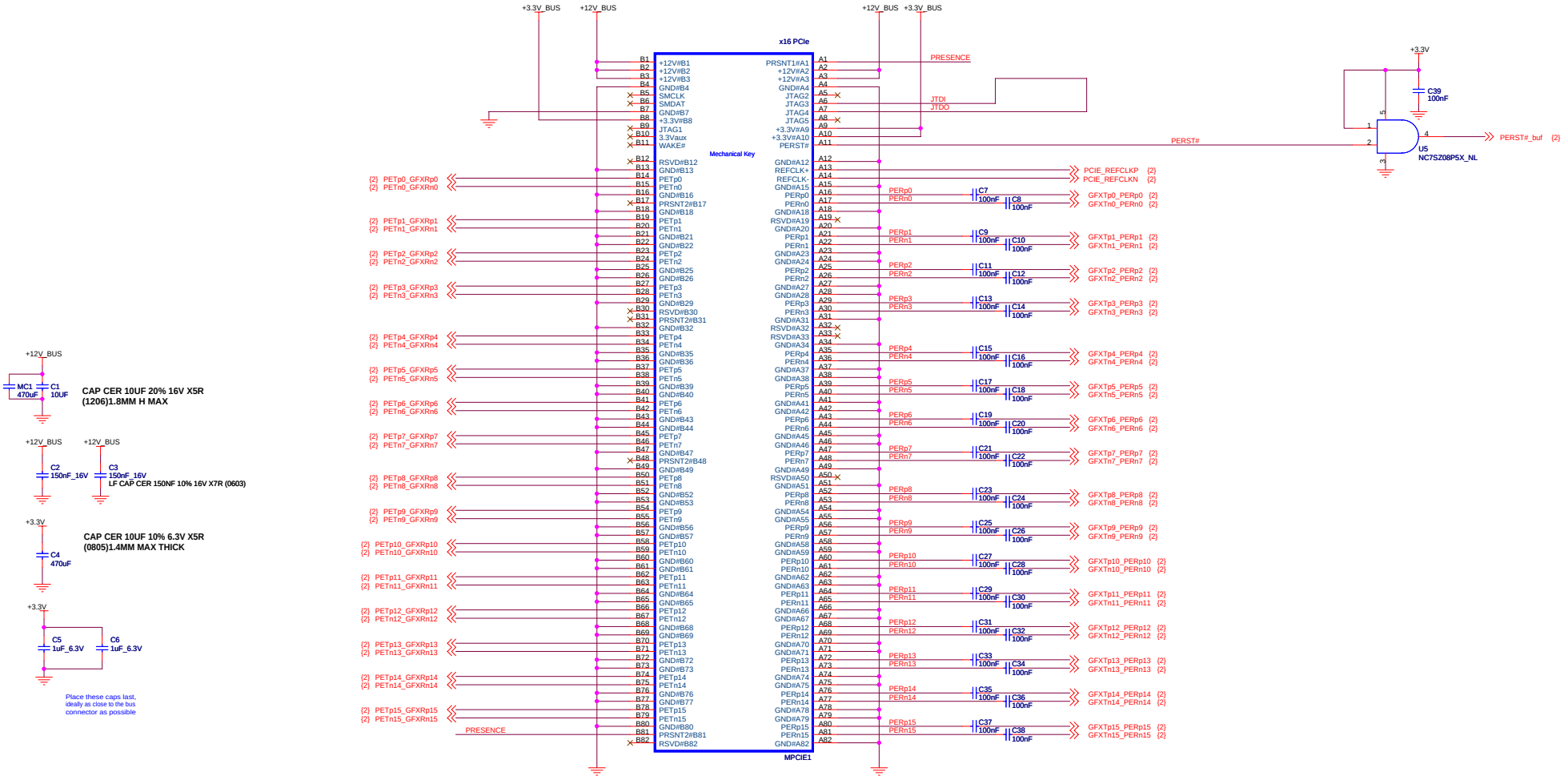
REAL

PCI-EXPRESS EDGE CONNECTOR



SYMBOL LEGEND

DNI	DO NOT INSTALL
#	ACTIVE LOW
	DIGITAL GROUND
	ANALOG GROUND

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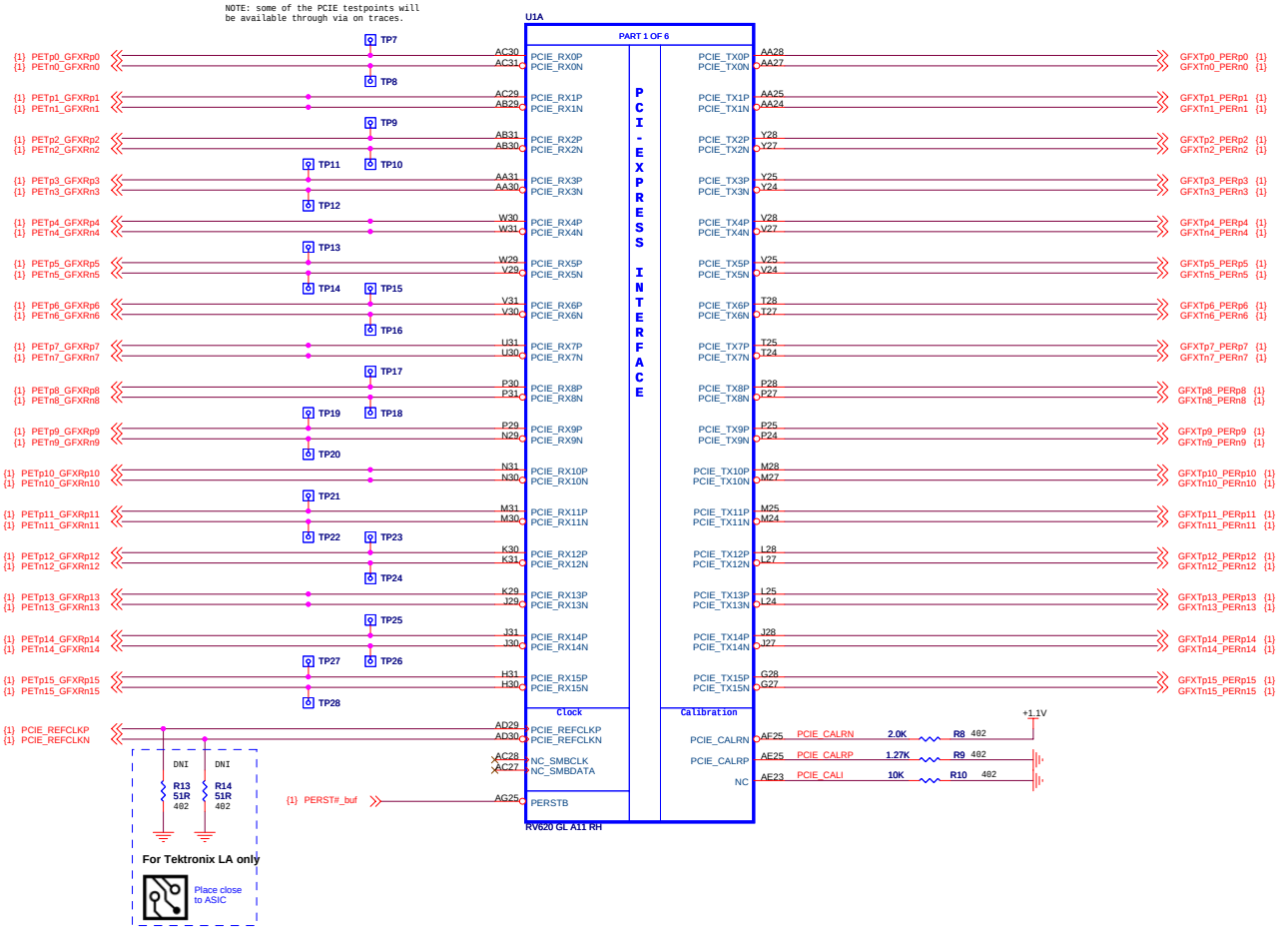
Title	RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dDVI
Doc No.	105-B350xx-00C



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Title RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dDVI

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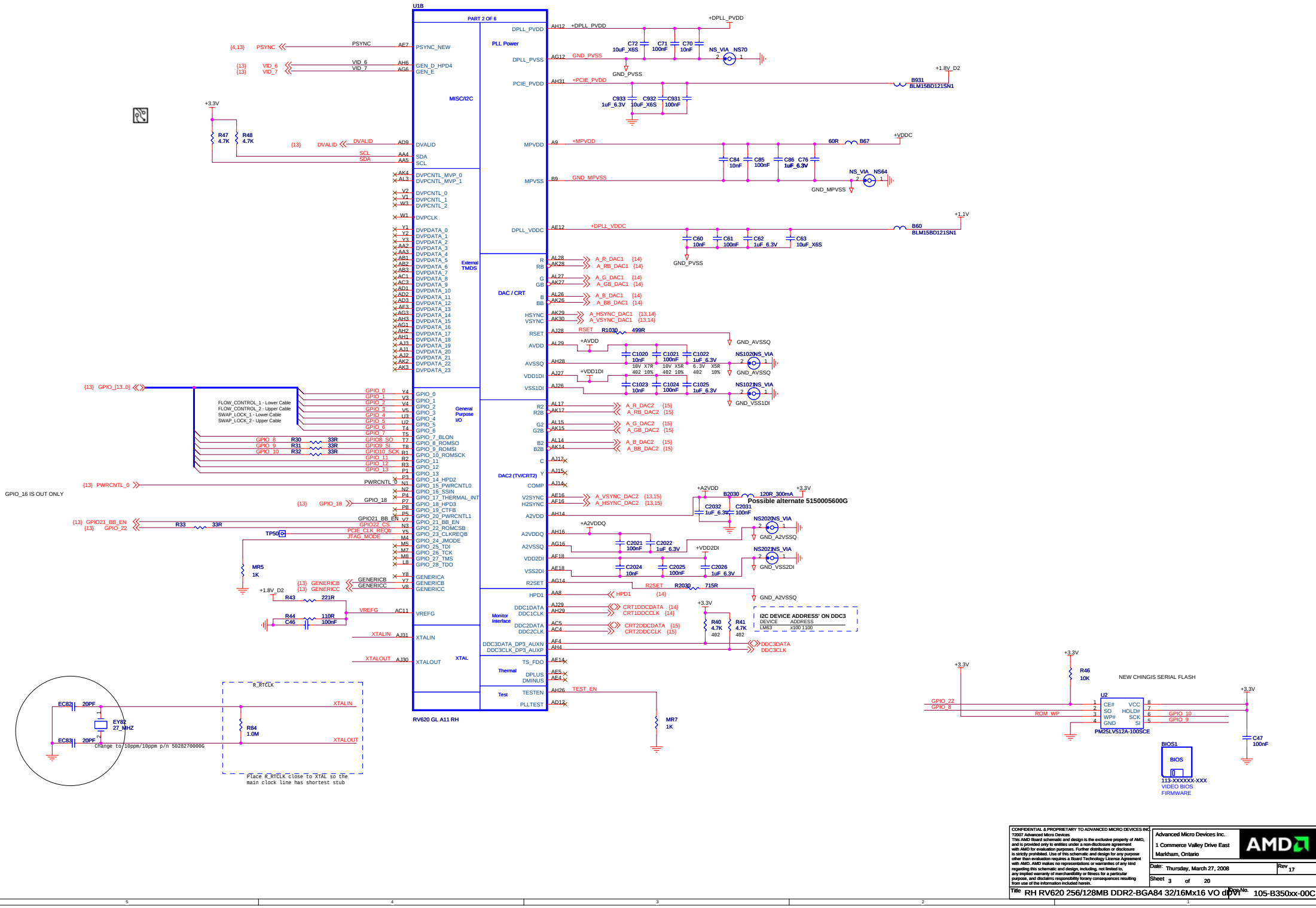

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Title RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dpvi

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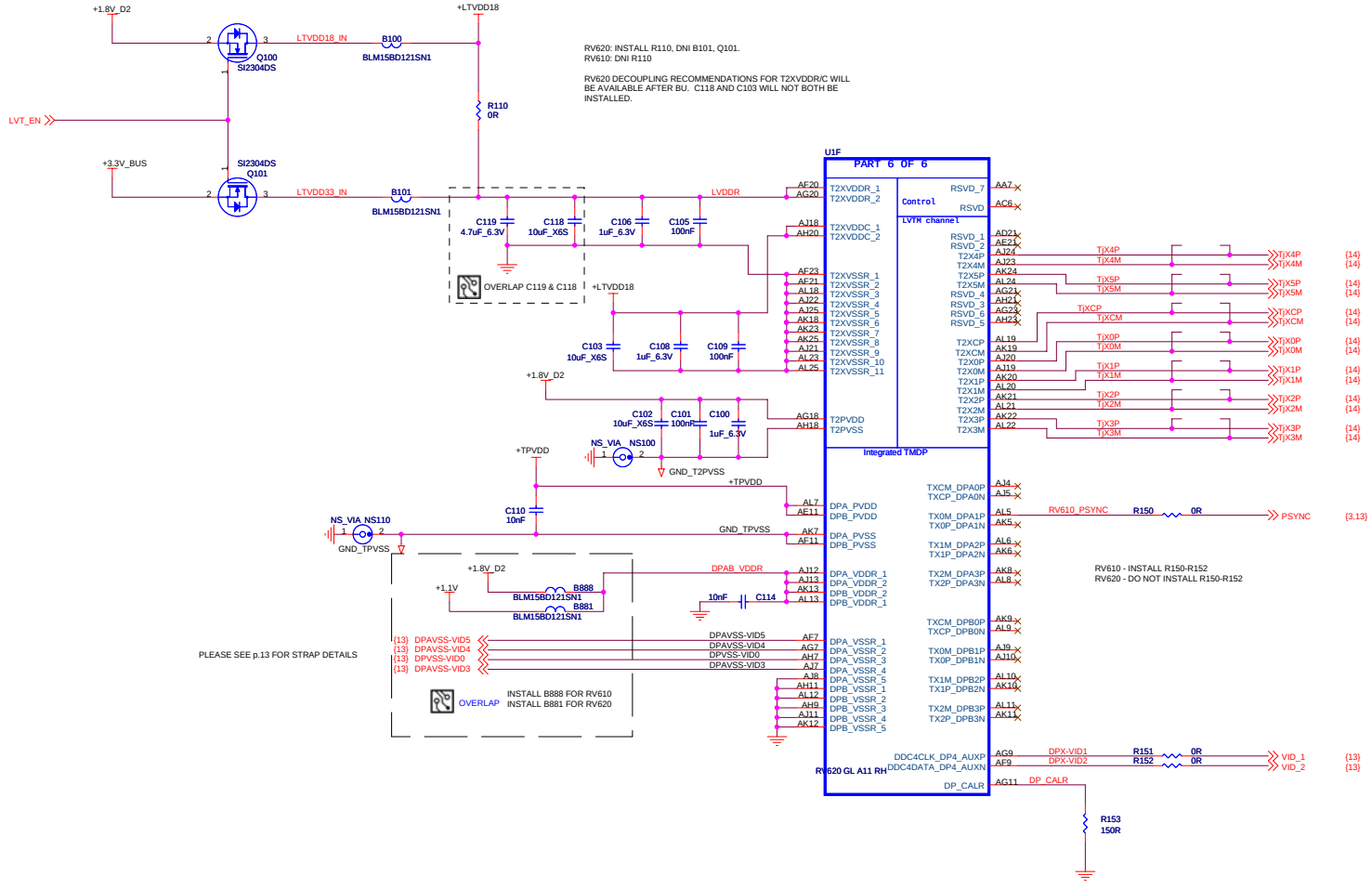

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Title	RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dDVI
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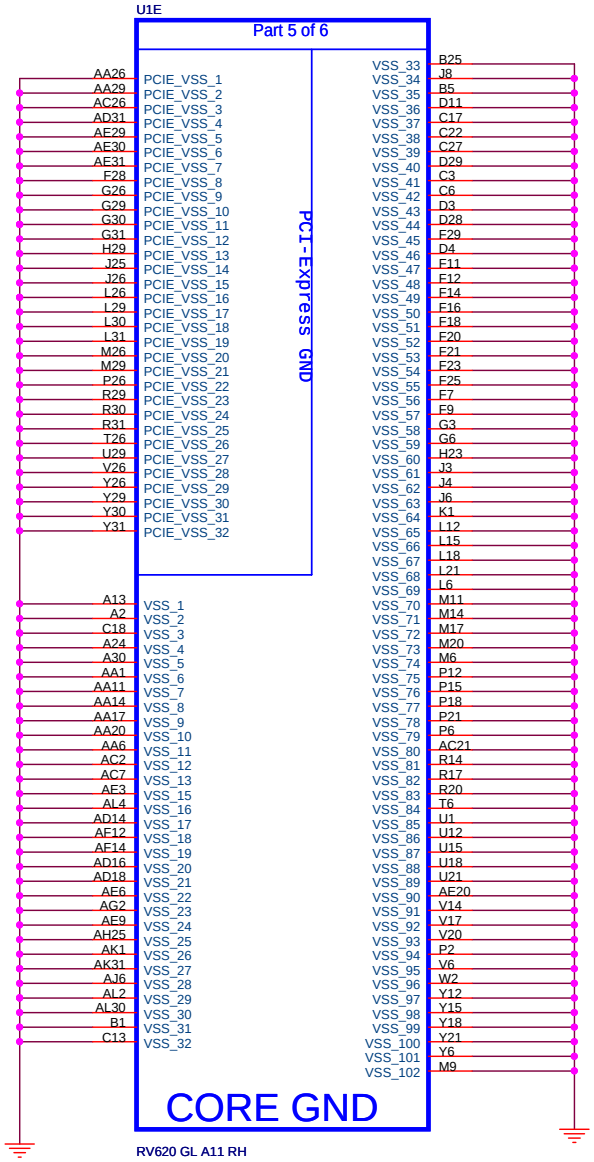

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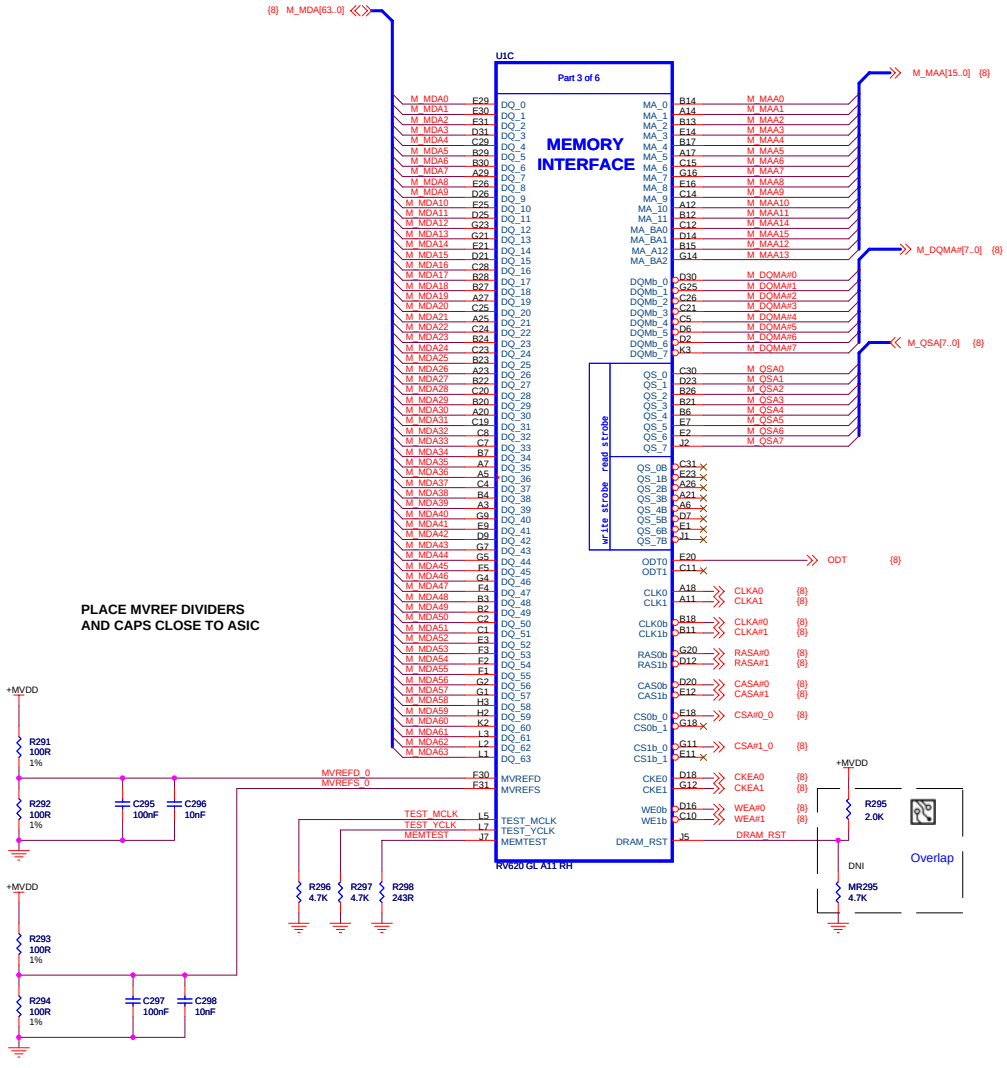
Title RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dDVI Doc No. 105-B350xx-00C



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

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Title RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dDVI

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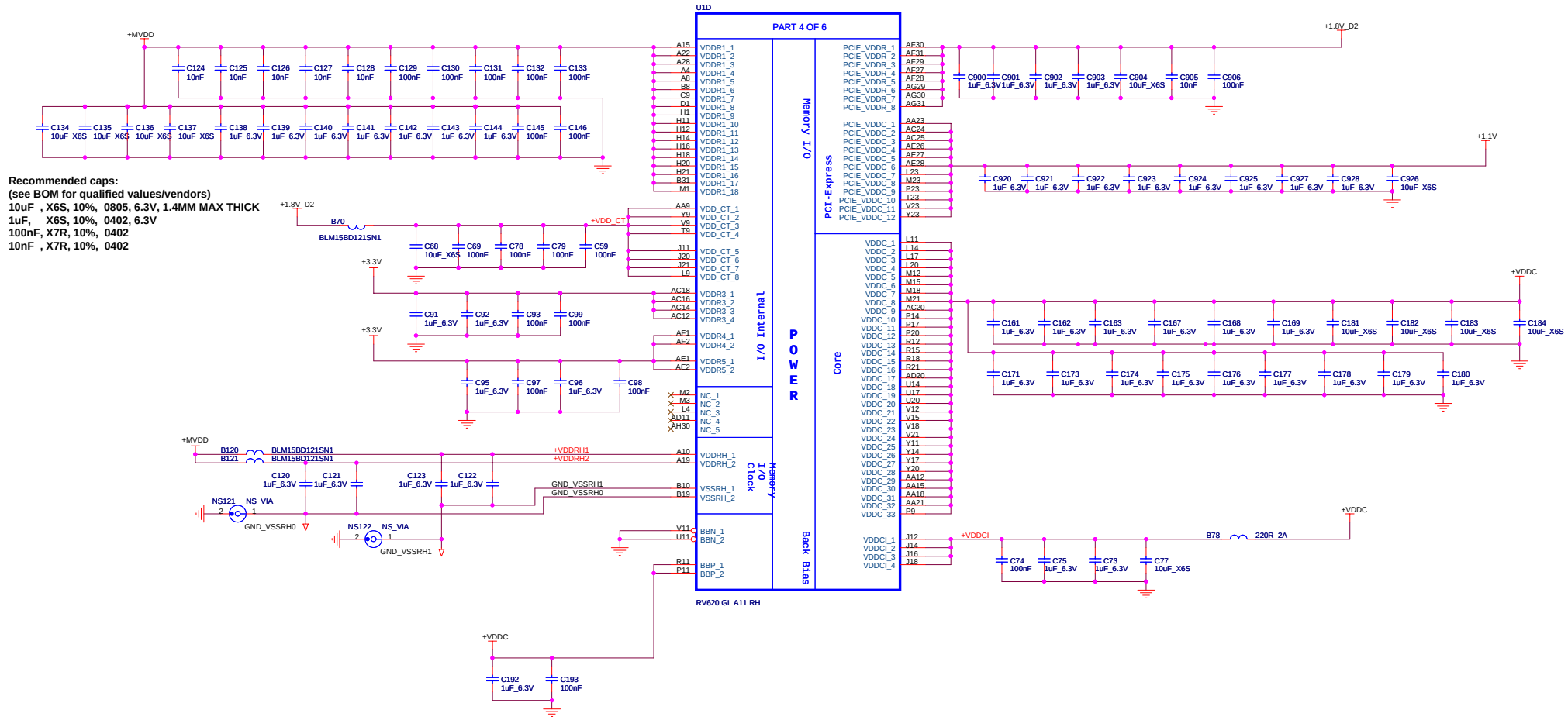

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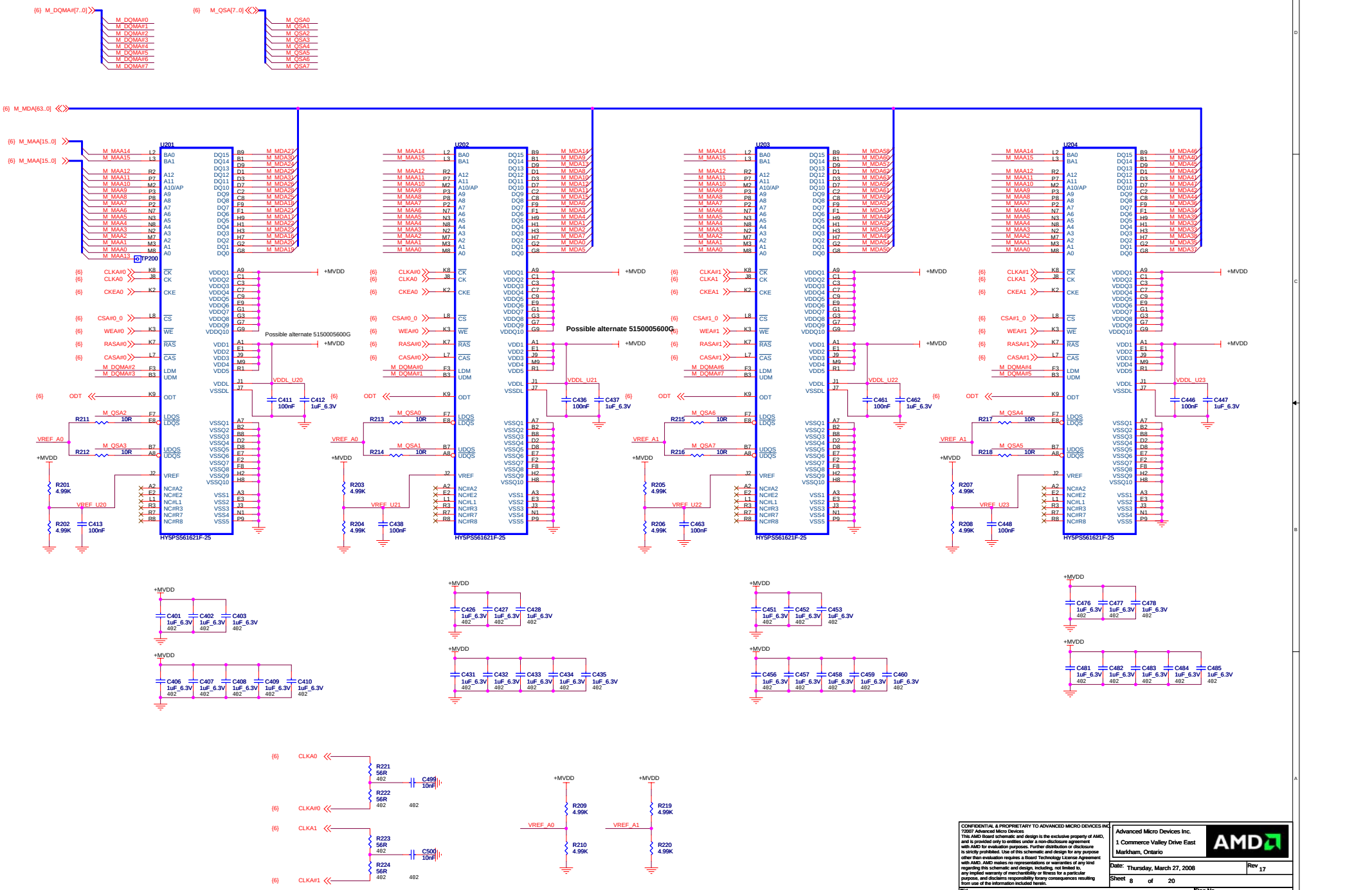
Title RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dDVI Doc No. 105-B350xx-00C

CHANNEL A: RANK 0 128MB DDR2



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Title	RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dDVI
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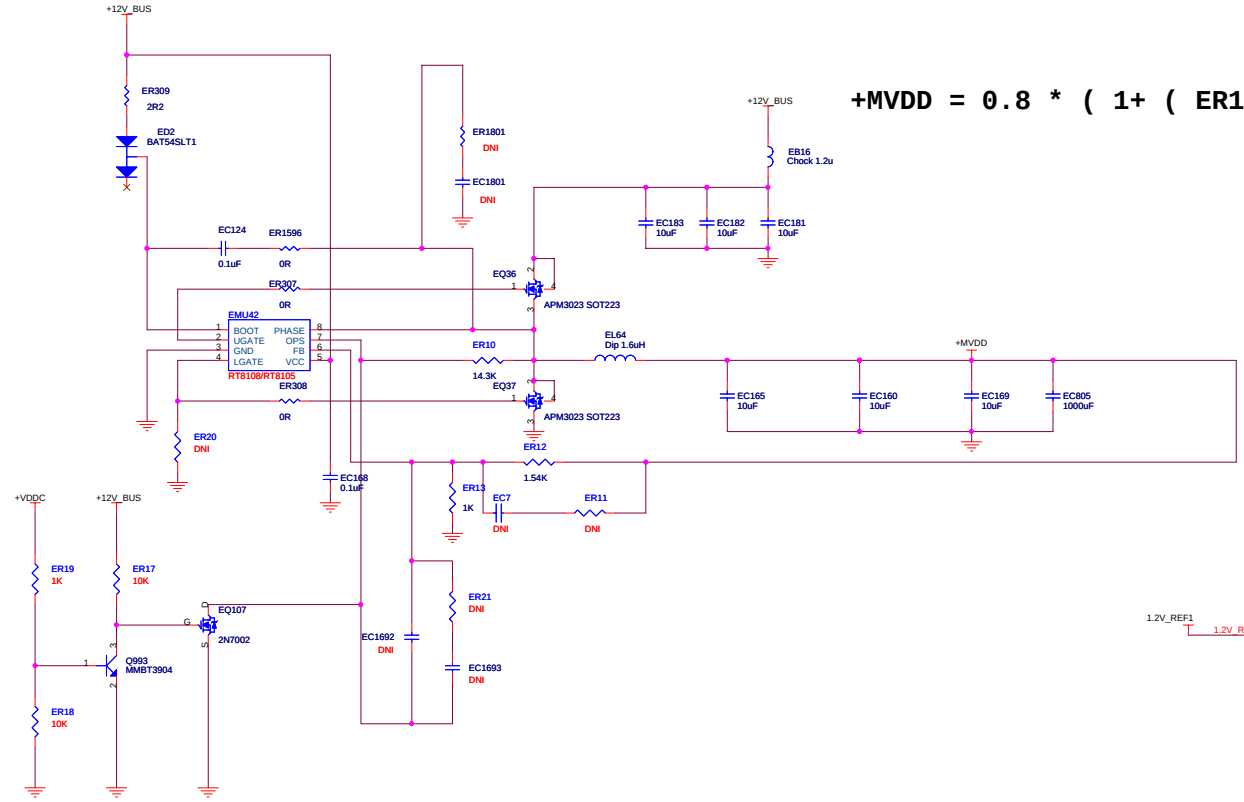
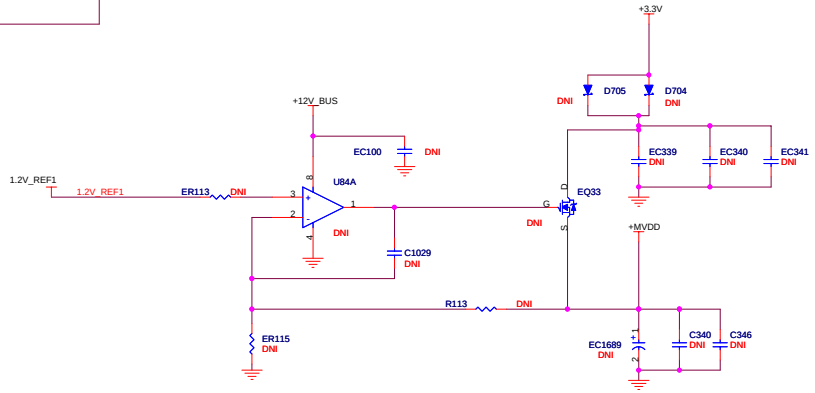
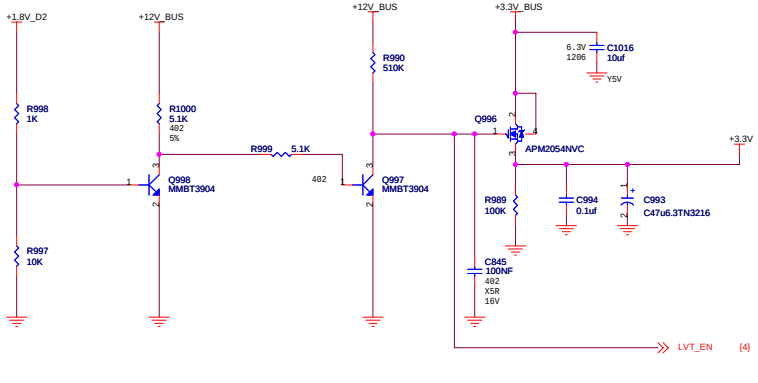
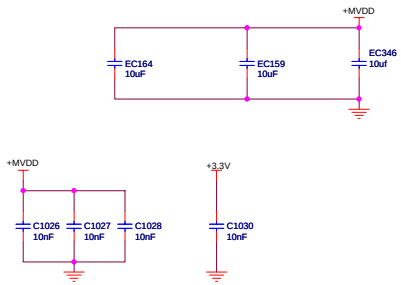


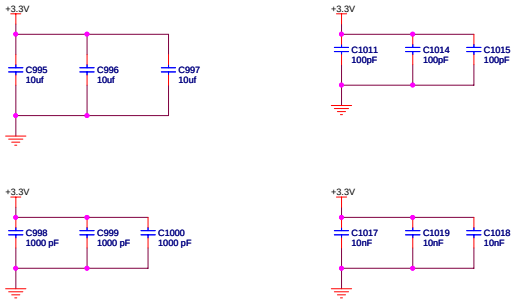
+MVDD = 0.8 * (1+ (ER12 / ER13))

Memory Power Seq









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Title: RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dDVI

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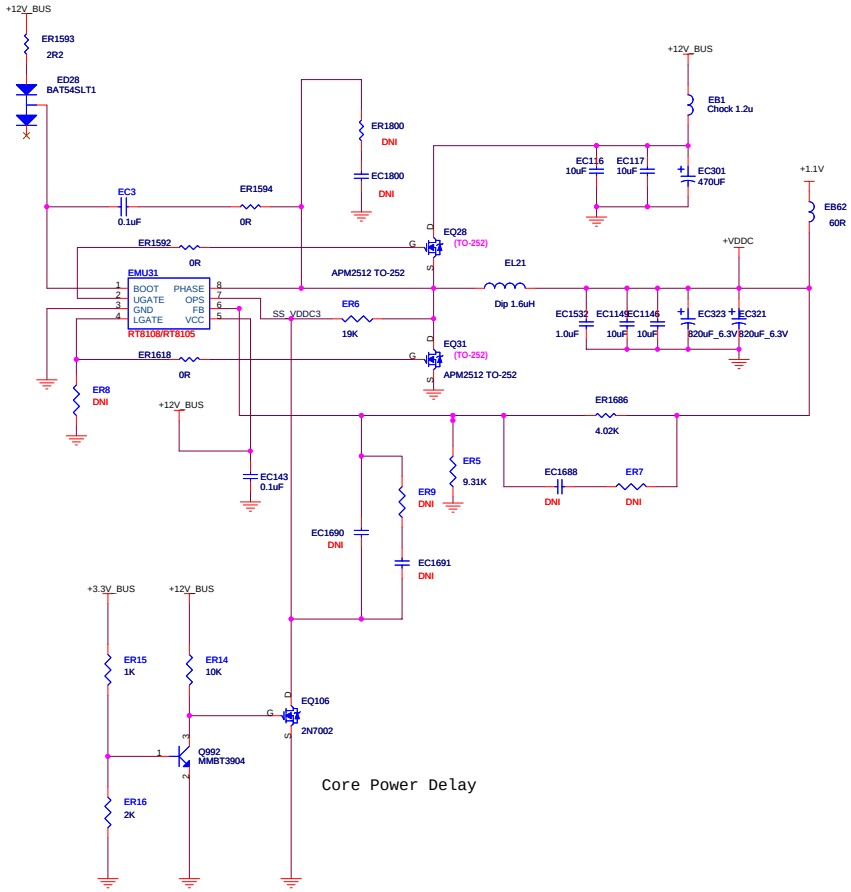

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Title RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dDVI

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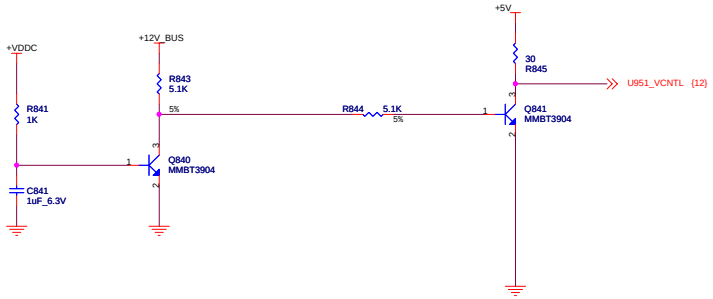

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Title RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO DDR

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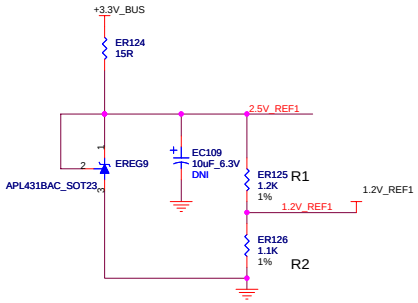
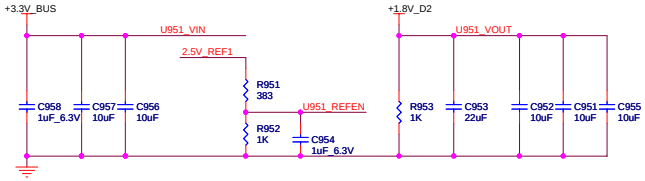
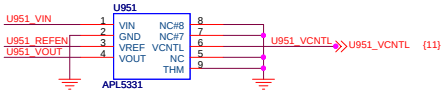
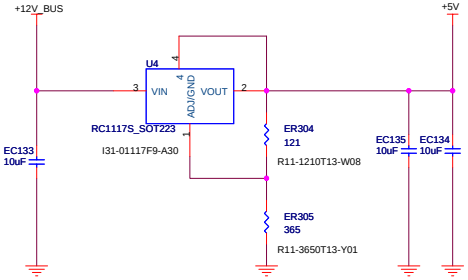
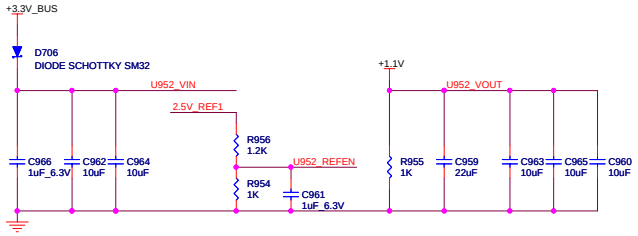


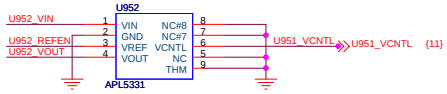




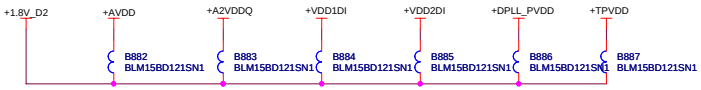


Vout=1.25V* [1+(ER305/ER304)]





Shared Power Rails



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Title RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dDVI Doc No. 105-B350xx-00C

PIN BASED STRAPS

+3.3V

DNI	MR50	10K	R50	10K	GPIO_0	
DNI	MR51	10K	R51	10K	GPIO_1	
	MR52	10K	DNI R52	10K	GPIO_2	
	MR53	10K	DNI R53	10K	GPIO_3	
	MR54	10K	DNI R54	10K	GPIO_4	
	MR55	10K	DNI R55	10K	GPIO_5	
	MR56	10K	DNI R56	10K	GPIO_6	
	MR57	10K	NTSC R57	10K	GPIO_7	
	MR58	10K	R58	10K	GPIO_8	RV610: INSTALL MR58 RV620: INSTALL R58
	MR59	10K	R59	10K	GPIO_9	
	MR63	10K	R63	10K	GPIO_13	
	MR62	10K	R62	10K	GPIO_12	
	MR61	10K	R61	10K	GPIO_11	
	MR65	10K	DNI R65	10K	GENERICC	GENERICC {3}
DNI	MR64	10K	DNI R64	10K	GENERICB	GENERICB {3}
	MR66	10K	R66	10K	A_VSYNC_DAC1	A_VSYNC_DAC1 {3,14}
	MR67	10K	R67	10K	A_HSYNC_DAC1	A_HSYNC_DAC1 {3,14}
	MR68	10K	DNI R68	10K	PSYNC	
	MR69	10K	DNI R69	10K	GPIO21_BB_EN	GPIO21_BB_EN {3}
	MR70	10K	DNI R70	10K		DPVSS-VID0 {4}
	MR71	10K	DNI R71	10K		VID_1 {4}
	MR72	10K	DNI R72	10K		VID_2 {4}
DNI	MR73	10K	R73	10K		DPAVSS-VID3 {4}
	MR74	10K	DNI R74	10K		DPAVSS-VID4 {4}
	MR75	10K	DNI R75	10K		DPAVSS-VID5 {4}
	MR76	10K	DNI R76	10K		VID_6 {3}
	MR77	10K	DNI R77	10K		VID_7 {3}
DNI	MR80	10K	R80	10K	A_VSYNC_DAC2	A_VSYNC_DAC2 {3,15}
	MR79	10K	DNI R79	10K	A_HSYNC_DAC2	A_HSYNC_DAC2 {3,15}
	MR60	10K	DNI R60	10K	DVALID	
DNI	MR87	10K	DNI R87	10K		PWRCNTL_0 {3}
DNI	MR46	10K			GPIO_22	GPIO_22 {3}
DNI	MR88	10K	R88	10K		GPIO_18 {3}

PSYNC → PSYNC {3,4}
DVALID → DVALID {3}

RV610: (DEFAULT) MR70, R73, MR74, MR75 INSTALLED

RV620: MR70, MR73, MR74, MR75 MUST BE INSTALLED

{3} GPIO_[13..0]
GPIO_0
GPIO_1
GPIO_2
GPIO_3
GPIO_4
GPIO_5
GPIO_6
GPIO_7
GPIO_8
GPIO_9
GPIO_10
GPIO_11
GPIO_12
GPIO_13

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

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 - DDR2 VENDOR SELECT ATI Board Feature I
(see GPIO_18)

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 - DDR2 MEM VENDOR [V2SYNC:GPIO_18] ATI Board Feature I
QUIMONDA [0:0]
HYNIX [0:1]
SAMSUNG [1:0]

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

Ground — High logic voltage

Signal

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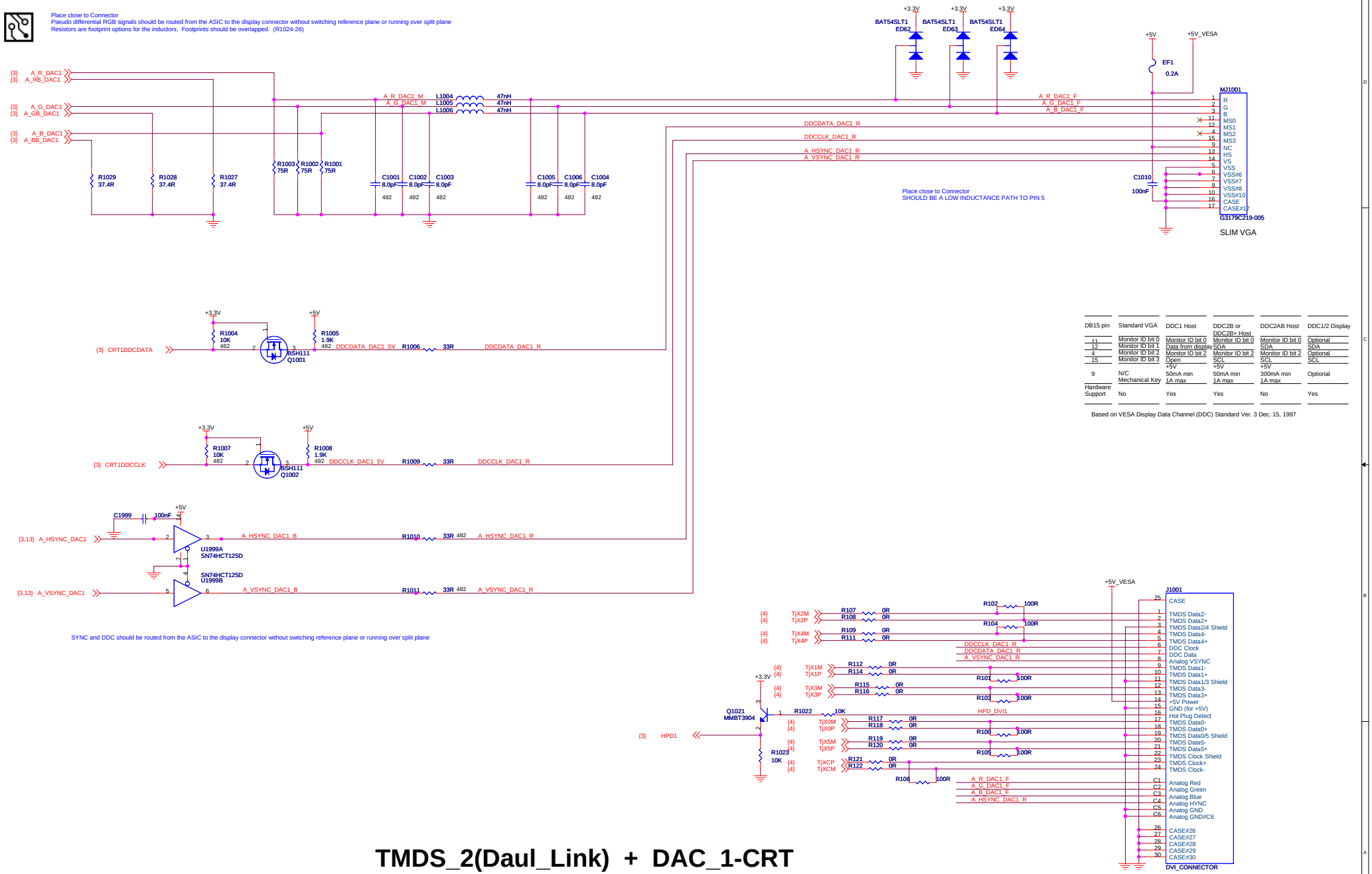
Title RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dDVI

Doc No. 105-B350xx-00C



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
		+5V	+5V	+5V	
9	N/C Mechanical Key	50mA min 1A max	50mA min 1A max	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

TMDS_2(Daul_Link) + DAC_1-CRT

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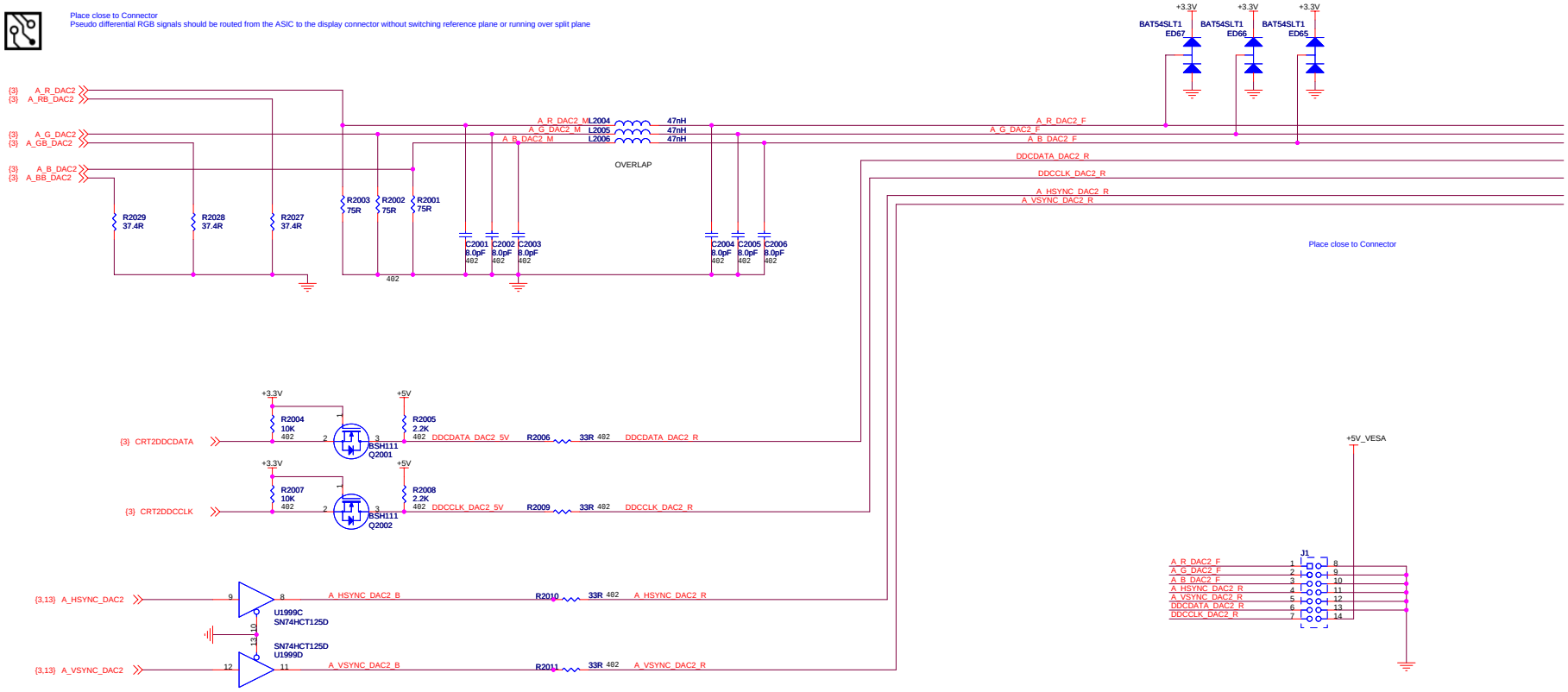
Title RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO DVI
Doc No. 105-B350xx-00C



TMDS_1(Single_Link) + DAC_2-CRT

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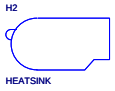
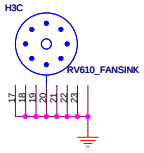
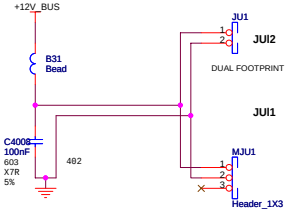
Title RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dDVI Doc No. 105-B350xx-00C







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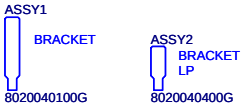
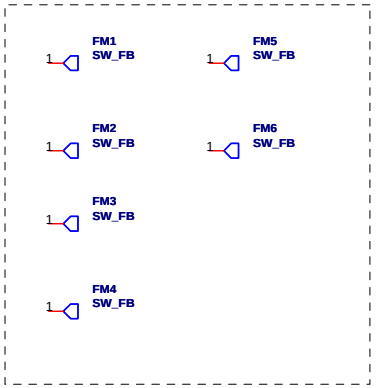
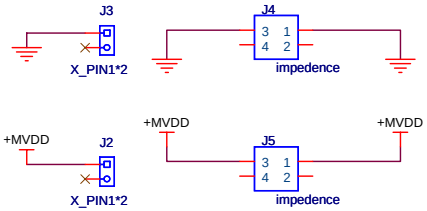
Title: RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dDVI | Doc No. 105-B350xx-00C







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Title RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dDVI Doc No. 105-B350xx-00C

<variant name>

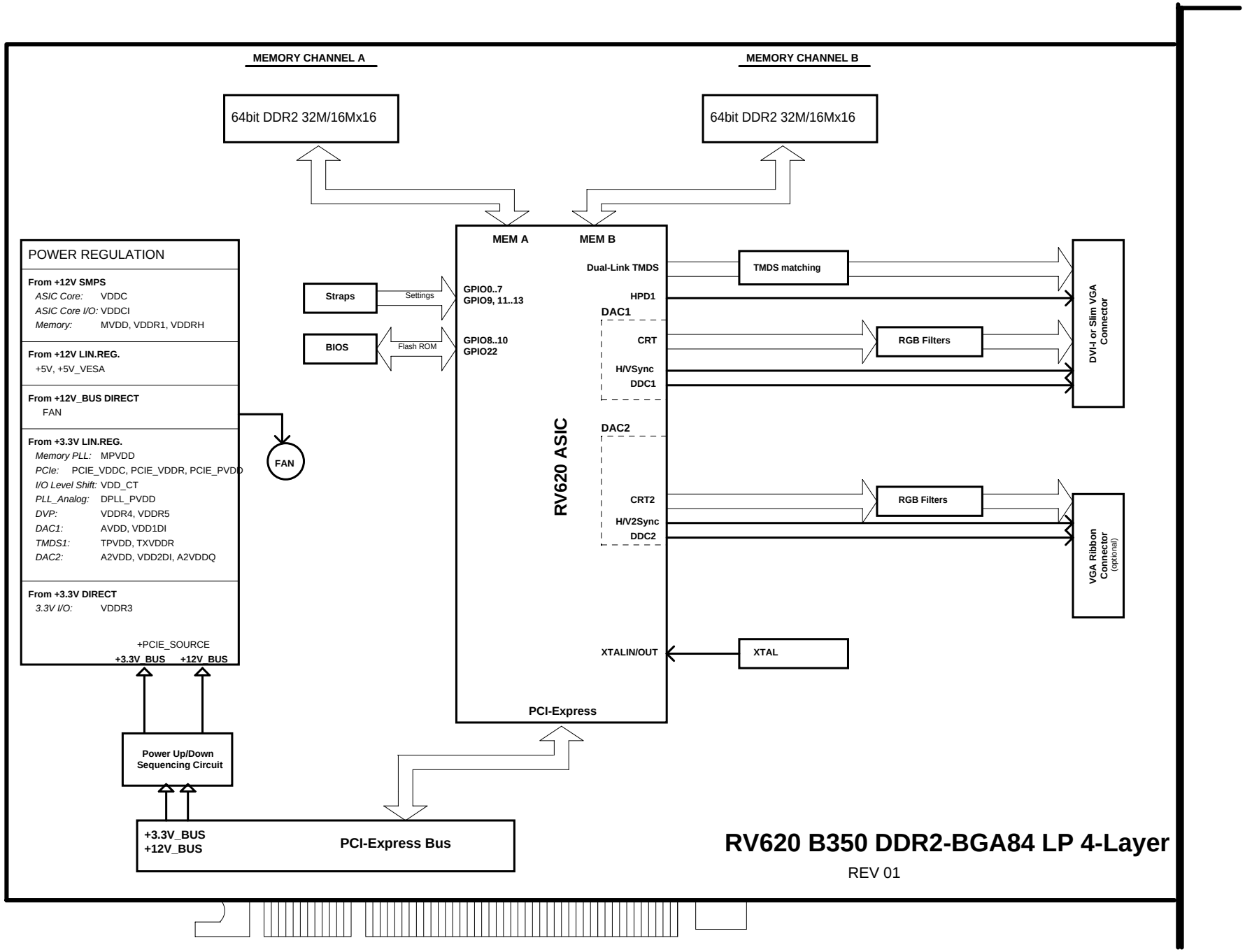
Title	Schematic No.	Date:
RH RV620 256/128MB DDR2-BGA84 32/16Mx16 VO dDVI	105-B350xx-00C	**Thursday, March 27, 2008**

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 AMD representative to obtain latest BOM closest to the application desired.

Rev 17

Sch Rev	PCB Rev	Date	REAL REVISION DESCRIPTION
01	00A	2007.05.07	START NEW SCHEMATIC. DERIVED FROM B170 (RV610) SCHEMATIC.
02	00A	2007.05.17	p. 4 MR155/R155 FIX SHORT
03	00A	2007.05.17	RM R7, NR7, R5, MB60, MR45, R45, R890, R1248, R1247, R1242, R1243, C853, C863; ADD R2, B890, MR890, C846; CHANGE R1022, R1023;
04	00A	2007.05.22	REMOVE GND_TXVSSR, GND_PVSS; AG23 NOW NC - WAS SCHEM MISTAKE; ADD R858 FOR BUO; R858 CHANGE TO 1210;
05	00A	2007.05.24	CTF: ADD Q1252, R1254, R1255, R1256, R1258, Q1253, Q1254, CHANGE U1250 TO SINGLE FF; UPDATE BLOCK DIAGRAM.
06	00A	2007.05.25	LVTM: ADD R110, RM R109, MR109, R108, R107;
07	00A	2007.05.28	LVTM: ADD C118, RM C104; REMOVE MR85, MR86 FOR SIMPLIFICATION;
08	00A	2007.05.28	XTALIN/OUT: LAYOUT EASEMENT; REMOVE MR108 (R849 ALREADY THERE); LVTM: ADD C119 (LOWER COST OPTION); POWER SUPPLY: REMOVE R706, MR707, R606 & MR607;
09	00A	2007.05.29	REMOVAL OF +5V: ADD R861, MR861, R862, REG861, R869, R863, R867; REMOVE MU830, U830, C830. R833, R834, C831, R832, MR832, R831, MR831; CONNECT DDC TO 5V_VESA;
010	00A	2007.05.30	CHNG C858 TO 3.3VBUS; CONNECTION TO R845 CHNG; ADD R870, MR870, C867;
011	00A	2007.05.30	REMOVE R4033; REMOVE B201-204; ADD R30-33 [PLACE NEAR ASIC]; REMOVE R3004, R3005;
012	00A	2007.05.31	REMOVE C164-C166, C170, C172 PER SIMULATION RESULTS - THESE CAPS DO NOT IMPROVE DECOUPLING. RM TP860 (LAYOUT CONSTRAINTS. ALREADY ICT TP ON THAT NET);
013	00A	2007.05.31	RM R154-R157, MR154-157 -> FUNCTIONALITY TAKEN BY EXISTING STRAPS. LAYOUT USE PLACE OF M/R154-7; ADD R7; RM MR706, MR606, B889, R863; ADD D861;
014	00A	2007.05.32	ADD SOCKET SK1
015	00A	2007.06.1	SK? CORRECTED TO SK1.
016	00B	2007.06.25	NO NETLIST CHANGES; - MOUNTING HOLES CHANGED TO 3.175mm;
017	00C	2007.10.01	p. 1 - CONNECT B7 TO GND (SEE PA RV6XX H1) - REMOVE R2. IT IS ALWAYS POPULATED, NO NEED TO ZERO OHM. THIS BOARD DOES NOT SUPPORT JTAG DEBUG; p. 11 - REMOVE R839. THIS CIRCUIT IS VERIFIED, THERE IS NO NEED TO BE ABLE TO DISCONNECT IT; p. 12 - REMOVE R870 - THIS OPTION NOT USED, VCNTRL MUST BE HIGHER THAN +3.3V; - MR870 REMOVED - ALWAYS POPULATED, DO NOT NEED ZERO OHM RESISTOR OPTION; - REMOVE R860 - WAS BRING UP ONLY OPTION; p. 17 - REPLACED FAN CIRCUIT WITH ONE THAT HAS FEEDBACK: - ADD R4033, R4031, R4019, R4034, R4006, R4035, Q4004, R4035, Q40002. R4009, R4011, Q4003, R4012, R4013;



RV620 B350 DDR2-BGA84 LP 4-Layer

REV 01

Advanced Micro Devices Inc.
1 Commerce Valley Drive East
Markham, Ontario

Date:	Thursday, March 27, 2008
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