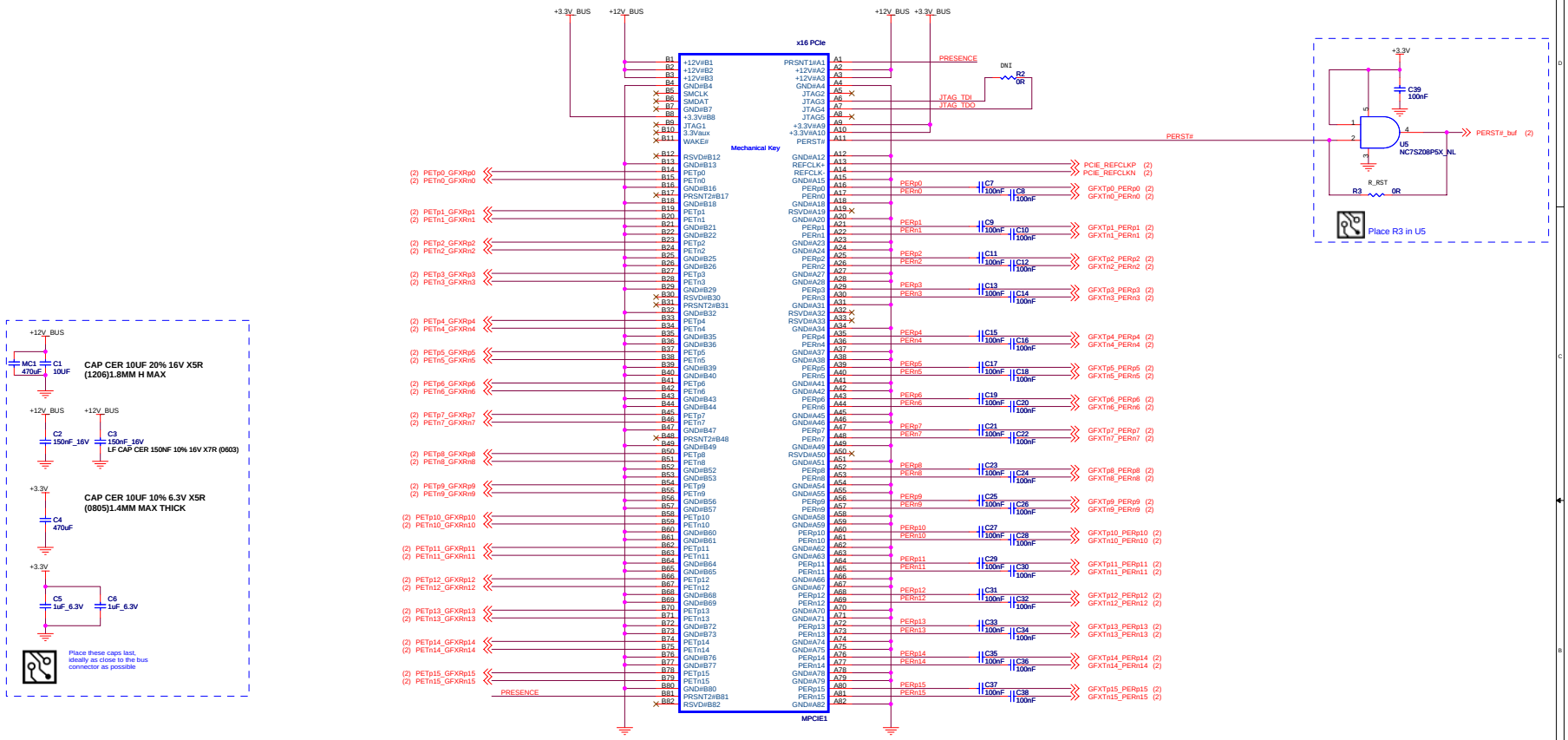
PCI-EXPRESS EDGE CONNECTOR



SYMBOL LEGEND

DNI	DO NOT INSTALL
#	ACTIVE LOW
	DIGITAL GROUND
	ANALOG GROUND

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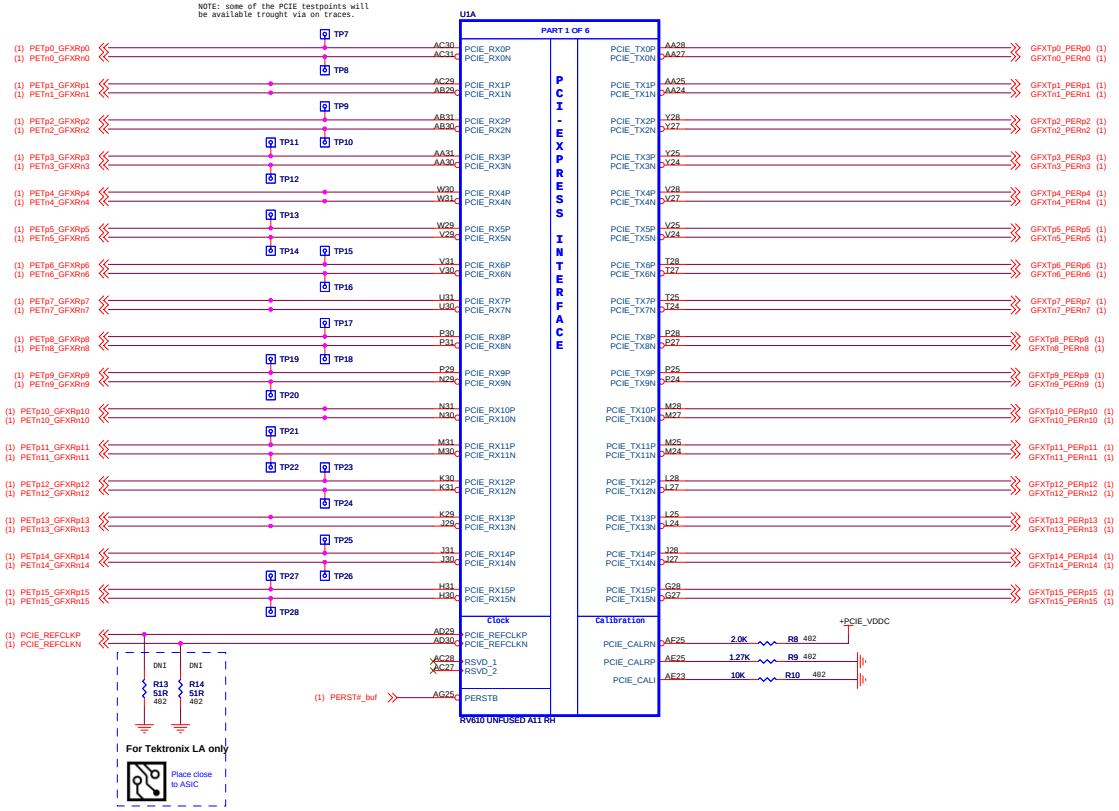
Size: C	Document Number: 105-B169xx-00A	Rev: 32
Date: Tuesday, July 10, 2007	Sheet 1 of 19	



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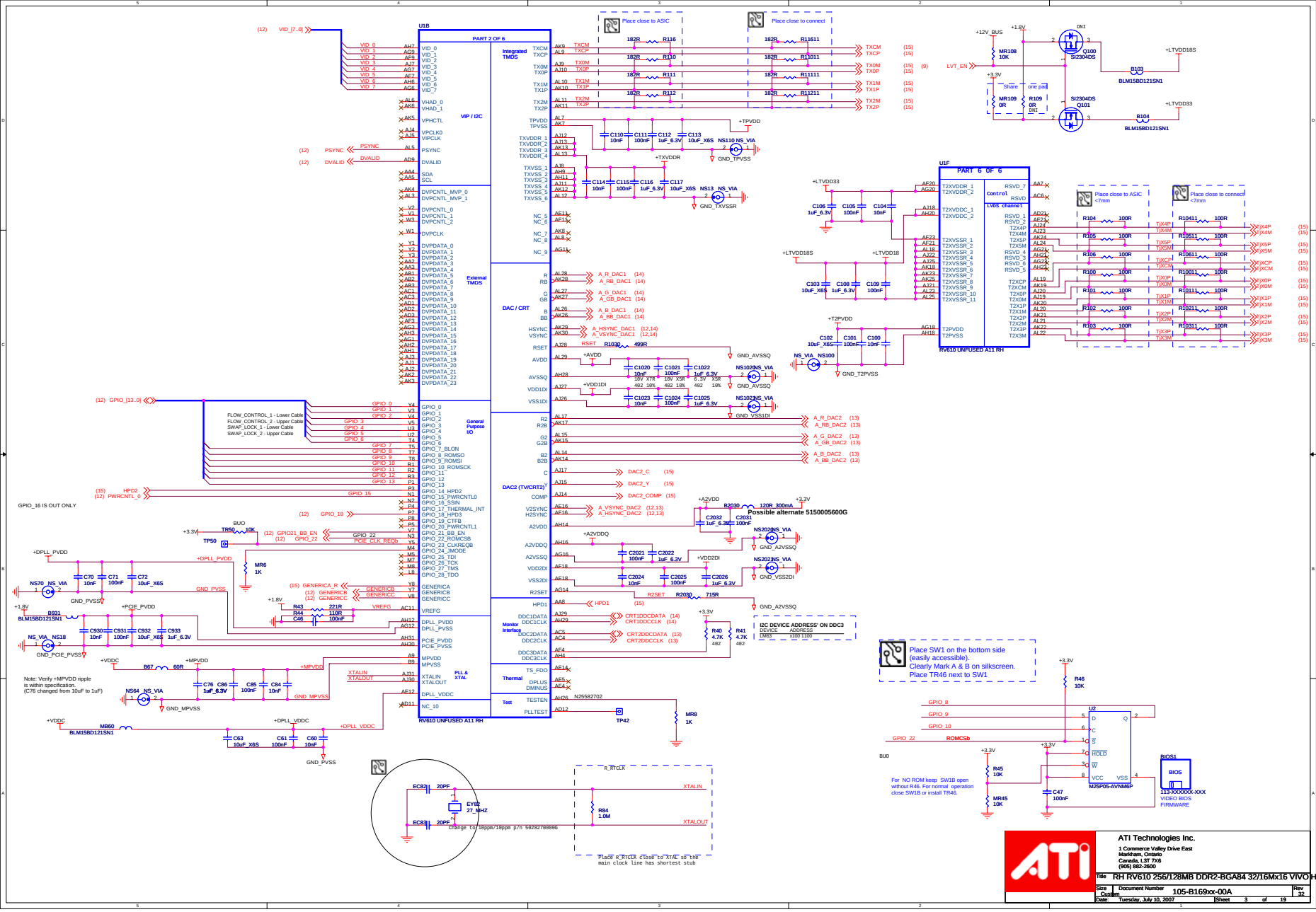
Title: RH RV610 256/128MB DDR2-BGA84 32/16Mx16 VIVO HDMI(VGA) dDVI

Size	Document Number	Rev
C	105-B169xx-00A	32

Date: Tuesday, July 10, 2007 Sheet 2 of 19


U1B
PART 2 OF 6
VIP / I2C
External TMDS
DAC / CRT
DAC2 (TVCRT2)
Integrated TMDS
General Pupose I/O
Monitor Interface
Thermal
Test
PLL & XTAL
RV610 UNFUSED A11 RH
U1F
PART 6 OF 6
Control
LVDS channel
RV610 UNFUSED A11 RH
Place close to ASIC
Place close to connect
Place close to ASIC <7mm
Place close to connect <7mm
Possible alternate 5150005600G
I2C DEVICE ADDRESS' ON DDC3
Place SW1 on the bottom side (easily accessible).
Clearly Mark A & B on silkscreen.
Place TR46 next to SW1
For NO ROM keep SW1B open without R46. For normal operation close SW1B or install TR46.
Place R_RTCLK close to XTAL so the main clock line has shortest stub
Change to 18ppm/18ppm p/n 58282700006
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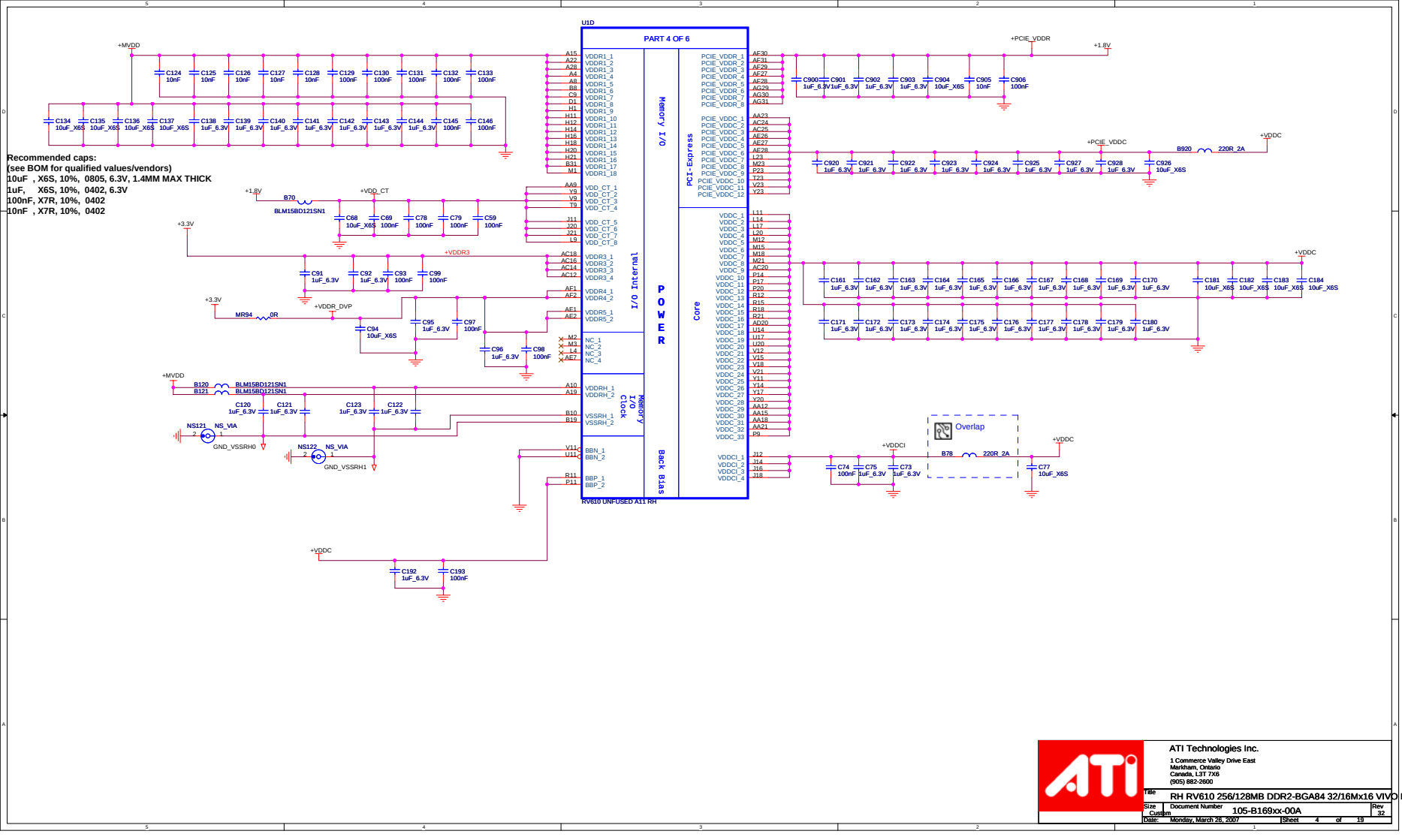
105-B169xx-00A
Tuesday, July 10, 2007
Sheet 3 of 19



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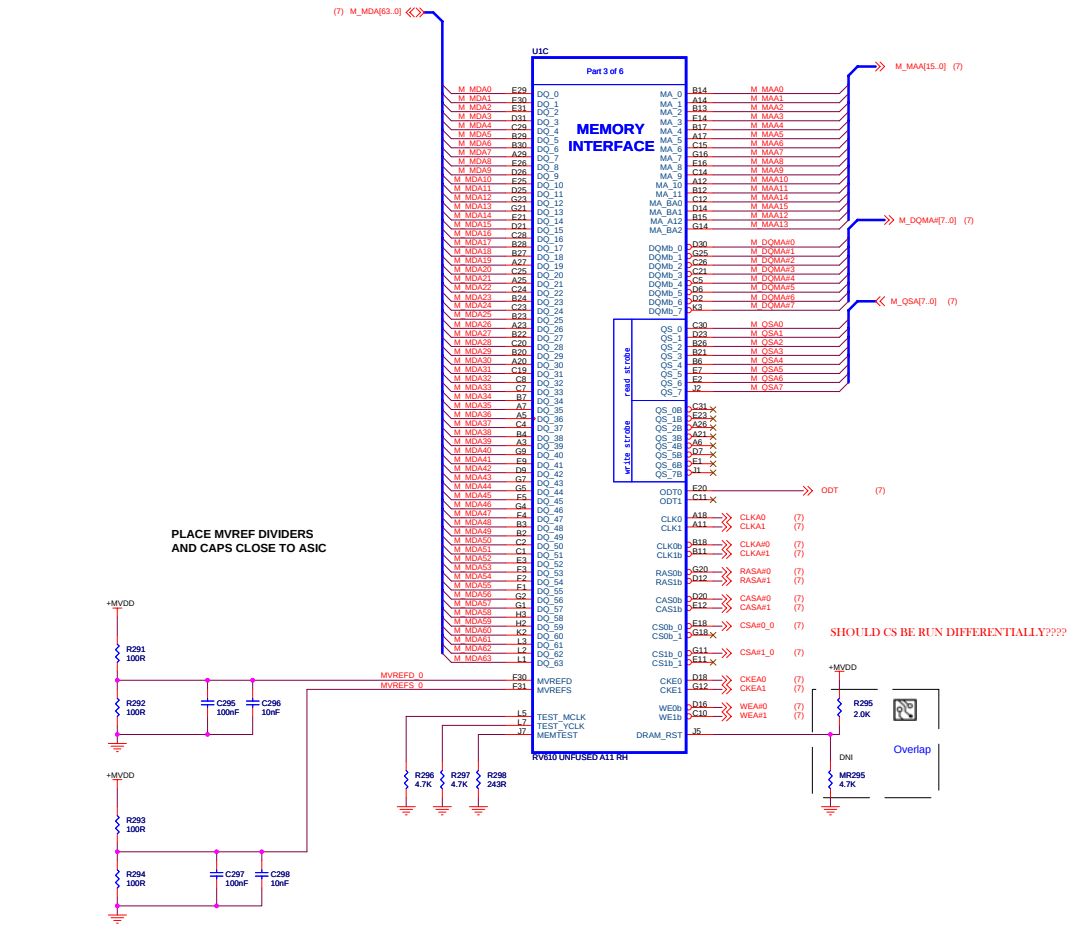
Title	RH RV610 256/128MB DDR2-BGA84 32/16Mx16 VIVO HDMI(VGA) dDVI	
Size: Custom	Document Number: 105-B169xx-00A	Rev: 32
Date: Monday, March 26, 2007	Sheet 4 of 19	



DIVIDER RESISTORS	DDR2	GDDR3
MVREF TO 1.8V	100R	40.2R
MVREF TO GND	100R	100R

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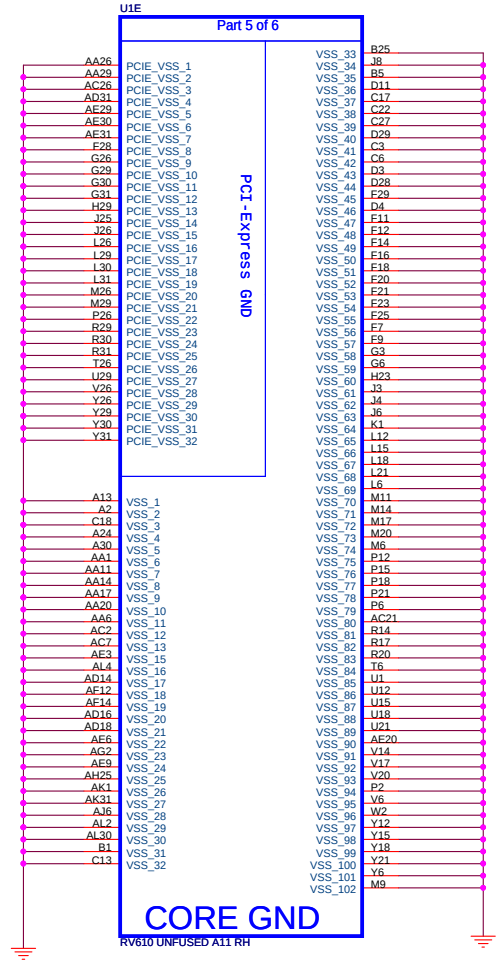
Size	Document Number	Rev
C	105-B169xx-00A	32

Date: Tuesday, July 10, 2007 Sheet 5 of 19



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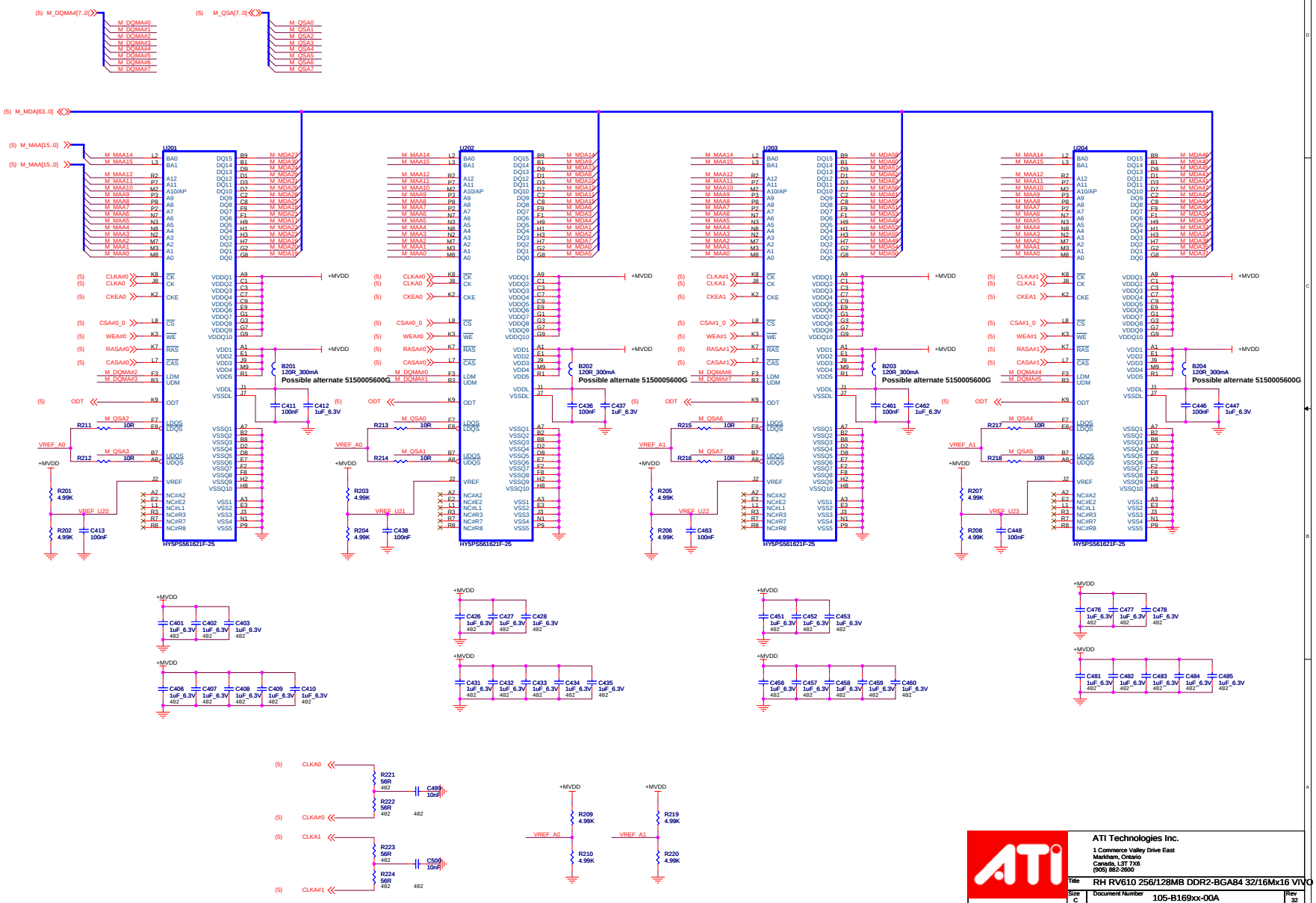
Title: RH RV610 256/128MB DDR2-BGA84 32/16Mx16 VIVO HDMI(VGA) dDVI

Size	Document Number	Rev
B	105-B169xx-00A	32

Date: Monday, March 12, 2007 Sheet 6 of 19

CHANNEL A: RANK 0 128MB DDR2



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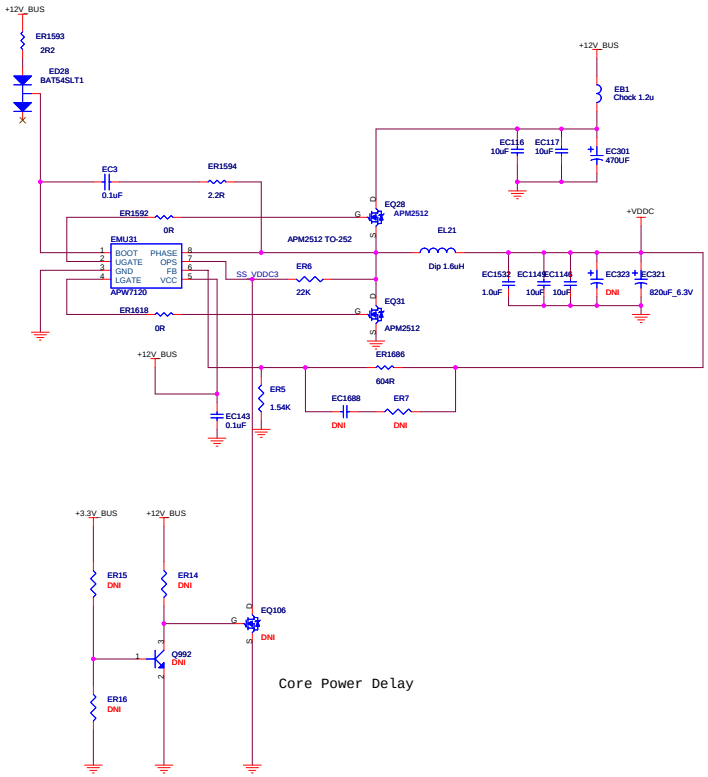
Size C	Document Number 105-B169xx-00A		Rev 32
Date: Tuesday, July 10, 2007		Sheet 7 of 19	

CORE REGULATOR +VDDC



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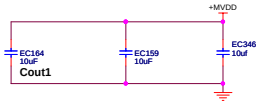
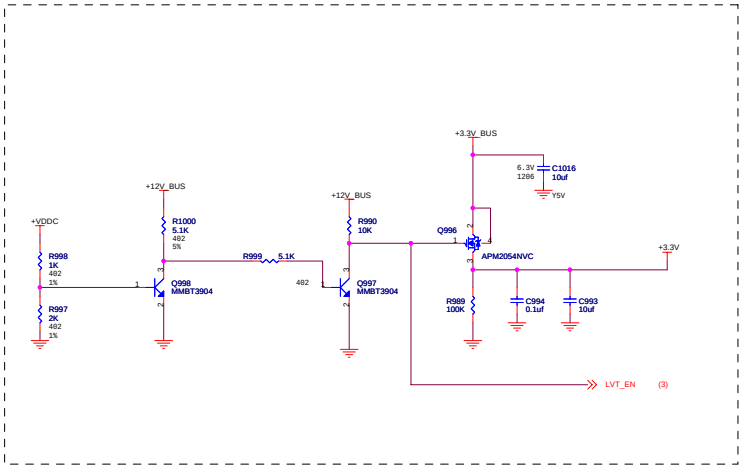
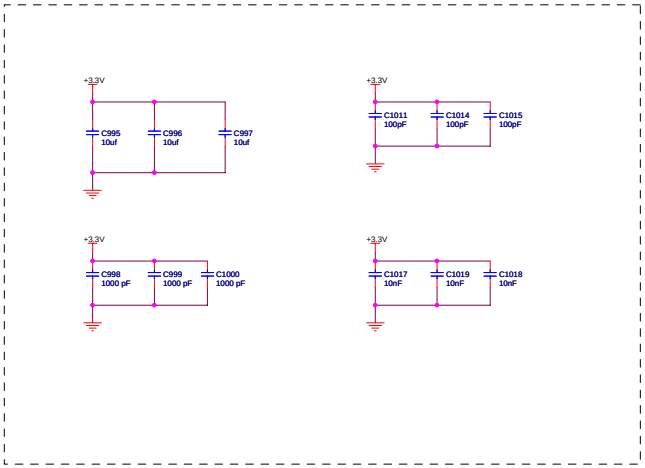
Title: TR RV630 - MVDD SMPS02		
Size: Custom	Document Number: 105-DB047-00A	Rev: 7
Date: Thursday, May 10, 2007	Sheet 8 of 21	







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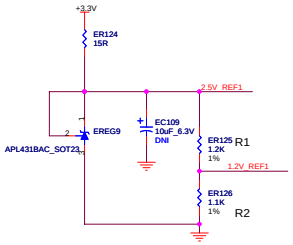
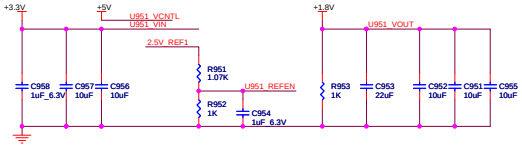
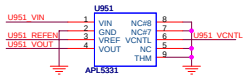
Title: TR RV630 - MVDD SMPS02

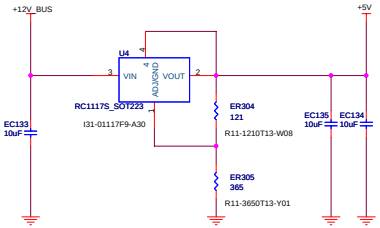
Size	Document Number	Rev
Custom	105-DB047-00A	7

Date: Tuesday, July 10, 2007 Sheet 9 of 21

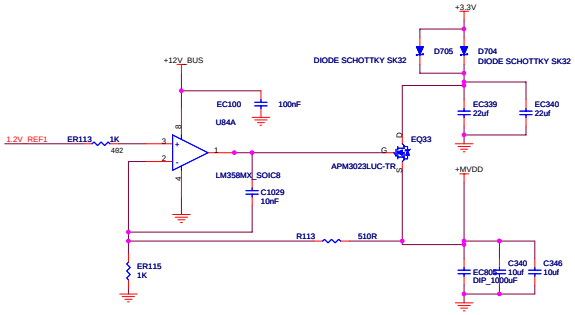




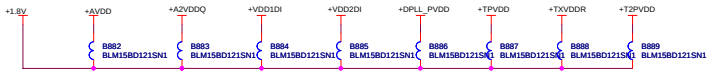




Vout=1.25V* [1+(ER305/ER304)]



Shared Power Rails



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Title	RH RV610 256/128MB DDR2-BGA84 32/16Mx16 VIVO HDMI(VGA) dDVI	
Size: C	Document Number: 105-B169xx-00A	Rev: 32
Date: Thursday, May 10, 2007	Sheet 11 of 19	

PIN BASED STRAPS

GPIO(0) - TX_PWRS_ENB (Transmitter Power Savings Enable) ATI PCIE FEATURE I
0: 50% Tx output swing for mobile mode
1: full Tx output swing (Default setting for Desktop)

GPIO(1) - TX_DEEMPH_EN (Transmitter De-emphasis Enable) ATI PCIE FEATURE II
0: Tx de-emphasis disabled for mobile mode
1: Tx de-emphasis enabled (Default setting for Desktop)

GPIO(3:2) - ATI Internal Use Only - Reserved (Default: 00)

GPIO(4) - DEBUG_ACCESS
ATI Internal Use Only - Reserved (Default: 0)

GPIO(5) - ATI Internal Use Only - Reserved (Default: 0)

GPIO(6) - ATI Internal Use Only - Reserved (Default: 0)

GPIO(7) - TV OUT STANDARD (Jumper position overwrite resistor settings)
0 - PAL TVO (Jumper is closed)
1 - NTSC TVO (Jumper is open)

GPIO(8) - ATI Internal Use Only - Reserved (Default: 0)

GPIO(9,13:11) - CONFIG[3..0] IF BIOS_ROM_EN=1 [default] (GPIO_22)
tmel - AT25F512A (512 kbit)0010
AT25F1024A (1 Mbit)0011
ST Microelectronics- M25P05A (512 kbit) 0100
M25P10A (1 Mbit) 0101
M25P20 (2 Mbit) 0101
Chingis (formerly PMC) -
Pm25LV512 (512 kbit) 0100
Pm25LV010 (1 Mbit) 0101

If BIOS_ROM_EN = 0, then Config[2:0] defines the primary memory aperture size. (Config 3 = don care).
x000 128MB
x001 256MB
x010 64MB
x011 32MB
x100 512MB
x101 1GB
x110 2GB
x111 4GB

GENERICC, GENERICB - ATI Internal Use Only - Reserved (Default: 0)

VSYNC - VIP_DEVICE_STRAP_EN
0: Slave VIP host port devices present (use if Theater is populated)
1: No slave VIP host port devices reporting presence during reset (use for configurations without video-in)

HSYNC - ATI Internal Use Only - Reserved (Default 0)

PSYNC - VGA DISABLE : 1 for disable (set to 0 for normal operation)

GPIO_21 - ATI Internal Use Only - Reserved (Default: 0)

VID_0 - ATI Internal Use Only - Reserved (Default: 0)

VID_1 - MSI_DIS (Default: 0)

VID_2 - ATI Internal Use Only - Reserved (Default: 0)

VID_3 - BIF_AUDIO_EN
0 - Disable HD Audio 1- Enable HD Audio

VID_4 - ATI Internal Use Only - Reserved (Default: 0)

VID_5 - 64BAR_EN_A (Default: 0)
Enable 64-bit BARS

VID_6:7 - ATI Internal Use Only - Reserved (Default: 00)

VSYNC - MEMORY CONFIG ATI Board Feature I
0 = single rank memory, 1 = dual rank memory

HSYNC2 - ATI Internal Use Only - Reserved (Default: 0)

BIF_CLK_PM_EN
0 - Disable CLKREQ# power management capability
1 - Enable CLKREQ# power management capability

GPIO_15 - FOR FUTURE EXPANSION

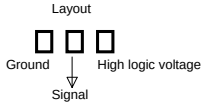
GPIO_22_ROMCSb - Enable external BIOS ROM device (Default 1)

GPIO_18 - MEMORY CONFIG BANK SELECT
0 - 4 BANKS, 1 - 8 BANKS

Pull-Down Resistors are for BU until built-in pull-downs are verified.

Overlap pads to save space and to prevent assembly of both resistors.

Layout



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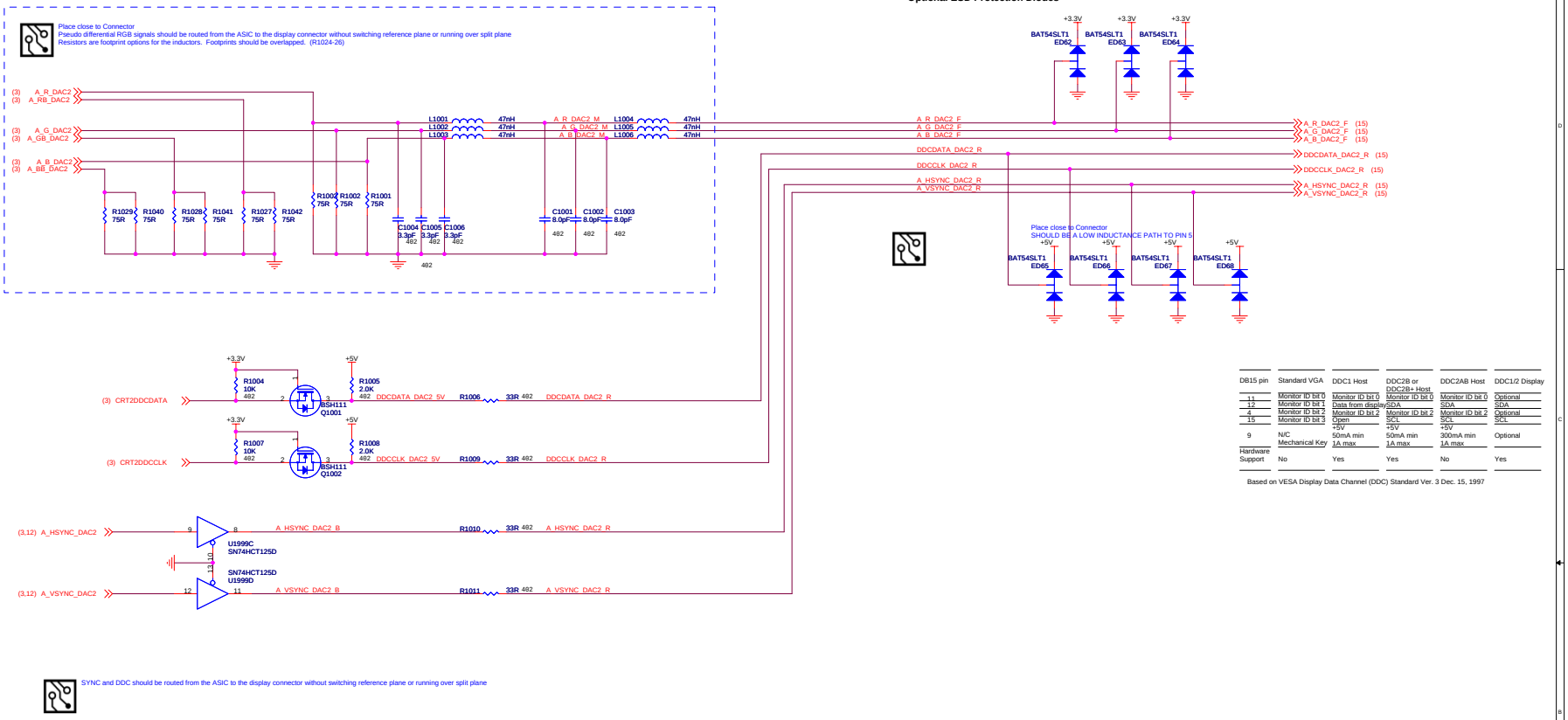
Size: Custom	Document Number: 105-B169xx-00A	Rev: 32
Date: Tuesday, July 10, 2007	Sheet 12 of 19	

Optional ESD Protection Diodes



DB15 pin	Standard VGA	DDC1 Host	DDC2B or DDC2B+ Host	DDC2AB Host	DDC1/2 Display
11	Monitor ID bit 0	Monitor ID bit 0	Monitor ID bit 0	Monitor ID bit 0	Optional
12	Monitor ID bit 1	Data from display	SDA	SDA	SDA
4	Monitor ID bit 2	Monitor ID bit 2	Monitor ID bit 2	Monitor ID bit 2	Optional
15	Monitor ID bit 3	Open	SCL	SCL	SCL
9	N/C	+5V 50mA min	+5V 50mA min	+5V 300mA min	Optional
Hardware Support	Mechanical Key	1A max	1A max	1A max	
	No	Yes	Yes	No	Yes

Based on VESA Display Data Channel (DDC) Standard Ver. 3 Dec. 15, 1997

SYNC and DDC should be routed from the ASIC to the display connector without switching reference plane or running over split plane

TMDS_2(Daul_Link) + DAC_1-CRT

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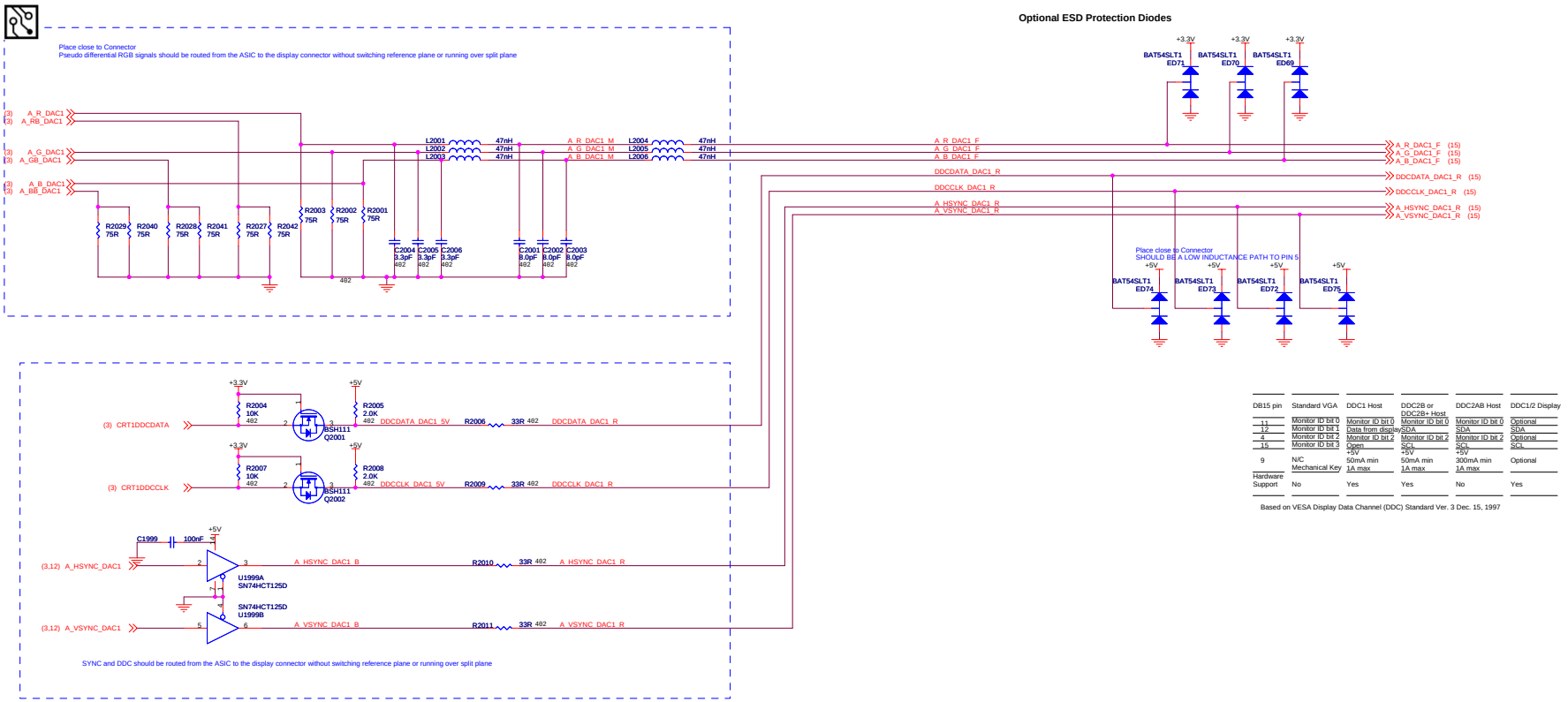
Size	Document Number	Rev
Custom	105-B169xx-00A	32

Date: Tuesday, July 10, 2007 Sheet 13 of 19



DB15 pin	Standard VGA	DDC1 Host	DDC2B or DDC2B+ Host	DDC2AB Host	DDC1/2 Display
11	Monitor ID bit 0	Monitor ID bit 0	Monitor ID bit 0	Monitor ID bit 0	Optional
12	Monitor ID bit 1	Data from display	SDA	SDA	SDA
4	Monitor ID bit 2	Monitor ID bit 2	Monitor ID bit 2	Monitor ID bit 2	Optional
15	Monitor ID bit 3	Open	SCL	SCL	SCL
9	N/C Mechanical Key	+5V 50mA min 1A max	+5V 50mA min 1A max	+5V 300mA min 1A max	Optional
Hardware Support	No	Yes	Yes	No	Yes

Based on VESA Display Data Channel (DDC) Standard Ver. 3 Dec. 15, 1997

Very important to meet HDMI compliance requirements
Capacitance of SDADDC_HDMI & SCLDDC_HDMI nets to Power/GND planes must be less than 50pF (try to make it lower)

55mA current limited +5V rail

TMDS_1(Single_Link) + DAC_2-CRT

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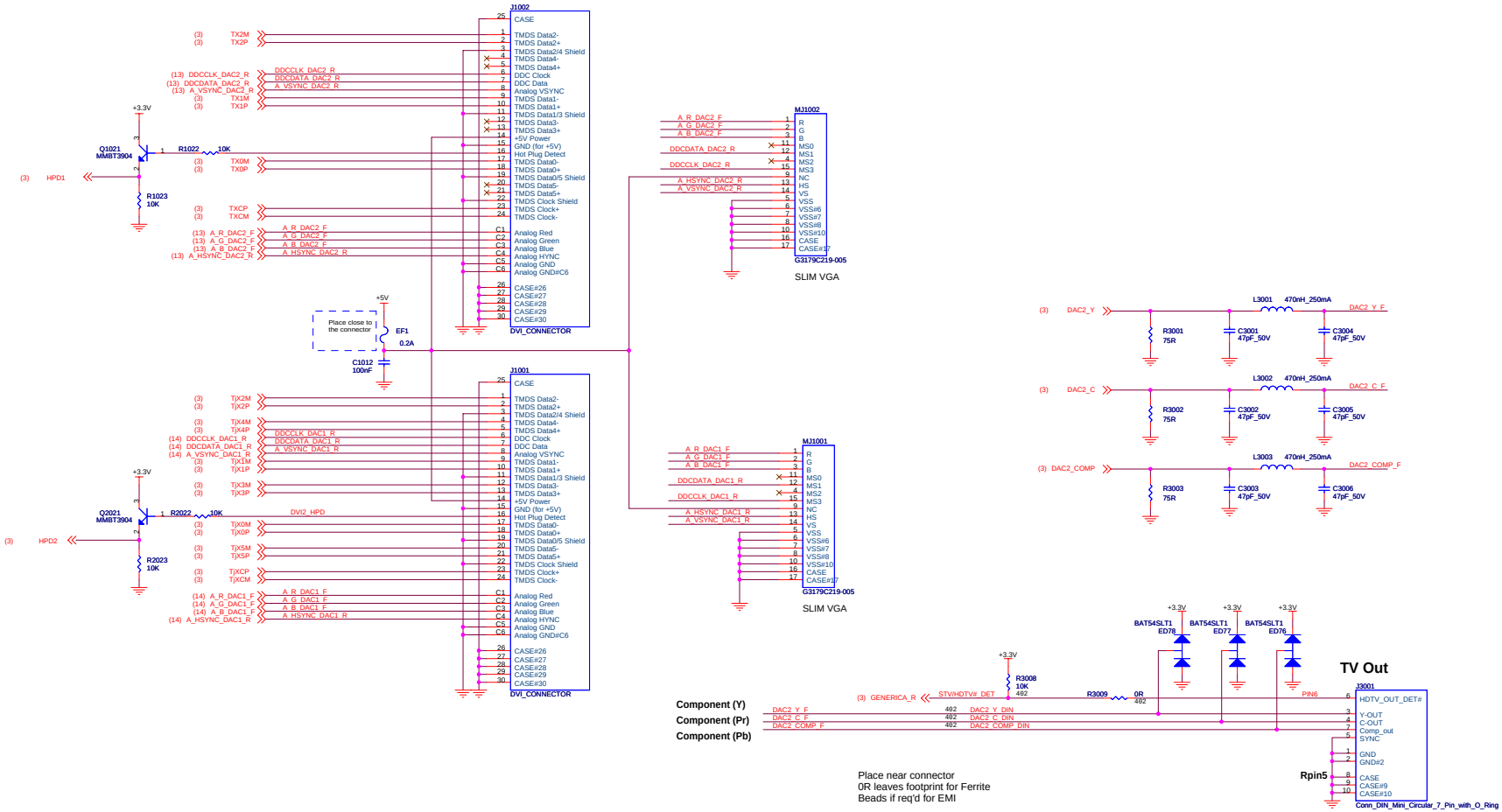
Size	Document Number	Rev
Custom	105-B169xx-00A	32

Date: Tuesday, July 10, 2007 Sheet 14 of 19



The 7-pin MiniDIN footprint allows one of the two MiniDINs:
- 7-pin Svideo/Composite MiniDIN P/N 6071001500G
- 4-pin Svideo MiniDIN P/N 6070001000G

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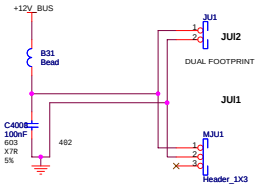
Size	Document Number	Rev
C	105-B169xx-00A	32

Date: Tuesday, July 10, 2007 Sheet 15 of 19



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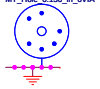
Size	Document Number	Rev
C	105-B169xx-00A	32

Date: Monday, March 12, 2007 Sheet 16 of 19

DVI/VGA SCREWS

MT2
MT_Hole_0.136_in_6VIA



FM1
SW_FB

FM2
SW_FB

FM3
SW_FB

FM4
SW_FB

FM5
SW_FB

FM6
SW_FB

ASSY3

BRACKET

802004010OG

80200439A0G (DVI+HDMI+DIN)

<Variant Name>

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Size	Document Number	Rev
C	105-B169xx-00A	32

Date: Wednesday, July 04, 2007 Sheet 17 of 19

<Variant Name>

Title

RH RV610 256/128MB DDR2-BGA84 32/16Mx16 VIVO HDMI(VGA)-DVI

Schematic No. 105-B169xx-00A

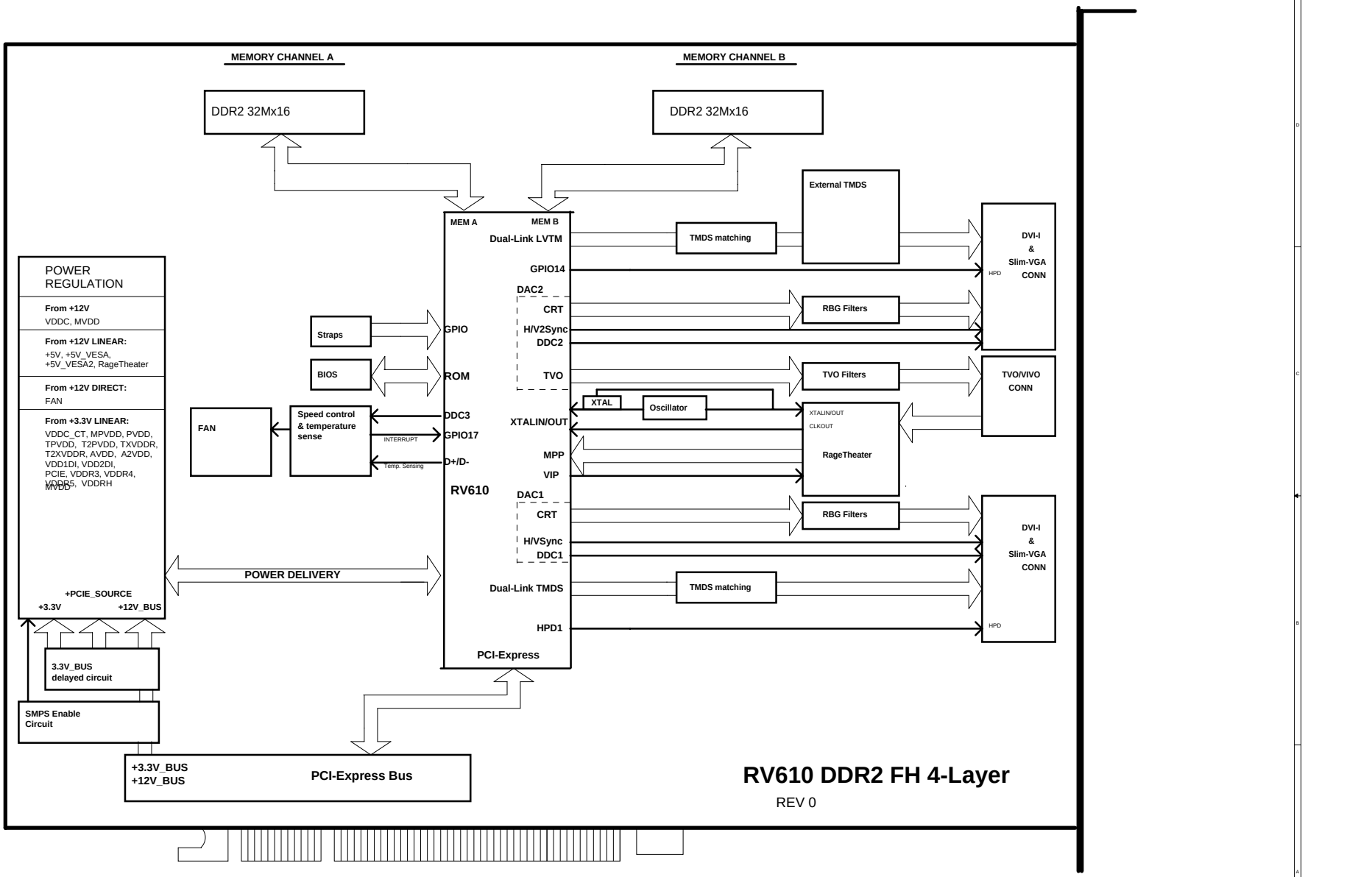
Date: **Thursday, March 01, 2007**

REVISION HISTORY

NOTE: **This schematic represents the PCB, it does not represent any specific SKU.**
For Stuffing options (component values, DNI , ? please consult the product specific BOM.
Please contact ATI representative to obtain latest BOM closest to the application desired.

Rev 32

Sch Rev	PCB Rev	Date	REVISION DESCRIPTION
		2006.12.01	UPDATE SCHEM. BOM MANAGEMENT.
		2006.12.14	UPDATE SCHEMATIC TO NETLIST WITH NO ERRORS
		2006.12.18	DORINA UPDATE MEM SWAP
		2006.12.19	REMOVE TP ON MEM - TO BE REPLCED BY 0.8MM PADS ON ALL LINES
		2006.12.20	CHANGED B67 to PN 5260014800G AND C76 to PN 4172010500G
0	00A	2006.12.21	J2 REMOVED
		2007.01.15	NC626 removed (VDDC output cap). LDO output resistor (R879, R880) moved closer to LDO. MVDD LDO input resistors changed to 1R. Debug header changed to include Gen1/2 switch. HDMI caps removed. Added thermal shutdown option to power sequencing.
		2007.01.16	REMOVE BACK BIAS, REMOVE MC624
		2007.01.17	REMOVE R5515, R5516, R5521, R5524 REMOVE R94
		2007.01.22	ADDED H3, H4, H5
		2007.01.22	DECAP CHANGES ON PAGE 3
		2007.01.23	HEATSINK GROUNDING ADJUSTED
		2007.01.23	DORINA - HEATSINK GNDING PINS ADJUSTED
		2007.01.24	RM JTAG + SMA CLOCK CONNECTIONS TO EASE LAYOUT CONGESTION
		2007.01.24	ADDED C300, C301, C302 (STITCHING CAPS) TO IMPROVE DDC LINES
		2007.01.24	FIXED ORCAD NETLIST PROBLEM; NO EFFECTIVE CHANGE.
		2007.01.24	ADD Q102 TO SOLVE A11 VDDR3 LEAKAGE PROBLEM.
1	00B	2007.01.25	CHNG REF DES OF VDDR3 LEAKAGE BLOCK TO Q/R-90
2	00C	2007.02.09	PCB mechanical updates only. No Schematic changes.



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Size: C | Document Number: 105-B169xx-00A | Rev: 32
Date: Thursday, March 01, 2007 | Sheet 19 of 19