEX_TX5
PEX_TX5*	1	100DIFF	PEX_TX5
PEX_TX6	1	100DIFF	PEX_TX6
PEX_TX6*	1	100DIFF	PEX_TX6
PEX_TX7	1	100DIFF	PEX_TX7
PEX_TX7*	1	100DIFF	PEX_TX7
PEX_TX8	1	100DIFF	PEX_TX8
PEX_TX8*	1	100DIFF	PEX_TX8
PEX_TX9	1	100DIFF	PEX_TX9
PEX_TX9*	1	100DIFF	PEX_TX9
PEX_TX10	1	100DIFF	PEX_TX10
PEX_TX10*	1	100DIFF	PEX_TX10
PEX_TX11	1	100DIFF	PEX_TX11
PEX_TX11*	1	100DIFF	PEX_TX11
PEX_TX12	1	100DIFF	PEX_TX12
PEX_TX12*	1	100DIFF	PEX_TX12
PEX_TX13	1	100DIFF	PEX_TX13
PEX_TX13*	1	100DIFF	PEX_TX13
PEX_TX14	1	100DIFF	PEX_TX14
PEX_TX14*	1	100DIFF	PEX_TX14
PEX_TX15	1	100DIFF	PEX_TX15
PEX_TX15*	1	100DIFF	PEX_TX15
PEX_PLL_CLK_OUT	1	100DIFF	PEX_PLL_CLK_OUT
PEX_PLL_CLK_OUT*	1	100DIFF	PEX_PLL_CLK_OUT
PEX_RST*	1	SIGNAL	
PEX_TRST*	1		
PEX_TCLK	1		
PEX_TDI	1		
PEX_TDO	1		
PEX_TMS	1		
ITAG_TCLK	1		
ITAG_TMS	1		
ITAG_TDI	1		
ITAG_TDO	1		
ITAG_TRST*	1		

NET		VOLTAGE	MAX_CURRENT	MIN_WIDTH
12V	12V_NV_SOURCE_POWER_NET	12V	5.5A	24MIL
3V3	3V3_NV_SOURCE_POWER_NET	3.3V	3.0A	20MIL
GND	GND_NV_SOURCE_POWER_NET	0V	8.5A	16MIL
PEX_PLLVDD		1.2V	0.16A	12MIL

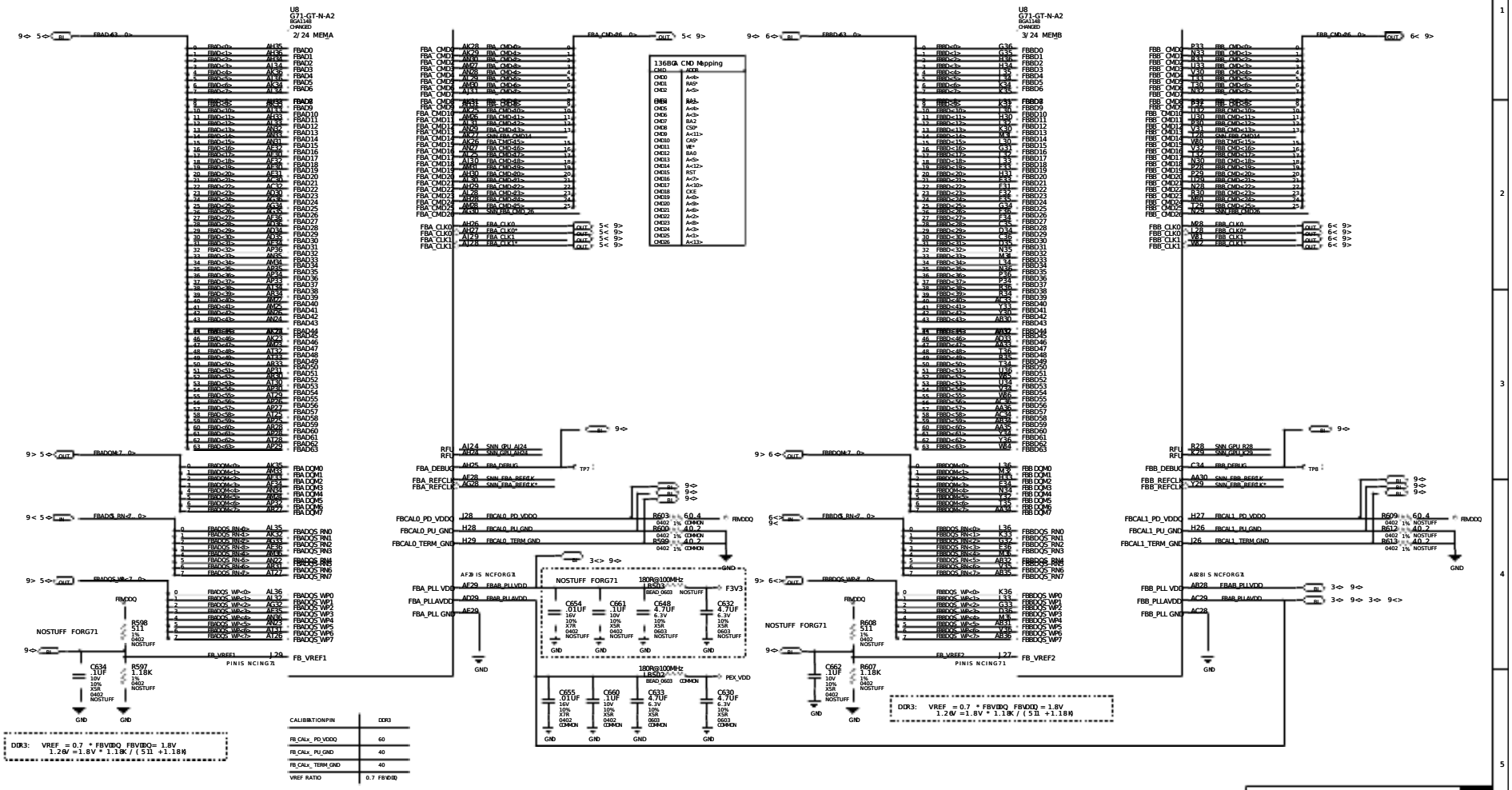
ASSEMBLY: G71-GT2-H 512MB 16Mx32 GDDR3, DVI-I-DL + DVI-I -DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL: PCI Express 1.0

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION ON THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

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

NV_PN	600-10455-0007-100	A
I.D.	design	PAGE 2 OF 24
NAME	LFarasati	DATE 30-JUN2006

Page3: MEMORY: GPU Partition A/B



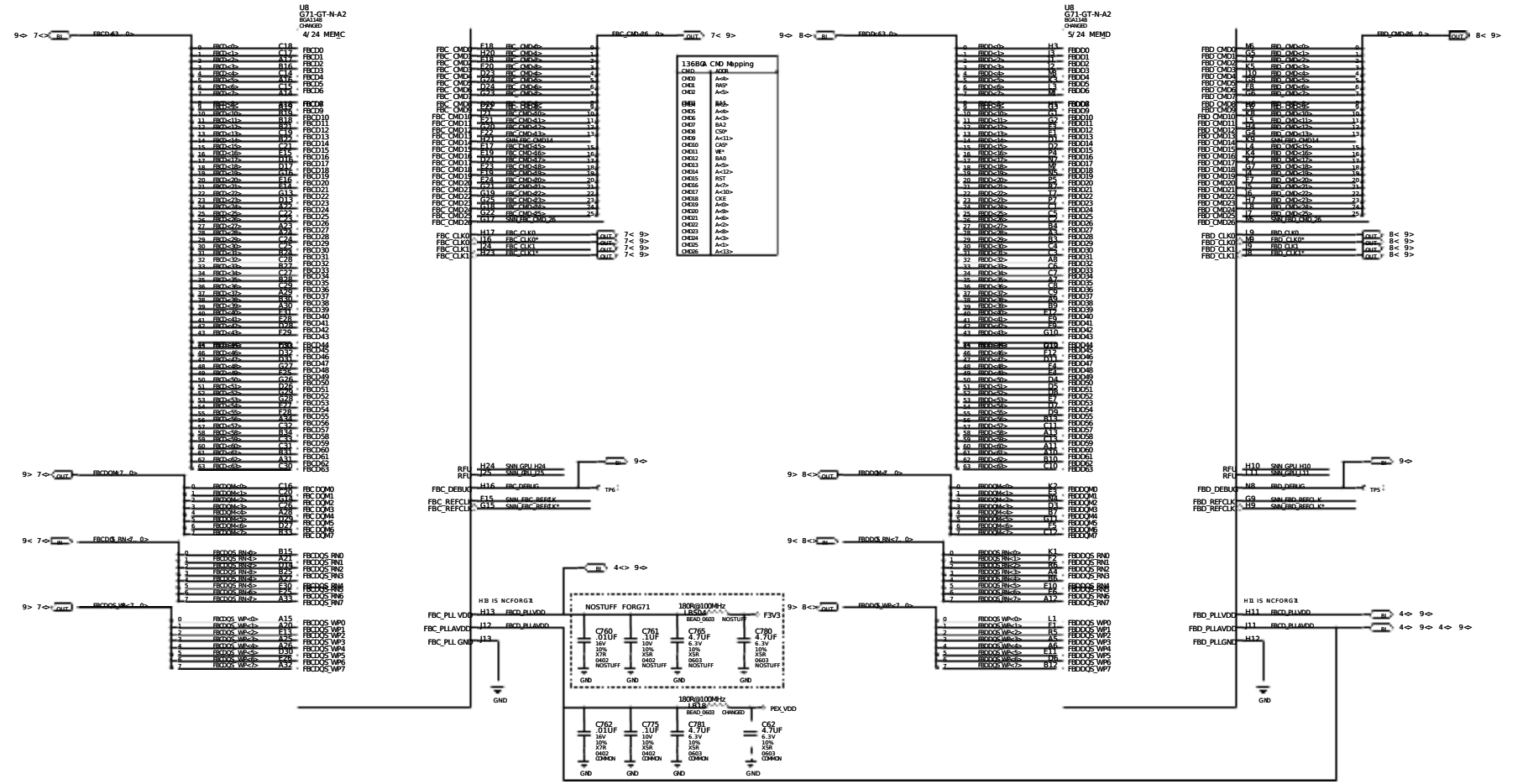
ASSEMBLY | G71GT2-H 512MB 16Mx32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL | MEMORY: GPU Partition A/B

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

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

NV_PN	600-10455-0007-100	A
I.D	design	PAGE 3 OF 24
NAME	LFarasati	DATE 30-JUN2006

Page4: MEMORY: GPU Partition C/D



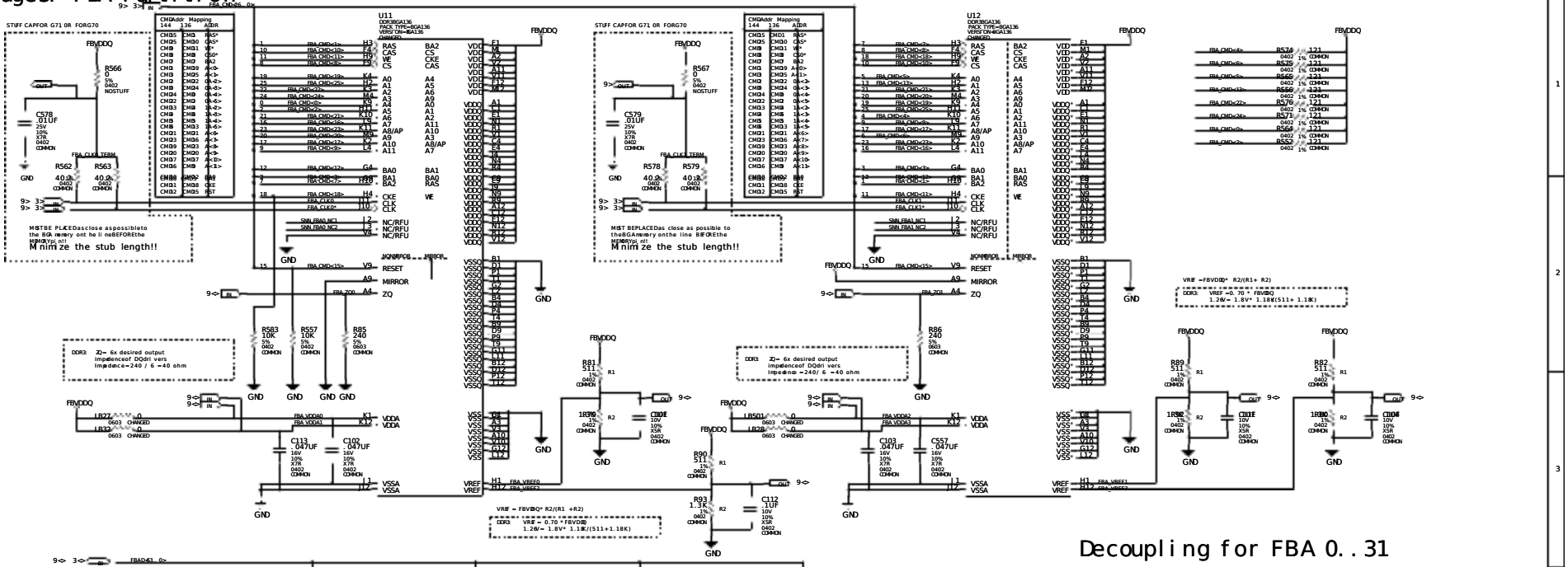
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (OR INFORMATION) (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY: G71:GT2-H 512M 16M:32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL: MEMORY: GPU Partition C/D

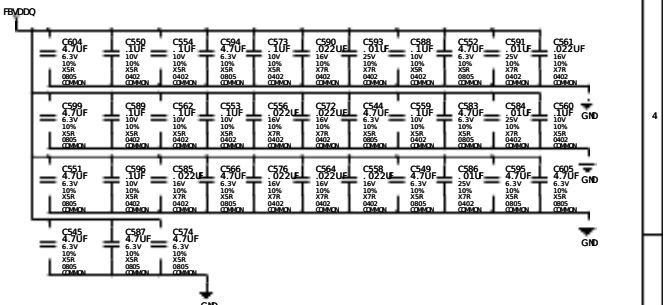
NVIDIA CORPORATION
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050 USA

NV_PN	600-10455-0007-100	A
I.D	design	PAGE 4 OF 24
NAME	LFarasati	DATE 30-JUN2006

Page5: FBA Partition



Decoupling for FBA 0..31



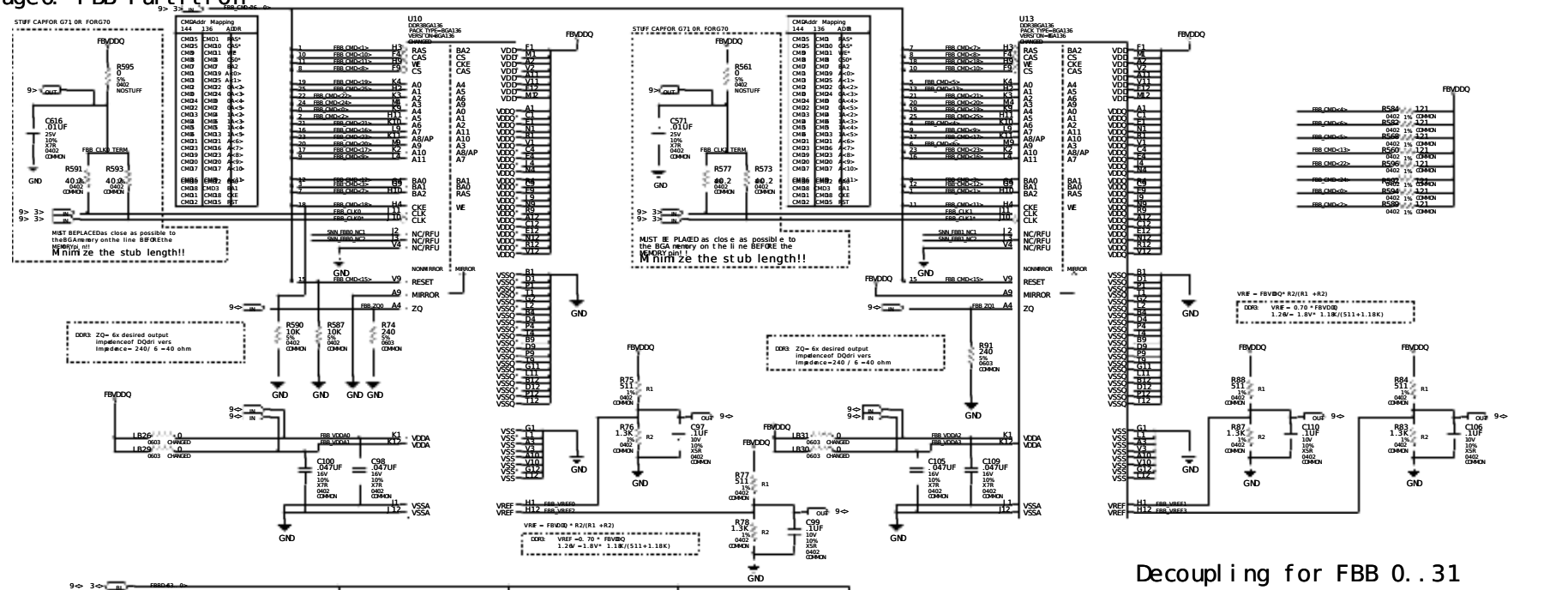
ASSEMBLY: G71-GT2-H 512M 16Mx32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL: FBA Partition

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION ON THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

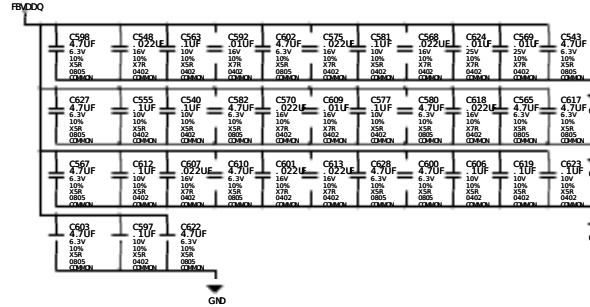
NVIDIA CORPORATION
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050 USA

NV_PN	600-10455-0007-100 A		
I.D.	design	PAGE	5 OF 24
NAME	L.Farasati	DATE	30-JUN-2006

Page6: FBB Partition



Decoupling for FBB 0..31



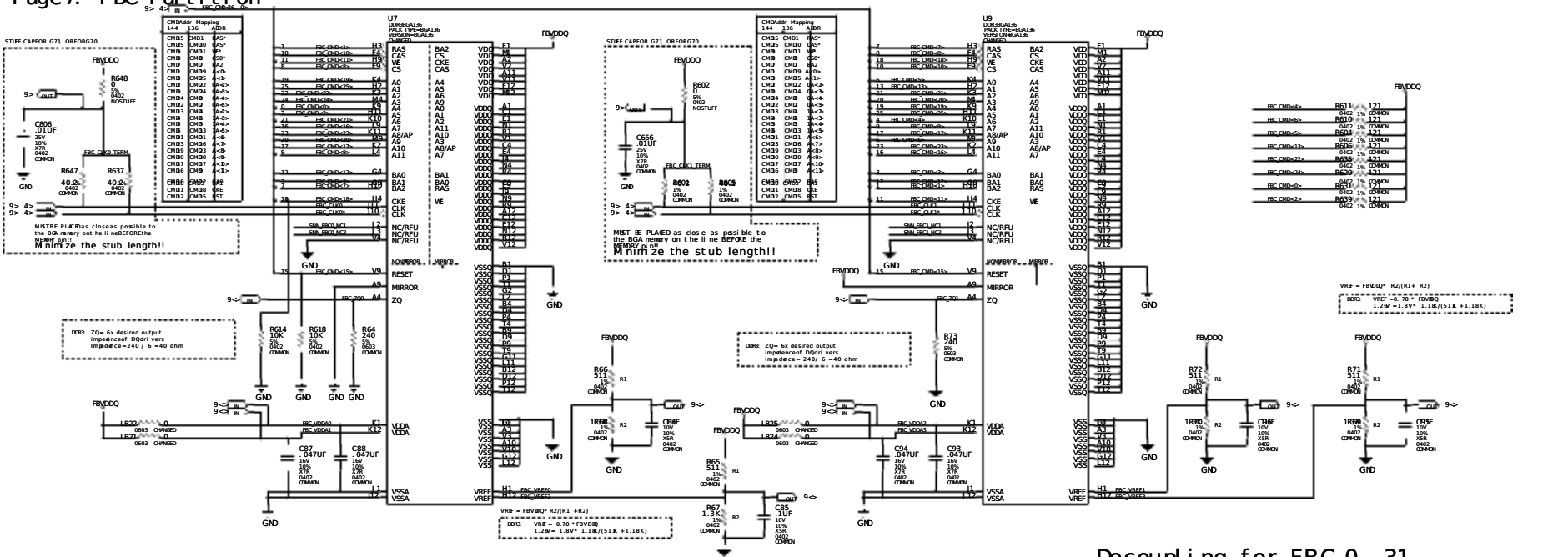
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION ON THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY | G71-GT2-H 512MB 16Mx32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL | FBB Partition

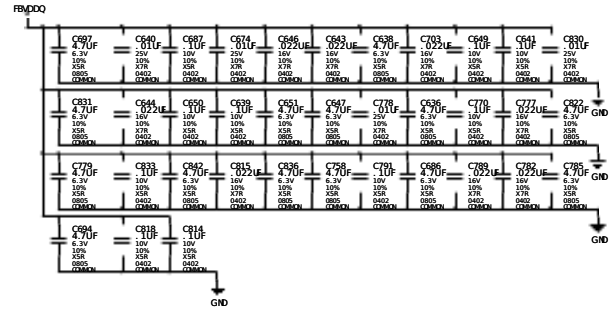
NVIDIA CORPORATION
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050 USA

NV_PN	600-10455-0007-100 A		
I.D	design	PAGE	6 OF 24
NAME	LFarasati	DATE	30-JUN-2006

Page7: FBC Partition



Decoupling for FBC 0..31



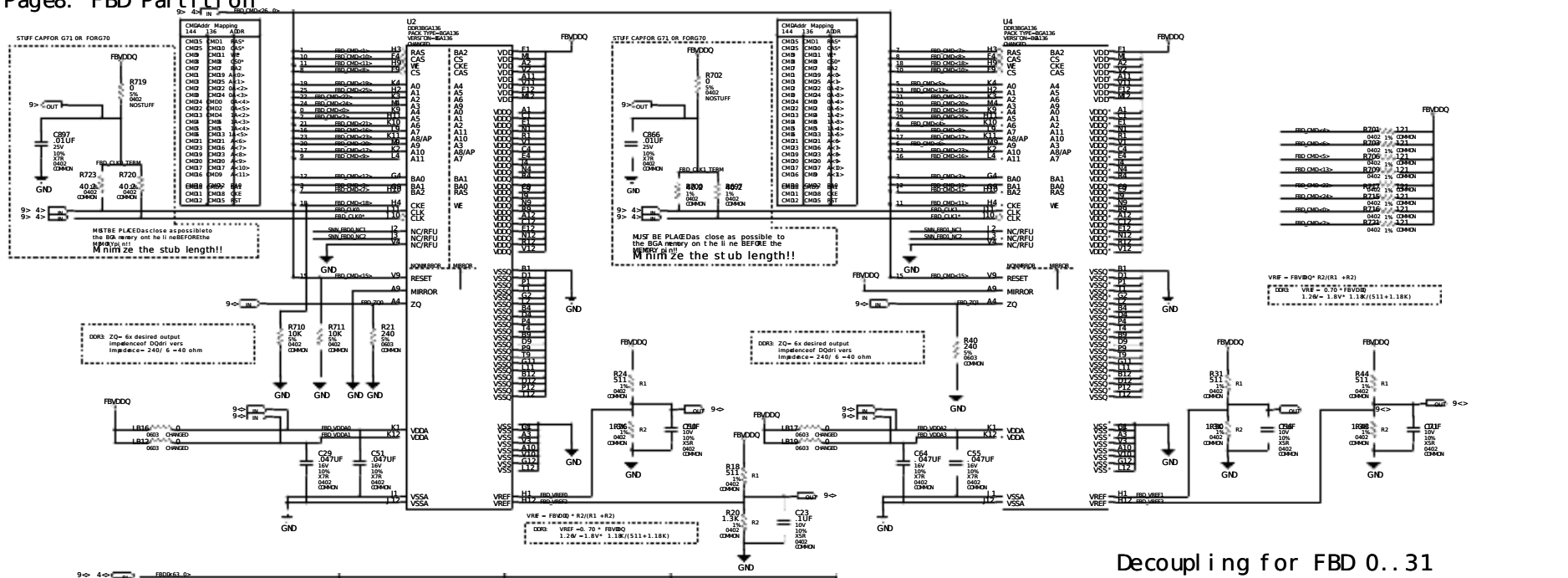
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION ON THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY: G71-GT2-H 512MB 16Mx32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL: FBC Partition

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

NV_PN	600-10455-0007-100	A
I.D	design	PAGE 7 OF 24
NAME	LFarasati	DATE 30-JUN-2006

Page8: FBD Partition



ASSEMBLY G71GT2-H 512MB 16Mx32 GDDR3, DVI-I-DL + DVI-I -DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL FBD Partition

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION ON THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

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

NV_PN	600-10455-0007-100 A		
I.D	design	PAGE	8 OF 24
NAME	LFarasati	DATE	30-JUN-2006

Page9: FrameBuffer Net Properties

NET RULES for FrameBuffer A/B

NET	NV_CRITICAL	NV_IMPEDANCE	DIFFPAIR
FBA_CLK0	1	80DIFF	FBA_CLK0
FBA_CLK0*	1	80DIFF	FBA_CLK0
FBA_CLK0_TERM	1	40OHM	
FBA_CLK1	1	80DIFF	FBA_CLK1
FBA_CLK1*	1	80DIFF	FBA_CLK1
FBA_CLK1_TERM	1	40OHM	
FBA_CMD_A6_ 0>	1	50OHM	
FBADQS_WP-3_ 0>	1	50OHM	
FBADQS_RN-3_ 0>	1	50OHM	
FBADQM-7_ 0>	1	50OHM	
FBAD-63_ 0>	1	50OHM	

NET	NV_CRITICAL	NV_IMPEDANCE	DIFFPAIR
FBB_CLK0	1	80DIFF	FBB_CLK0
FBB_CLK0*	1	80DIFF	FBB_CLK0
FBB_CLK0_TERM	1	40OHM	
FBB_CLK1	1	80DIFF	FBB_CLK1
FBB_CLK1*	1	80DIFF	FBB_CLK1
FBB_CLK1_TERM	1	40OHM	
FBB_CMD_A6_ 0>	1	50OHM	
FBBDQS_WP-3_ 0>	1	50OHM	
FBBDQS_RN-3_ 0>	1	50OHM	
FBBDQM-7_ 0>	1	50OHM	
FBBD-63_ 0>	1	50OHM	

NET	NV_CRITICAL	NV_IMPEDANCE	DIFFPAIR
FBCALO_PD_VDDQ	1	50OHM	
FBCALO_PU_GND	1	50OHM	
FBCALO_TERM_GND	1	50OHM	
FBCAL1_PD_VDDQ	1	50OHM	
FBCAL1_PU_GND	1	50OHM	
FBCAL1_TERM_GND	1	50OHM	
FBA_DEBUG	1	50OHM	
FBB_DEBUG	1	50OHM	

NET	VOLTAGE	MAX_CURRENT	MIN_WIDTH
FBAB_PLLVDD	3.3V	0.04A	12MIL
FBAB_PLLAVDD	1.2V	0.12A	12MIL
FBA_VREF0	1.26V	0.02A	12MIL
FBA_VREF1	1.26V	0.02A	12MIL
FBA_VREF2	1.26V	0.02A	12MIL
FBA_VREF3	1.26V	0.02A	12MIL
FBA_ZO0	1.26V	0.02A	12MIL
FBA_ZO1	1.26V	0.02A	12MIL
FBA_VDDA0	1.8V	0.02A	12MIL
FBA_VDDA1	1.8V	0.02A	12MIL
FBA_VDDA2	1.8V	0.02A	12MIL
FBA_VDDA3	1.8V	0.02A	12MIL
FBB_VREF0	1.26V	0.02A	12MIL
FBB_VREF1	1.26V	0.02A	12MIL
FBB_VREF2	1.26V	0.02A	12MIL
FBB_VREF3	1.26V	0.02A	12MIL
FBB_ZO0	1.26V	0.02A	12MIL
FBB_ZO1	1.26V	0.02A	12MIL
FBB_VDDA0	1.8V	0.02A	12MIL
FBB_VDDA1	1.8V	0.02A	12MIL
FBB_VDDA2	1.8V	0.02A	12MIL
FBB_VDDA3	1.8V	0.02A	12MIL
FB_VREF1	1.26V	0.02A	12MIL
FB_VREF2	1.26V	0.02A	12MIL

NET RULES for FrameBuffer C/D

NET	NV_CRITICAL	NV_IMPEDANCE	DIFFPAIR
FBC_CLK0	1	80DIFF	FBC_CLK0
FBC_CLK0*	1	80DIFF	FBC_CLK0
FBC_CLK0_TERM	1	40OHM	
FBC_CLK1	1	80DIFF	FBC_CLK1
FBC_CLK1*	1	80DIFF	FBC_CLK1
FBC_CLK1_TERM	1	40OHM	
FBC_CMD_A6_ 0>	1	50OHM	
FBCDQS_WP-3_ 0>	1	50OHM	
FBCDQS_RN-3_ 0>	1	50OHM	
FBCDQM-7_ 0>	1	50OHM	
FBCD-63_ 0>	1	50OHM	

NET	NV_CRITICAL	NV_IMPEDANCE	DIFFPAIR
FBD_CLK0	1	80DIFF	FBD_CLK0
FBD_CLK0*	1	80DIFF	FBD_CLK0
FBD_CLK0_TERM	1	40OHM	
FBD_CLK1	1	80DIFF	FBD_CLK1
FBD_CLK1*	1	80DIFF	FBD_CLK1
FBD_CLK1_TERM	1	40OHM	
FBD_CMD_A6_ 0>	1	50OHM	
FBDDQS_WP-3_ 0>	1	50OHM	
FBDDQS_RN-3_ 0>	1	50OHM	
FBDDQM-7_ 0>	1	50OHM	
FBDD-63_ 0>	1	50OHM	
FBC_DEBUG	1	50OHM	
FBD_DEBUG	1	50OHM	

NET	VOLTAGE	MAX_CURRENT	MIN_WIDTH
FBCPLLVDD	3.3V	0.04A	12MIL
FBCPLLAVDD	1.2V	0.12A	12MIL
FBC_VREF0	1.26V	0.02A	12MIL
FBC_VREF1	1.26V	0.02A	12MIL
FBC_VREF2	1.26V	0.02A	12MIL
FBC_VREF3	1.26V	0.02A	12MIL
FBC_ZO0	1.26V	0.02A	12MIL
FBC_ZO1	1.26V	0.02A	12MIL
FBC_VDDA0	1.8V	0.02A	12MIL
FBC_VDDA1	1.8V	0.02A	12MIL
FBC_VDDA2	1.8V	0.02A	12MIL
FBC_VDDA3	1.8V	0.02A	12MIL
FBD_VREF0	1.26V	0.02A	12MIL
FBD_VREF1	1.26V	0.02A	12MIL
FBD_VREF2	1.26V	0.02A	12MIL
FBD_VREF3	1.26V	0.02A	12MIL
FBD_ZO0	1.26V	0.02A	12MIL
FBD_ZO1	1.26V	0.02A	12MIL
FBD_VDDA0	1.8V	0.02A	12MIL
FBD_VDDA1	1.8V	0.02A	12MIL
FBD_VDDA2	1.8V	0.02A	12MIL
FBD_VDDA3	1.8V	0.02A	12MIL

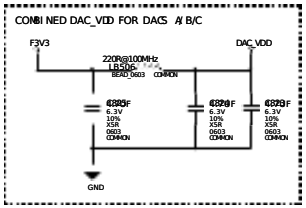
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

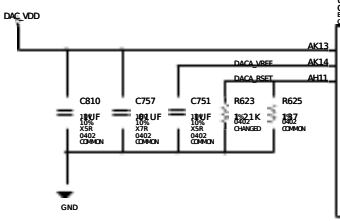
ASSEMBLY	G73-GT2-H 512MB 16Mx32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP, 550/700 MHz
PAGE DETAIL	FrameBuffer Net Properties

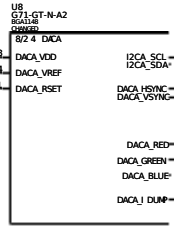
NVIDIA CORPORATION
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050 USA

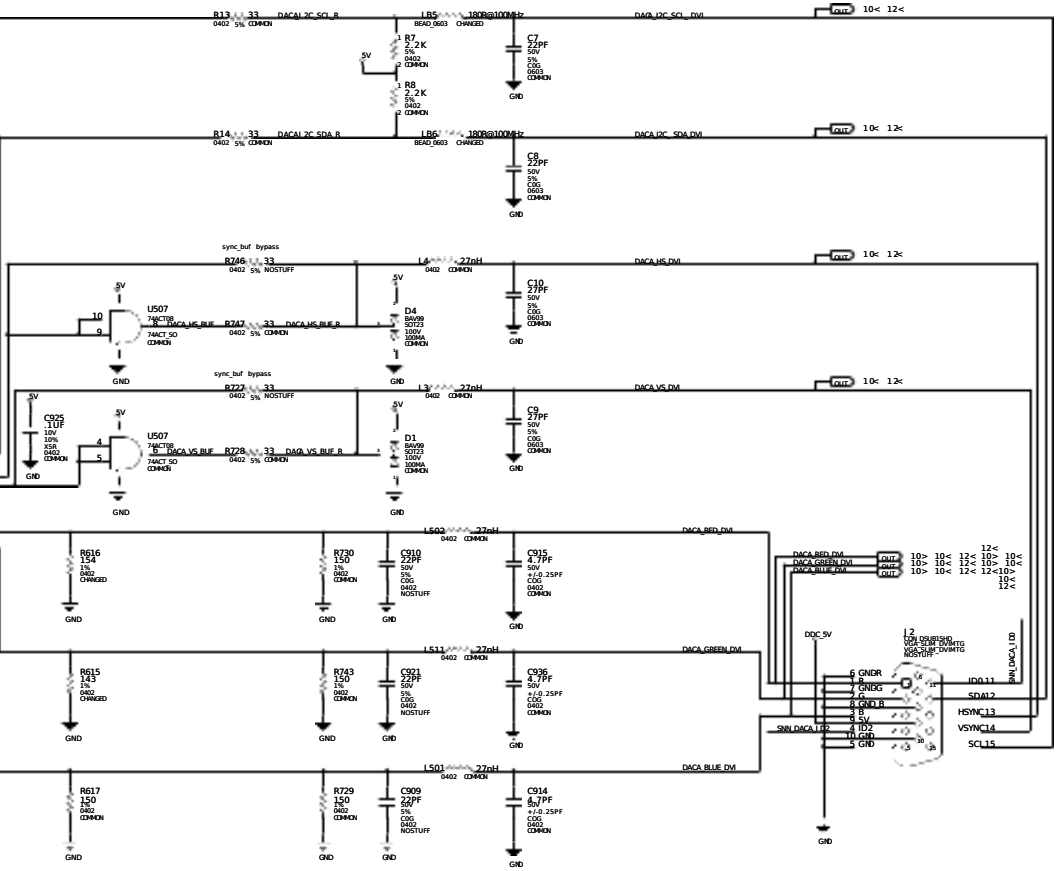
NV_PN	600-10455-0007-100 A		
I.D	design	PAGE	9 OF 24
NAME	LFarasati	DATE	30-JUN-2006

Page10: DACA Interface









DACA NET RULES

NET	NV_CRITICAL	NV_IMPEDANCE	ECSet
DACA_RED	1	75OHM	DAC_RGB_CSET
DACA_GREEN	1	75OHM	DAC_RGB_CSET
DACA_BLUE	1	75OHM	DAC_RGB_CSET
DACA_RED_DVI	1	75OHM	DAC_RGB_CSET
DACA_GREEN_DVI	1	75OHM	DAC_RGB_CSET
DACA_BLUE_DVI	1	75OHM	DAC_RGB_CSET
DACA_HSYNC	2	50OHM	
DACA_VSYNC	2	50OHM	
DACA_HS_BUF	2	50OHM	
DACA_VS_BUF	2	50OHM	
DACA_HS_BUF_R	2	50OHM	
DACA_VS_BUF_R	2	50OHM	
DACA_HS_DVI	2	50OHM	
DACA_VS_DVI	2	50OHM	
DACA_I2C_SCL			
DACA_I2C_SDA			
DACA_I2C_SCL_R			
DACA_I2C_SDA_R			
DACA_I2C_SCL_DVI			
DACA_I2C_SDA_DVI			
DACA_VREF			
DACA_RSET			

NET	VOLTAGE	MAX_CURRENT	MIN_WIDTH
DAC_VDD	3.3V	0.25A	16MIL

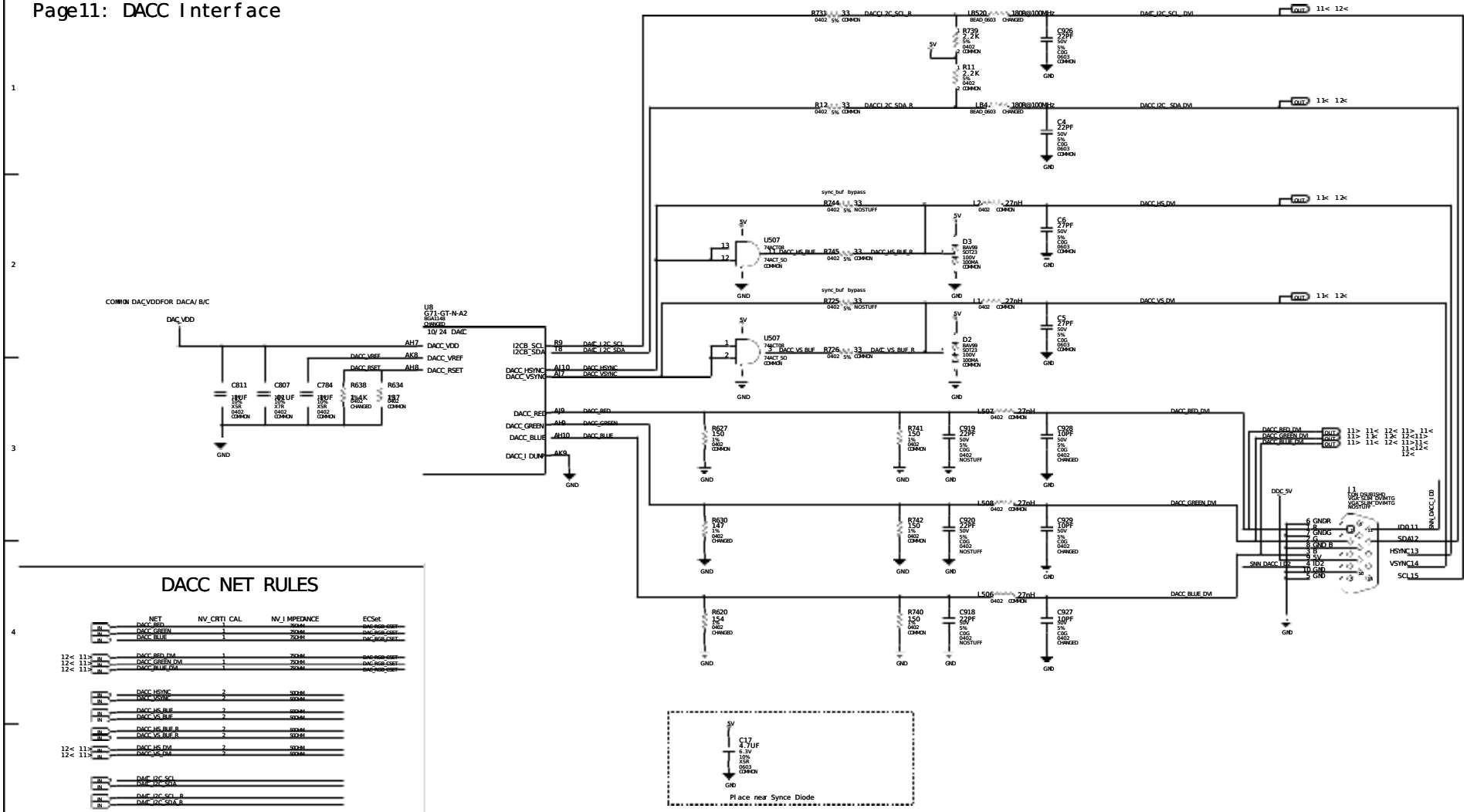
ASSEMBLY: G71GT2-H 512MB 16Mx32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL: DACA Interface

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

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

NV_PN	600-10455-0007-100 A		
ID	design	PAGE	10 OF 24
NAME	LFarasati	DATE	30-JUN-2006

Page11: DACC Interface



DACC NET RULES

NET	NV_CRTI CAL	NV_I MPEDANCE	ECSet
DACC_RED	1	75OHM	DAC_RGB_CSET
DACC_GREEN	1	75OHM	DAC_RGB_CSET
DACC_BLUE	1	75OHM	DAC_RGB_CSET
DACC_RED_DVI	1	75OHM	DAC_RGB_CSET
DACC_GREEN_DVI	1	75OHM	DAC_RGB_CSET
DACC_BLUE_DVI	1	75OHM	DAC_RGB_CSET
DACC_HSYNC	2	50OHM	
DACC_VSYNC	2	50OHM	
DACC_HS_BLUE	2	50OHM	
DACC_VS_BLUE	2	50OHM	
DACC_HS_BLUE_R	2	50OHM	
DACC_VS_BLUE_R	2	50OHM	
DACC_HS_DVI	2	50OHM	
DACC_VS_DVI	2	50OHM	
DACC_I2C_SCL			
DACC_I2C_SDA			
DACC_I2C_SCL_R			
DACC_I2C_SDA_R			
DACC_I2C_SCL_DVI			
DACC_I2C_SDA_DVI			
DACC_VREF			
DACC_RSET			

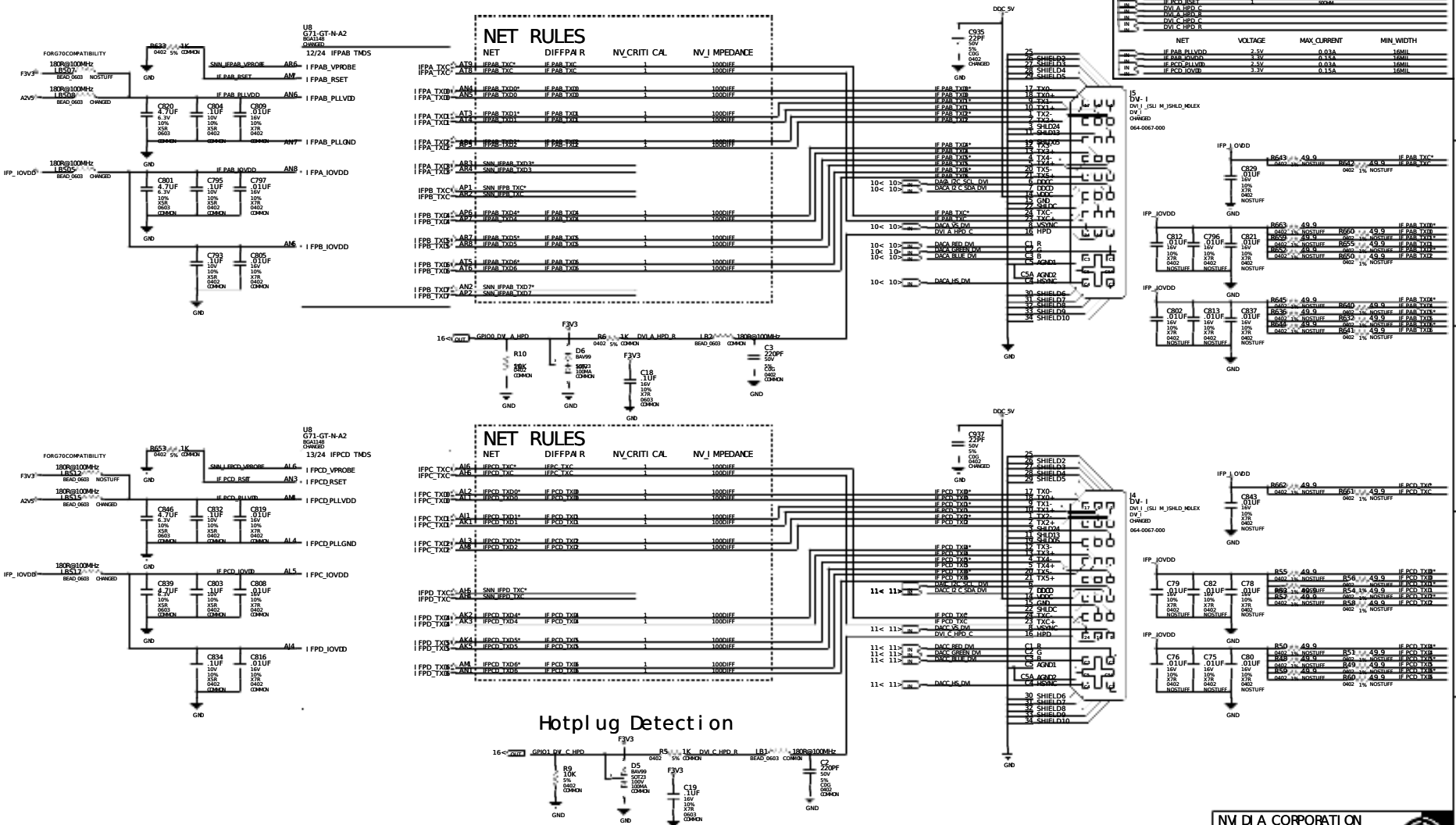
ASSEMBLY G71:GT2-H 512M8 16Mx32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL DACC Interface

ALL NVIDIA DESIGN SPECIFICATIONS, REFFRENCE SPECIFICATIONS, REFFRENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

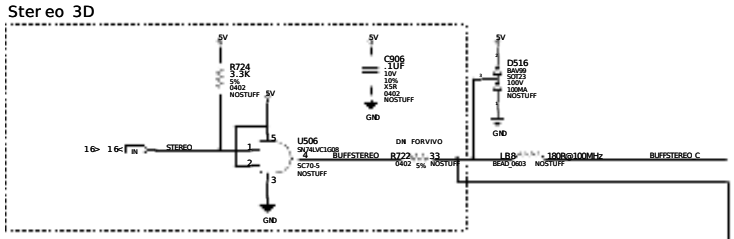
NVIDIA CORPORATION
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050 USA

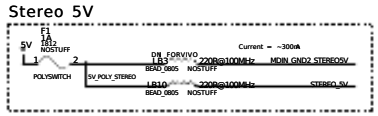
NV_PN	600-10455-0007-100 A		
I.D	design	PAGE	11 OF 24
NAME	LFarasati	DATE	30-JUN-2006

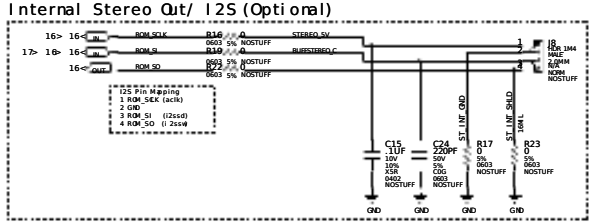
Page12: IFP A/B and C/D Interface



Page13: DACB and Stereo Interface



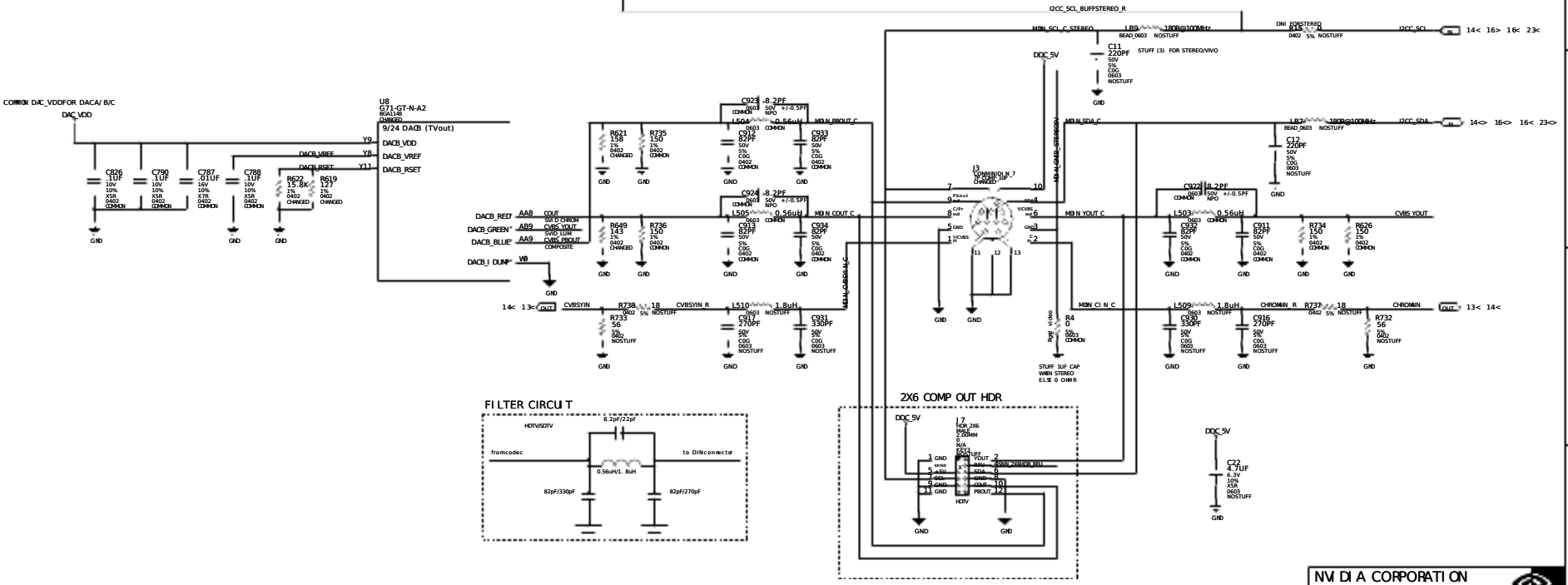




DACB & STEREO NET RULES

NET	NV_CRTI CAL	NV_I MPEDANCE	ECSet
COUT MDIN COUT_C	1 1	75OHM 75OHM	DACB_RGB_CSET DACB_RGB_CSET
CVBS_YOUT MDIN_YOUT_C	1 1	75OHM 75OHM	DACB_RGB_CSET DACB_RGB_CSET
CVBS_PBOUT MDIN_PBOUT_C	1 1	75OHM 75OHM	DACB_RGB_CSET DACB_RGB_CSET
CVBSYIN CVBSYIN_R MDIN_CVBSYIN_C	1 1 1	50OHM 50OHM 50OHM	
CHROMAIN CHROMAIN_R MDIN_CHN_C	1 1 1	50OHM 50OHM 50OHM	
I2CC_SCL_BUFFSTEREO_R MDIN_SCL_C_STEREO BUFFSTEREO_R BUFFSTEREO_C MDIN_CHA_C			

NET	VOLTAGE	MAX_CURRENT	MIN_WIDTH
5V_POLY_STEREO	5.0V	0.03A	16MIL
STEREO_5V	5.0V	0.03A	16MIL
MDIN_GND2_STEREO5V	0.0V		16MIL
ST_INT_GND	0.0V		16MIL
ST_INT_SHLD	0.0V		16MIL
DACB_VREF			16MIL
DACB_RSET			16MIL
MDIN_GND	0.0V		16MIL



ASSEMBLY | G71-GT2-H 512M 16M:32 GDDR3, DVI-I-DL + DVI-I -DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL | DACBand Stereo Interface

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

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

NV_PN	600-10455-0007-100 A		
I.D	design	PAGE	13 OF 24
NAME	LFarasati	DATE	30-JUN-2006

VIDEO CAPTURE

SAA7115 NET RULES

NET	NV_CRITICAL	NV_IMPEDANCE	DIFFPAIR
VIPCLK_R	1	50OHM	
VIPCLK	1	50OHM	
7115_A11	2	50OHM	
7115_A1D	2	50OHM	
7115_A2D	2	50OHM	
7115_A21	2	50OHM	
7115_VOUT	1	50OHM	
7115_XIN	1	50OHM	
RESET_7114	2	50OHM	
RESET_7115	2	50OHM	
7115_TRST*	2	50OHM	
7115_TCK	2	50OHM	
7115_RTCO	2	50OHM	
7115_TMS			
7115_TDO			
7115_TDI			
7115_XTOUT			

NET	VOLTAGE	MAX_CURRENT	MIN_WIDTH
7115_VDDA	3.3V	0.09A	16Mil
7115_VDDE	3.3V	0.01A	16Mil
7115_VDDX	3.3V	0.01A	16Mil

STUFF PULLUP for 7115
STUFF 0 Ohmf or 7114

disable JTAGport

Select I2C Address
RTCO=0 -> 0x42/0x43
RTCO=1 -> 0x40/0x41

SAA 7115
I2C ADDRESS 0X42

STUFF for 7115

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

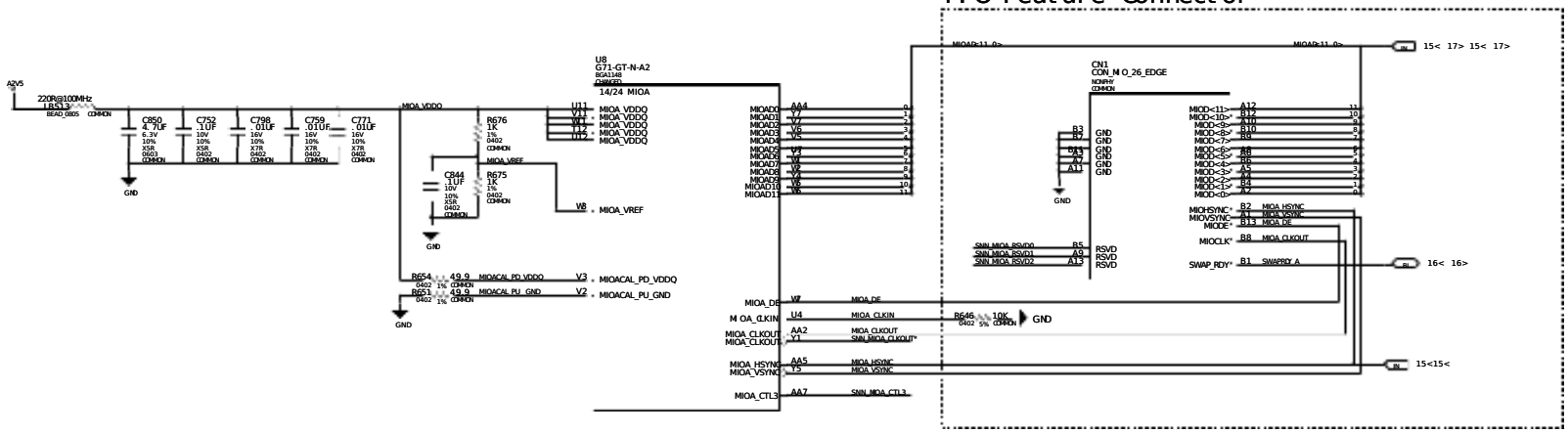
ASSEMBLY: G71GT2-H 512M 16M32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL: Video Capture (Philips SAA7115)

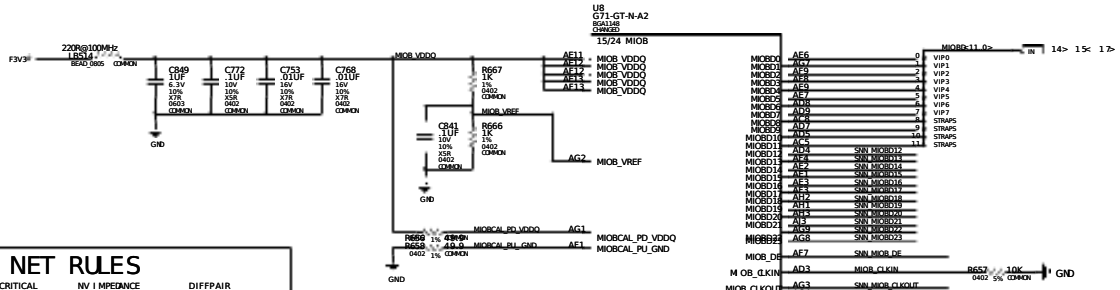
NVIDIA CORPORATION
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050 USA

NV_PN	600-10455-0007-100	A
ID	design	PAGE 14 OF 24
NAME	LFarasati	DATE 30-JUN-2006

Page15: Multi-use IO(MIO) Interface

MIO Feature Connector





MIO NET RULES

NET	NV_CRITICAL	NV_IMPEDANCE	DIFFPAIR
MIOAD<11:0>	2	50OHM	
MIOA_CLKIN	2	50OHM	
MIOA_CLKOUT	2	50OHM	
MIOA_DE	2	50OHM	
MIOA_HSYNC	2	50OHM	
MIOA_VSYNC	2	50OHM	
MIOBD<11:0>	2	50OHM	
MIOB_CLKIN	2	50OHM	
MIOB_HSYNC			

NET	VOLTAGE	MAX_CURRENT	MIN_WIDTH
MIOA_VDDQ	2.5V	0.80A	16MIL
MIOA_VREF	1.65V		12MIL
MIOACAL_PD_VDDQ	2.5V		12MIL
MIOACAL_PU_GND	0.0V		12MIL
MIOB_VDDQ	3.3V	0.03A	12MIL
MIOB_VREF	1.65V		12MIL
MIOBCAL_PD_VDDQ	3.3V		12MIL
MIOBCAL_PU_GND	0.0V		12MIL

ASSEMBLY: G71GT2-H 512MB 16Mx32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL: Multi-use IO(MIO) Interface

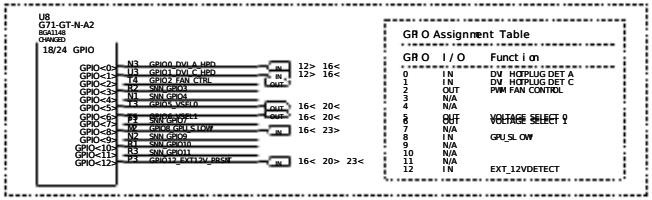
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

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

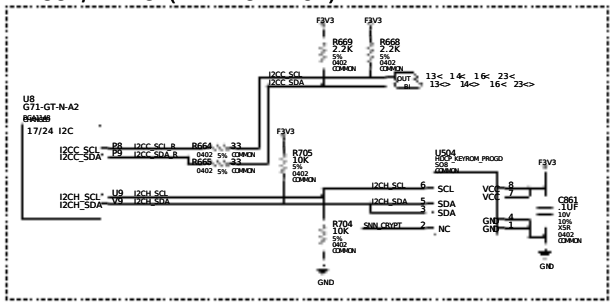
NV_PN	600-10455-0007-100 A		
ID	design	PAGE	15 OF 24
NAME	LFarasati	DATE	30-JUN2006

Page16: MISC: GPIO, I2C, ROM, HDCP, HDMI and XTAL

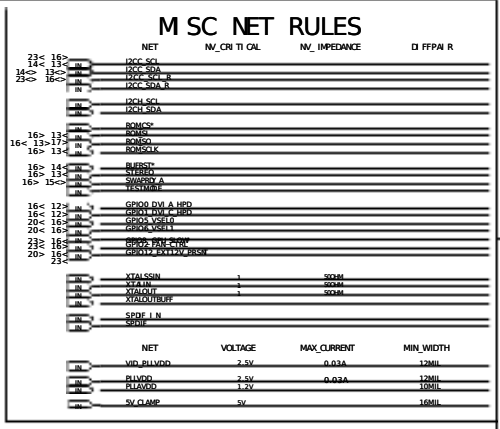
GPIO



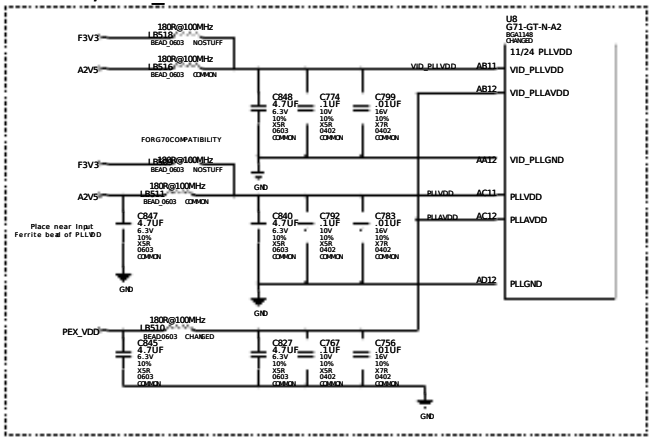
I2CC / I2CH(+HDCP ROM)



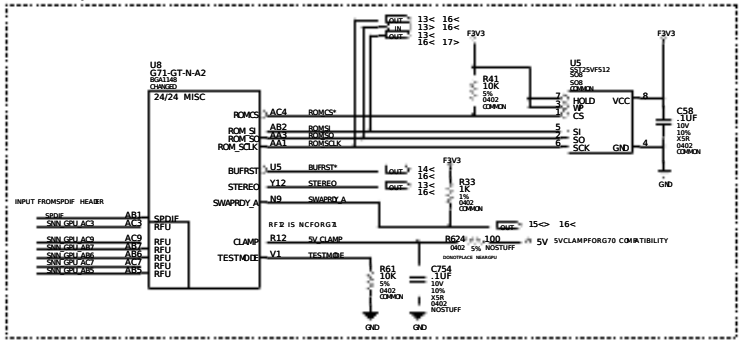
MISC NET RULES



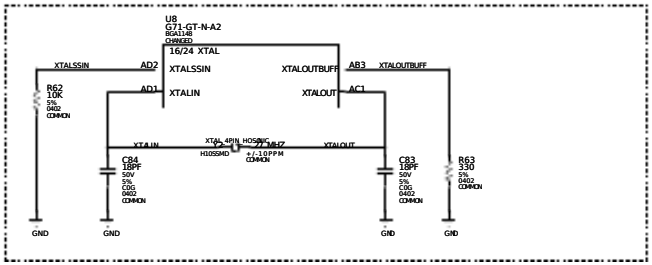
PLLVDD/VID_PLLVDD



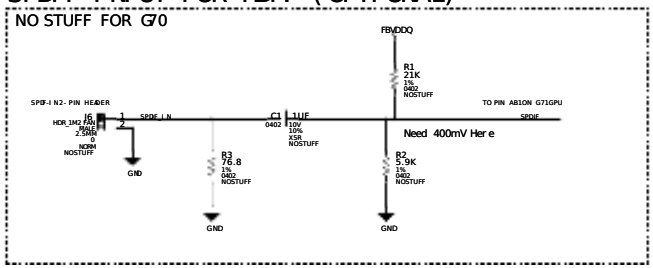
ROM / MISC (BUFRST/STEREO/SWAPRDY/TESTMODE)



XTAL



SPDIF INPUT FOR HDMI (OPTIONAL)



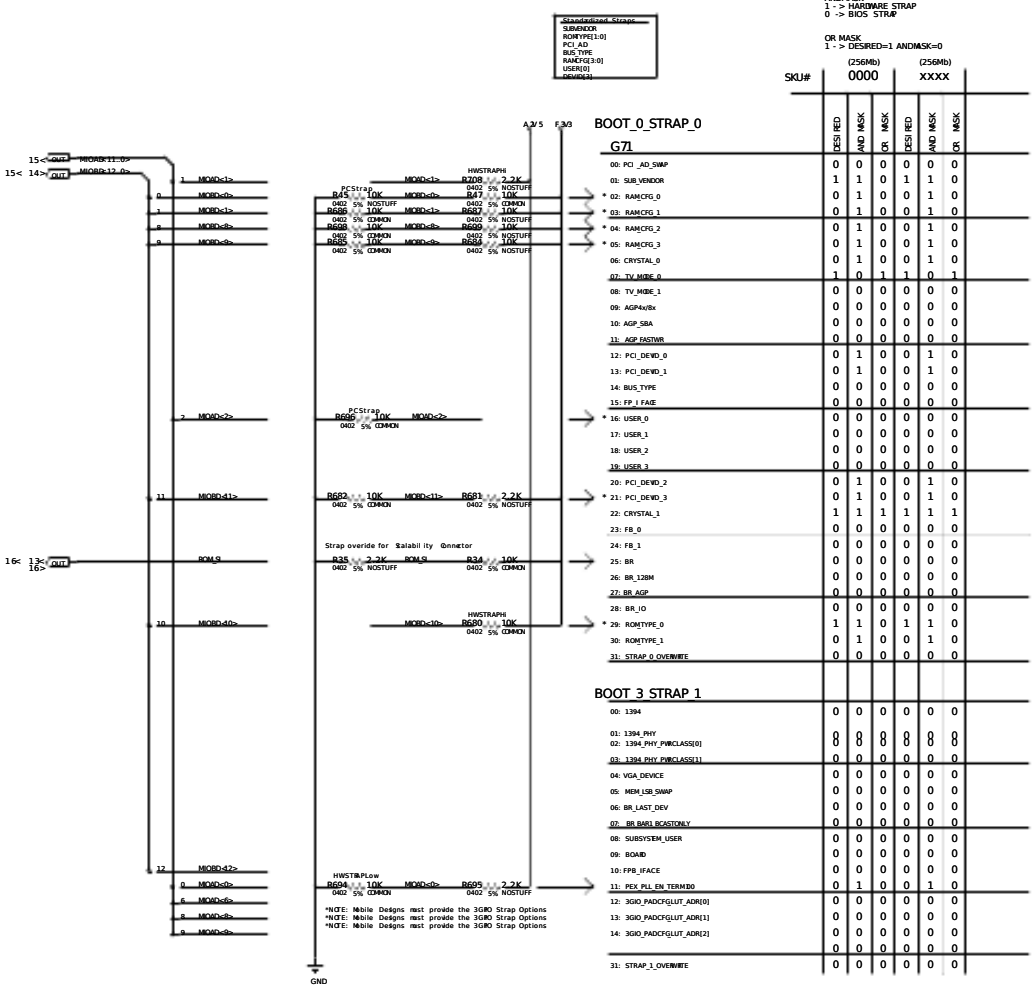
ASSEMBLY | G71GT2-H 512M 16Mx32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL | GPIO, I2C, ROM HDMI, and XTAL

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

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

NV_PN	600-10455-0007-100 A		
I.D	design	PAGE	16 OF 24
NAME	LFarasati	DATE	30-JUN-2006

Page17: Strapping Configuration



G71 Strap Mapping

NV_STRAP_0

	BIT	FUNCTION	NORMAL PIN (RTL Name)
HWDefault			
	0	PCI_AD	'NV_PEXTIBV_BOOT_0_STRAP_PCI_AD_NORMAL
1	1	SUBVENDOR	MIOD31(Ccl ra_data[1])
	2	RAMCFG[0]	MIOD30(Ccl rb_data[0])
	3	RAMCFG[1]	MIOD31(Ccl rb_data[1])
	4	RAMCFG[2]	MIOD38(Ccl rb_data[8])
	5	RAMCFG[3]	MIOD39(Ccl rb_data[9])
0	6	CRYSTAL[0]	MIOD32(Ccl rb_data[2])
1	7	TVMODE[0]	MIOAD7(Ccl ra_data[7])
0	8	TVMODE[1]	MIOAD10(Ccclr a_data[10])
	9	AGP 4X	'NV_PEXTIBV_BOOT_0_STRAP_AGP 4X_DISABLED
	10	AGP SBA	'NV_PEXTIBV_BOOT_0_STRAP_AGP SBADISABLED
	11	AGP_FASTWR	'NV_PEXTIBV_BOOT_0_STRAP_AGP FASTW_DISABLED
0	12	PCI_DEVID[0]	MIOB38 (CCclrb_data[4])
0	13	PCI_DEVID[1]	MIOB39 (CCclrb_data[5])
	14	AGP	'NV_PEXTIBV_BOOT_0_STRAP_BUS_TYPE_PE
	15	FP_I FACE	'NV_PEXTIBV_BOOT_0_STRAP_FP_I FACE_12BIT
	16	USER[0]	MIOD22(Ccl ra_data[2])
	17	USER[1]	MIOD23(Ccl ra_data[3])
	18	USER[2]	MIOD24(Ccl ra_data[4])
	19	USER[3]	MIOD25(Ccl ra_data[5])
0	20	PCI_DEVID[2]	MIOB33 (CCclrb_data[3])
0	21	PCI_DEVID32[1]	MIOB311 (CCclrb_data[11])
	22	CRYSTAL[1]	MIOB36 (CCclrb_data[6])
	23	FB[0]	0
	24	FB[1]	1
1	25	BR	ROMSI (Romsi)
	26	BR_128M	'NV_PEXTIBV_BOOT_0_STRAP_BR_REG128M_DISABLED
	27	BR_AGP	'NV_PEXTIBV_BOOT_0_STRAP_BR_AGP_DEV_DISABLED
	28	BR_IO	'NV_PEXTIBV_BOOT_0_STRAP_BR_IO_DEV_DISABLED
1	29	ROMTYPE[0]	MIOB310(Ccclr b_data[10])
0	30	ROMTYPE[1]	0

NV_STRAP_1

	BIT	FUNCTION	NORMAL PIN (RTL Name)
	0	1394	'NV_PEXTIBV_BOOT_3_STRAP_1_1394_DISABLED
	1	1394_PHY	'NV_PEXTIBV_BOOT_3_STRAP_1_1394_PHY_DISABLED
	2	1394_PHY_PWRCLASS[0]	0
	3	1394_PHY_PWRCLASS[1]	0
	4	VGADEVICE	'NV_PEXTIBV_BOOT_3_STRAP_1_VGA_DEVICE_ENABLED
	5	MEMLSB_SWAP	'NV_PEXTIBV_BOOT_3_STRAP_1_MEMLSB_SWAPDISABLED
	6	BR_LAST_DEV	'NV_PEXTIBV_BOOT_3_STRAP_1_BR_LAST_DEV_DISABLED
	7	BR_BARI BCASTONLY	'NV_PEXTIBV_BOOT_3_STRAP_1_BR_BARIBCASTONLY_ENABLED
	8	SUBSYSTEM_USER	'NV_PEXTIBV_BOOT_3_STRAP_1_SUBSYSTEM_USERDISABLED
	9	BOARD	'NV_PEXTIBV_BOOT_3_STRAP_1_BOARD_0
1	10	FPB_IFACE	MIOB313 (CCclrb_data[13])
0	11	PEX_PLL_ENTERMI00	MIOAD9(Ccl ra_data[9])
0	12	3GIO_PADCFGLUT_ADR[0]	MIOAD8 (Ccl ra_data[8])
0	13	3GIO_PADCFGLUT_ADR[1]	MIOAD7 (Ccl ra_data[8])
0	14	3GIO_PADCFGLUT_ADR[2]	MIOAD6 (Ccl ra_data[9])

*HWWas internal 10kStrap, need 1kto overide

SUB_VENDOR[0]	0 - NO_BIOS 1 - READFROMBIOS (DESIRED)
RAMCFG[3: 0]	0000 RESERVED 0001 8PCS 16Mx32 Infineon DDR3 0010 8PCS 16Mx32 Hynix DDR3 0011 8PCS 16Mx32 Samsung DDR3 0100 N/A 0101 8PCS 8Mx32 Infineon DDRII 0110 8PCS 8Mx32 Hynix DDR3 0111 8PCS 8Mx32 Samsung DDR3 1000 N/A 1001 4PCS 16Mx32 Infineon DDR3 1010 4PCS 16Mx32 Hynix DDR3 1011 4PCS 16Mx32 Samsung DDR3 1100 N/A 1101 4PCS 8Mx32 Infineon DDRII 1110 4PCS 8Mx32 Hynix DDR3 1111 4PCS 8Mx32 Samsung DDR3
CRYSTAL[1: 0]	00 - 13.5 MHz 01 - 14.31818 MHz 10 - 27.000 MHz (DESIRED) 11 - UNKNOWN
TVMODE[1: 0]	00 - SECAM 01 - NTSC(DESIRED) 10 - PAL 11 - CRT
PCI_DEVID[3: 0]	0000 =G71 =0x000 1100 =
USER[3: 0]	0000 - USER STRAP
FB[1:0]	00 - 64MEG(DESIRED) 01 - 128MEG 10 - 256MEG 11 - 512MEG
ROM_TYPE[1:0]	00 - PARALLEL (NOT SUPPORTED) 01 - SERIAL 25T25 (DESIRED) 10 - SERIAL 95HSXFC 11 - RFU
BR	0 - ENABLE 1 - DISABLED (Default)
FPB_IFACE	0 - 12Bit 1 - 24bit (Default)
PEX_PLL_EN_TERM100	0 - ENABLED(Internal 100ohmTerm) 1 - DISABLED
3GIO_PADCFG_LUT_ADR[2:0]	000 = DEFAULT
STRAP_OVERWRITE	0 - DISABLED(DESIRED) 1 - ENABLED

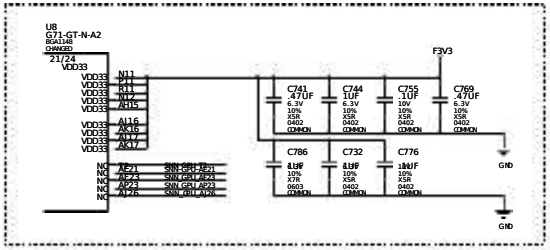
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

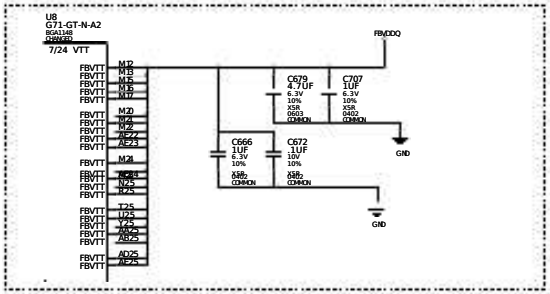
ASSEMBLY	G73-GT2-H 512MB 16Mx32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP, 550/700 MHz
PAGE DETAIL	Strapping Configuration

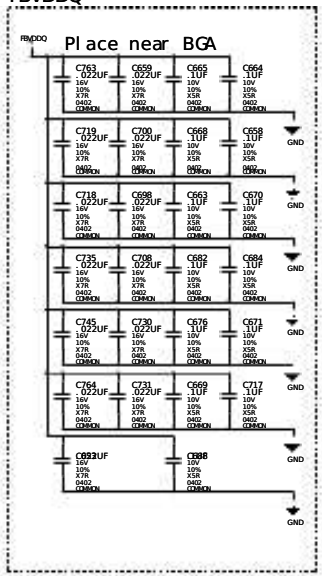
NVIDIA CORPORATION
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050 USA

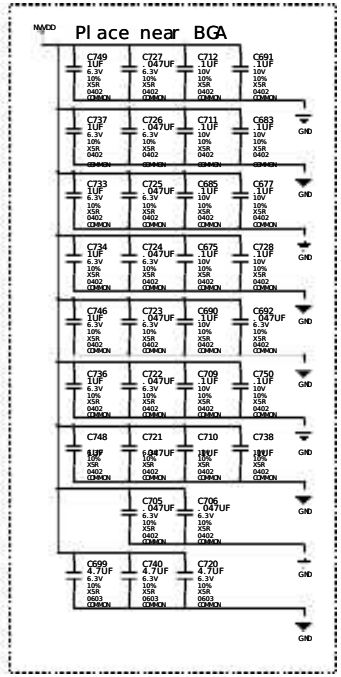
NV_PN	600-10455-0007-100 A		
ID	design	PAGE	17 OF 24
NAME	LFarasati	DATE	30-JUN-2006

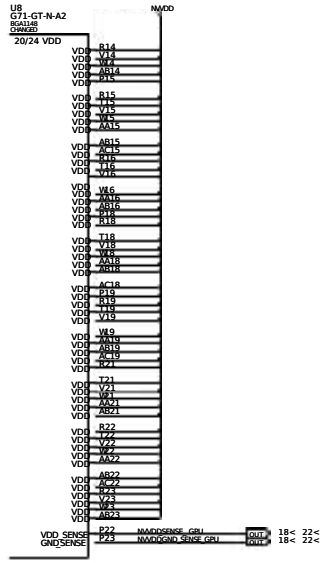
Page18: Power/GND and Decoupling

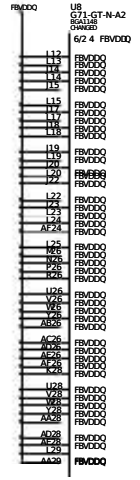


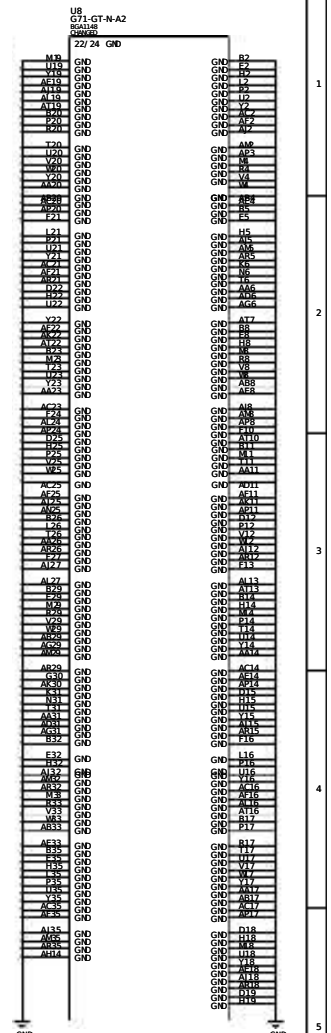












NET	NV_CRITICAL	NV_IMPEDANCE	DIFFPAIR
22< 18> IN NVVDDSENSE_GRU			
22< 18> IN NVVDDGNDSENSE_GRU			

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, 'MATERIALS') ARE BEING PROVIDED 'AS IS'. THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

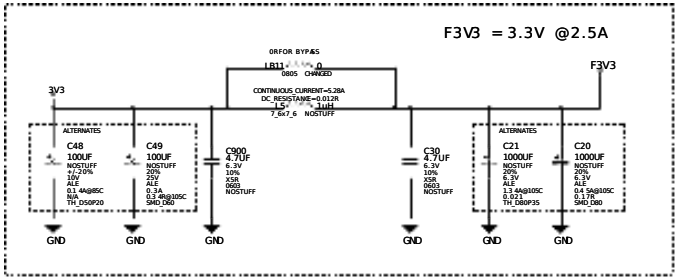
ASSEMBLY: G71-GT2-H 512MB 16Mx32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL: Power/GND and Decoupling

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

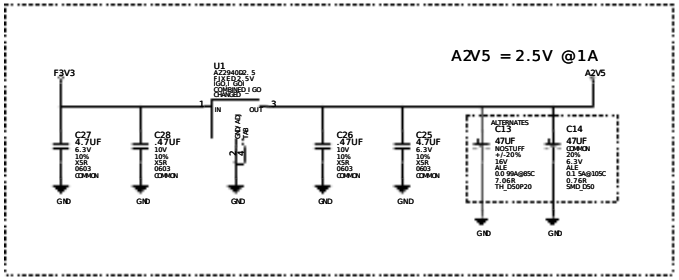
NV_PN	600-10455-0007-100	A
I.D.	design	PAGE 18 OF 24
NAME	LFarasati	DATE 30-JUN2006

Page19: Power Supply I: A2V5, DDC5V, SAA7115, TMDS Supplies

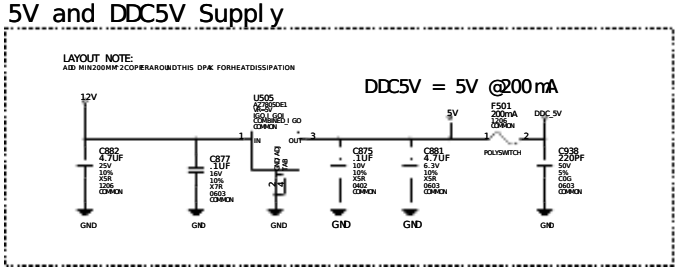
F3V3 Supply



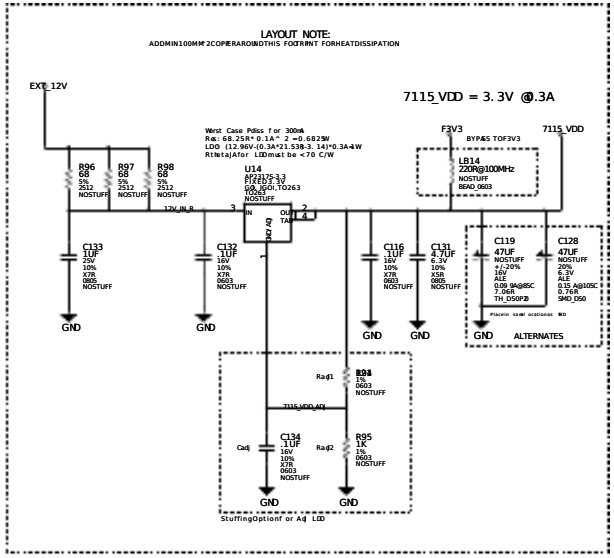
A2V5 Supply



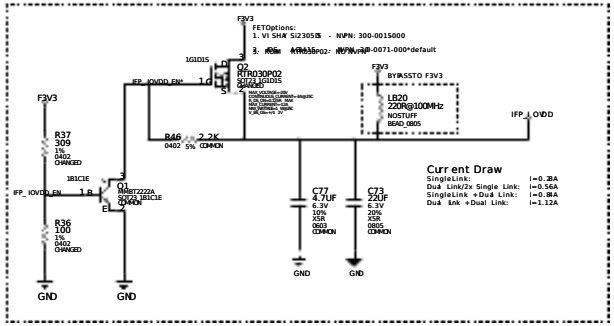
5V and DDC5V Supply



SAA7115_VDD Supply



TMDS IOVDD Backdrive Prevention



POWER NET RULES

F3V3NETRULES	NET	VOLTAGE	MAX_CURRENT	MIN_WIDTH
F3V3	F3V3	3.3V	2.5A	16MIL
7115_VDD	7115_VDD	3.3V	0.3A	12MIL
IN	7115_VDD_ADJ			10MIL
IN	12V_IN_R			12MIL
IFP_IOVDDNETRULES				
IFP_IOVDD	IFP_IOVDD	3.3V	1.2A	16MIL
IN	IFP_IOVDD_EN			10MIL
IN	IFP_IOVDD_EN*			10MIL
5Vand DIESVNETRULES				
5V	5V	5.0V	0.1A	16MIL
DDC_5V	DDC_5V	5.0V	0.2A	16MIL
A2V5 NETRULES				
A2V5	A2V5	2.5V	1.0A	16MIL

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

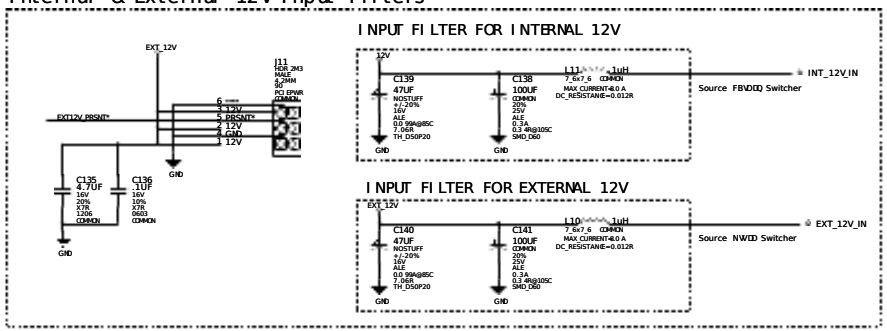
ASSEMBLY: G71GT2-H 512MB 16Mx32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL: Power Supply I: A2V5, DDC5V, SAA7115, TMDS Supplies

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

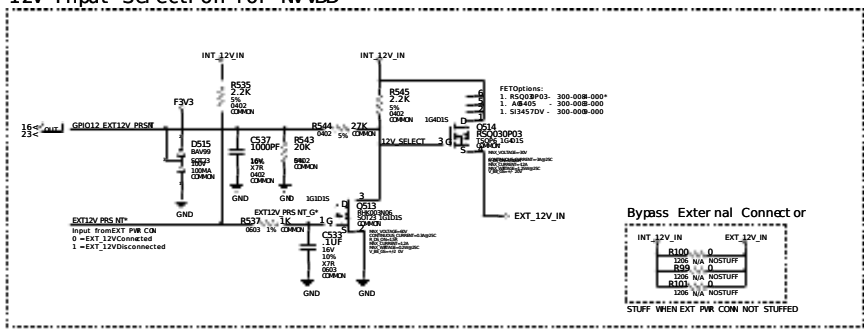
NV_PN	600-10455-0007-100 A		
ID	design	PAGE	19 OF 24
NAME	LFarasati	DATE	30-JUN2006

Page20: Power Supply II: PEX Input Filters, External 12V Power, NVVDD VID Control

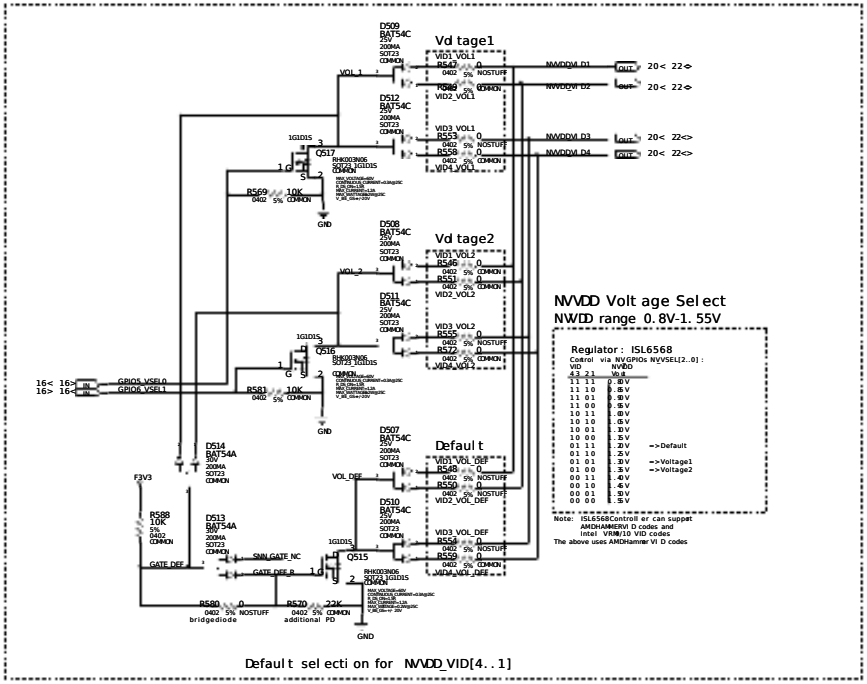
Internal & External 12V Input Filters



12V Input Selection for NVVDD



NVVDD VID CONTROL



NET	VOLTAGE	MAX_CURRENT	MIN_LINE_WIDTH
EXT_12V	12V	5.5A	50MIL
INT_12V_IN	12V	8A	50MIL
EXT_12V_IN	12V	8A	50MIL

NET	NV_CRITICAL	NV_IMPEDANCE	DIFFPAIR
NVVDDVI_D1			
NVVDDVI_D2			
NVVDDVI_D3			
NVVDDVI_D4			
VOL_1			
VID1_VOL1			
VID2_VOL1			
VID3_VOL1			
VID4_VOL1			
VOL_2			
VID1_VOL2			
VID2_VOL2			
VID3_VOL2			
VID4_VOL2			
VOL_DEF			
VID1_VOL_DEF			
VID2_VOL_DEF			
VID3_VOL_DEF			
VID4_VOL_DEF			
GATE_DEF			
GATE_DEF_R			
12V_SELECT			
EXT12V_PRSNT*			
EXT12V_PRSNT_G*			

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (OR INFORMATION) (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY: G71GT2-H 512MB 16Mx32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL: Power Supply II: PEXInput Filters, External 12V Power, NVVDD VID Control

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

NV_PN	600-10455-0007-100 A		
ID	design	PAGE	20 OF 24
NAME	LFarasati	DATE	30-JUN-2006

Page21: Power Supply III: FBVDDQ & PEX_VDD

FBVDDQ and PEX_VDD NET RULES

	NET	VOLTAGE	MAX_CURRENT	MIN_WIDTH
FBVDDQ	FBVDDQ	1.8V	14A	16MIL
	FBVDDQ_VCCS	5V		12MIL
	FBVDDQ_BOOT	5V		12MIL
	FBVDDQ_FB_DIS			10MIL
	NVDD_PGOOD_ENF			10MIL
	FBVDDQ_PHASE			12MIL
	FBVDDQ_UGATE			16MIL
	FBVDDQ_UGATE_R			16MIL
	FBVDDQ_LGATE			16MIL
	FBVDDQ_LGATE_AC			16MIL
	FBVDDQ_SNUB			12MIL
	FBVDDQ_PHASE	1.8V	14A	12MIL
	FBVDDQ_COMP			12MIL
	FBVDDQ_COMP_RC			12MIL
	FBVDDQ_FB			12MIL
	FBVDDQ_FB_RC			12MIL
FBVDDQ NETRULES				
PEX_VDD	PEX_VDD	1.2V	2A	16MIL
	PEX_LDO_DR			12MIL
	PEX_LDO_RC			12MIL
	PEX_LDO_FB			12MIL
PEX_VDDNET RULES				

PEX = 1.2V @2A

Input Ripple = ~5.5A

*Default - No Stuff

Vout = 0.8V * (1 + Rtop/Rbot)
1.2V = 0.8V * (1 + 1.1K/2K)
1.3V = 0.8V * (1 + 1.24K/2K)

FREQ_SET = 47.5K for 600khz

Est. Eff = 85%

FBVDDQ = 1.8V - 2.0V @14A

*Default - No Stuff

Compensation for FBVDDQ

OUTPUT VOLTAGE

FBVDDQ = VREF * (1 + Rtop/Rbot)
FBVDDQ = 0.8V * (1 + 1.24K/1K) = 1.8V
FBVDDQ = 0.8V * (1 + 1.50K/1K) = 2.0V

Shmoo TestPoints

PLACE WITHIN 2cmAREA

PLACE WITHIN 2cmAREA

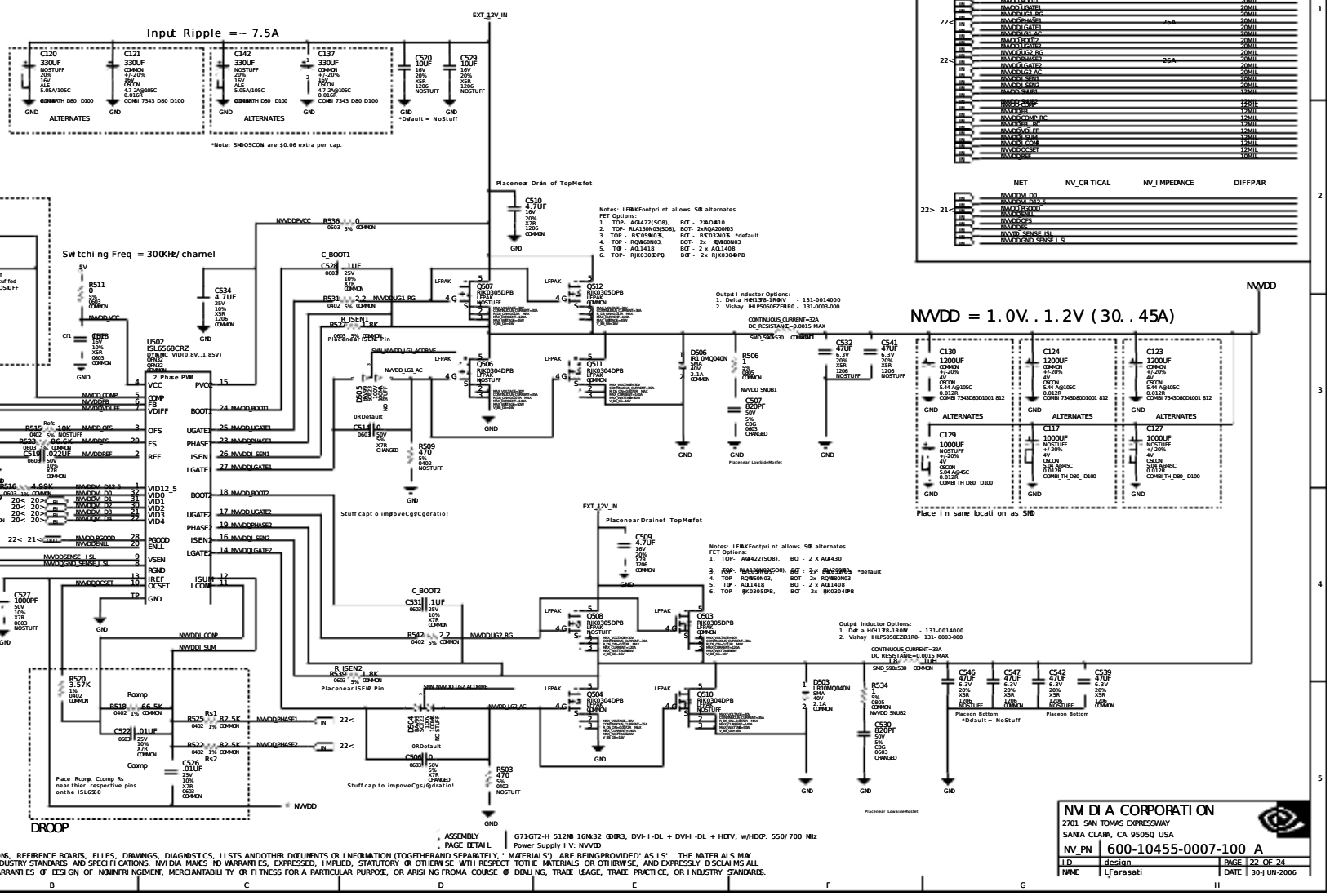
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION ON THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY: G71-GT2-H 512MB 16Mx32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL: Power Supply III: FBVDDQ and PEX_VDD

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

NV_PN	600-10455-0007-100 A		
I.D	design	PAGE	21 OF 24
NAME	L.Farasati	DATE	30-JUN-2006

Page22: Power Supply IV: NVVDD



NVVDD NET RULES

NET	VOLTAGE	MAX_CURRENT	MIN_WIDTH
NVVDD	1.2V	50A	20MIL
NVVDDPWRGD	12V	0.003A	20MIL
NVVDDVCC	5V	0.02A	20MIL
NVVDDVCCIN			20MIL
NVVDDUGATE1			20MIL
NVVDDUG1_RG			20MIL
NVVDDPHASE1		25A	20MIL
NVVDDLGATE1			20MIL
NVVDDLG1_AC			20MIL
NVVDDBOOT2			20MIL
NVVDDUGATE2			20MIL
NVVDDUG2_RG			20MIL
NVVDDPHASE2		25A	20MIL
NVVDDLGATE2			20MIL
NVVDDLG2_AC			20MIL
NVVDDI_SEN1			20MIL
NVVDDI_SEN2			20MIL
NVVDDVSEN			12MIL
NVVDDCOMP			12MIL
NVVDDFB			12MIL
NVVDDCOMP_RC			12MIL
NVVDDFB_RC			12MIL
NVVDDVDIFF			12MIL
NVVDDLG_ISL			12MIL
NVVDDI_COMP			12MIL
NVVDDOCSET			12MIL
NVVDDIREF			10MIL

NET	NV_CRITICAL	NV_IMPEDANCE	DIFFPAIR
NVVDDVID_D12.5			
NVVDDPWRGOOD			
NVVDDENL			
NVVDDOFS			
NVVDDOS			
NVVDDSENSE_ISL			
NVVDDGNDSENSE_ISL			

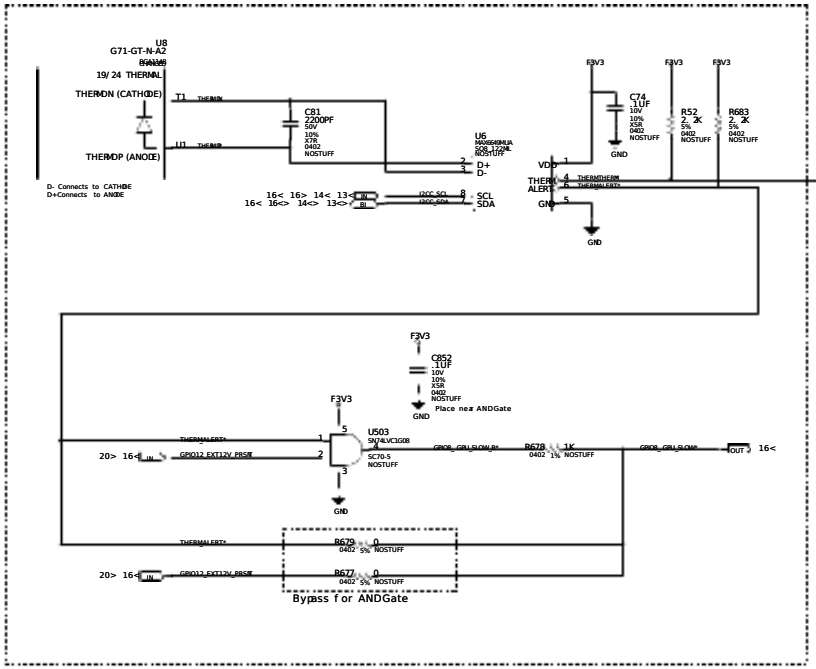
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION ON THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

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

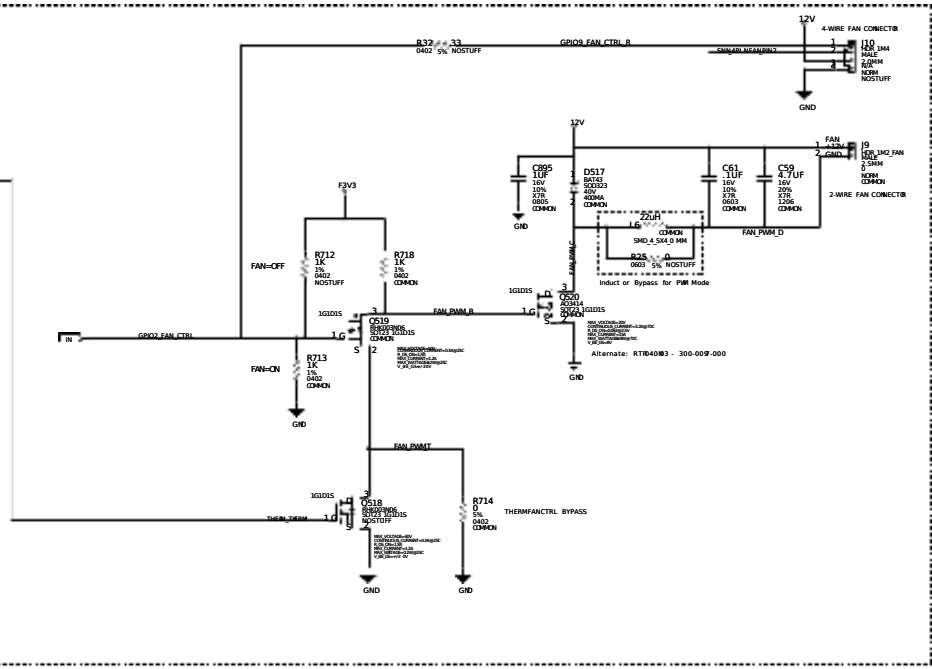
NV_PN	600-10455-0007-100 A		
I.D	design	PAGE	22 OF 24
NAME	LFarasati	DATE	30-JUN-2006

Page23: Thermal Diode, Fan Control

EXTERNAL THERMAL DIODE



FAN CONTROL



NET	NV_CRITICAL	NV_IMPEDANCE	DIFFPAIR
FAN_PWM_B			
FAN_PWM_C			
FAN_PWM_D			
FAN_PWM_T			
THERMTHERM			
THERMALERT*			
GPIO8_GPU_SLOWDN*			

NET	MIN_WIDTH
THERMDN	10MIL
THERMDP	10MIL

ASSEMBLY: G71-GT2-H 512MB 16M-32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL: Thermal Diode, Fan Control

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (COLLECTIVELY AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION ON THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

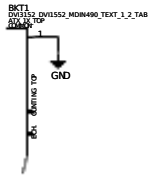
NVIDIA CORPORATION
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050 USA

NV_PN	600-10455-0007-100 A		
I.D.	design	PAGE	23 OF 24
NAME	L.Farasati	DATE	30-JUN-2006

Page24: Mechanical: Bracket/Thermal Solution

Brackets:

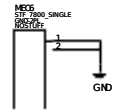
151-10001-0006-000 DVI, DVI, MDIN (text - 1-South, 2-North)
151-10001-0006-002 DVI, DB15, MDIN



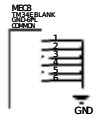
Connector Screws

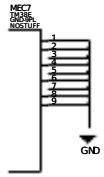
Bracket Screw

Stiffener for WS SKUs

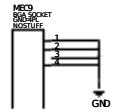


Heatsink





BGA Socket



ASSEMBLY | G73:GT2-H 512M8 16Mx32 GDDR3, DVI-I-DL + DVI-I-DL + HDTV, w/HDCP. 550/700 MHz
PAGE DETAIL | Mechanical : Bracket/Thermal Solution

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION THE WARRANTIES OF DESIGN OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

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

NV_PN	600-10455-0007-100 A		
ID	design	PAGE	24 OF 24
NAME	LFarasati	DATE	30-JUN2006