<variant_name>

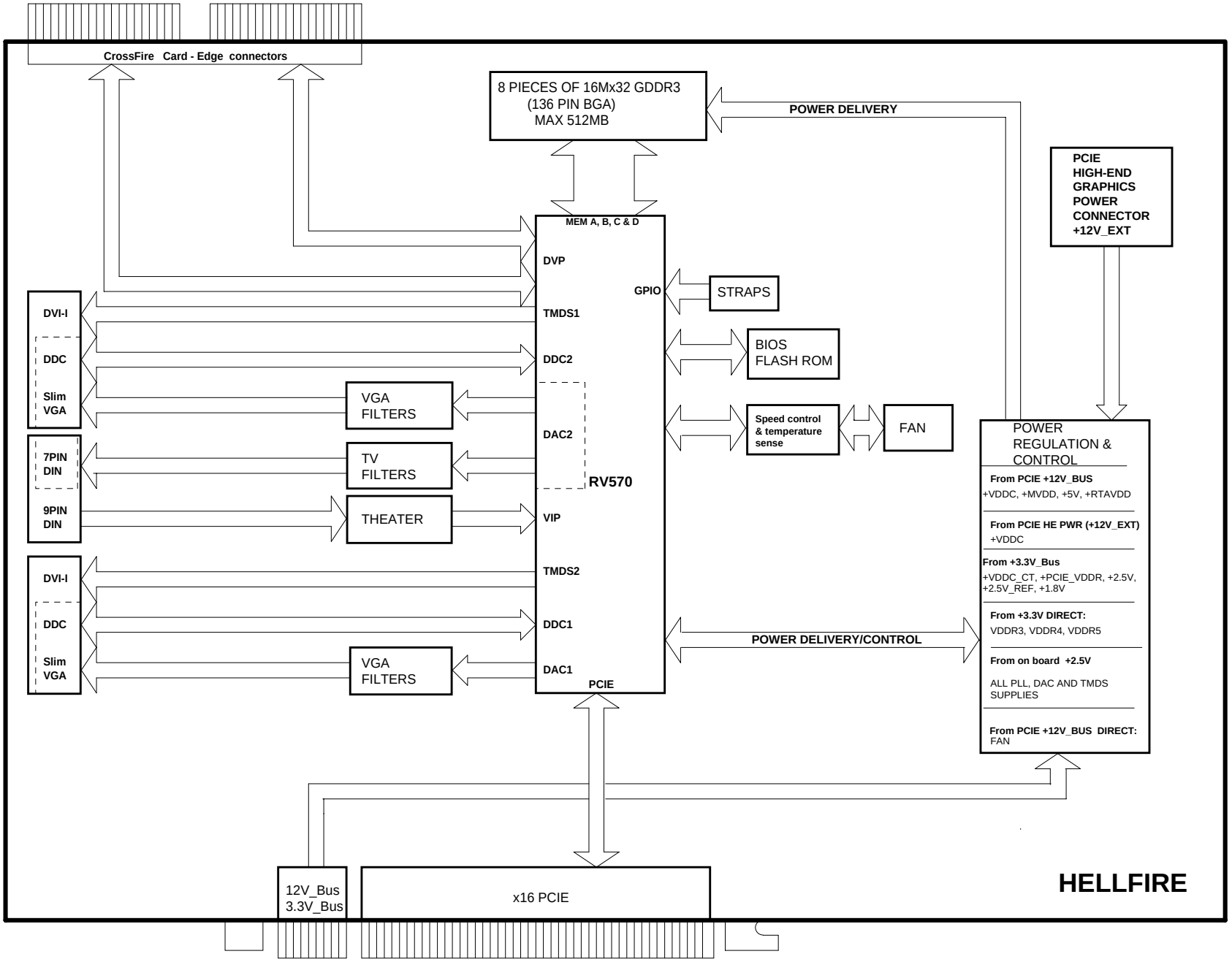
Title	Schematic No.	Date:
RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF	105-A999xx-10	**Tuesday, October 10, 2006**

REVISION HISTORY

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

Rev 2

Sch Rev	PCB Rev	Date	REVISION DESCRIPTION
0	00A	Apr 19 / 06	- Based on A88131-00B PCB - cost-down to 8 layers and replaced regulators to cheaper versions.. -Changed VDDC regulator to 50A (dual phase) for cost down purposes. - Changed VDDCI regulator. - Changed memory regulators to one regulator MVDD. - Change regulators for other rails.
1	00	July 10/ 06	- Added mechanical holes for optional heatsink for Volterra parts. - Grounded holes for socket. - R121 resistor at VREFG that was connected to +1.8V has been removed .and replaced with capacitor C60. - Removed R1469 - not used. - Removed B992 - not used. - Removed optional regulator MU7. - Removed B911.
2	10	Sept 14/ 06	- Added R4000.



ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF	
Size C	Document Number 105-A999xx-10	Rev 2
Date: Tuesday, October 10, 2006	Sheet 1 of 22	

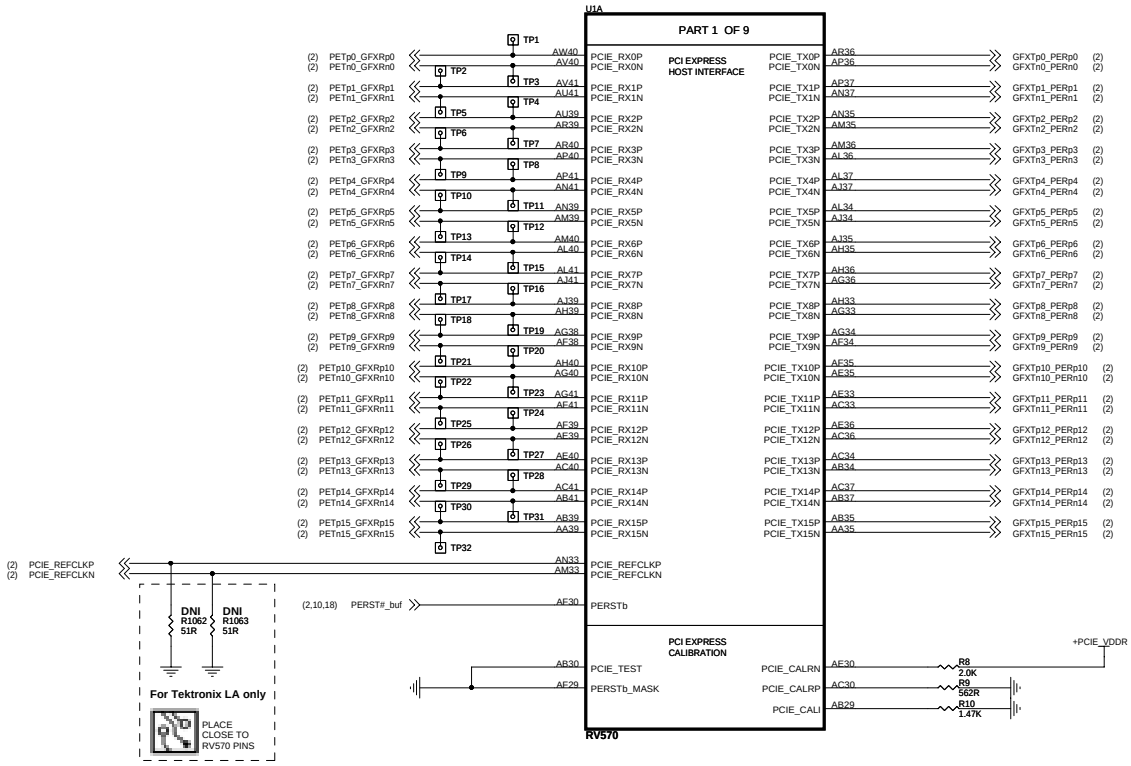
PCI-EXPRESS EDGE CONNECTOR

SYMBOL LEGEND

DNI	DO NOT INSTALL
#	ACTIVE LOW
	DIGITAL GROUND
	ANALOG GROUND

ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF	
Size C	Document Number 105-A999xx-10	Rev 2
Date: Tuesday, October 10, 2006	Sheet 2 of 22	

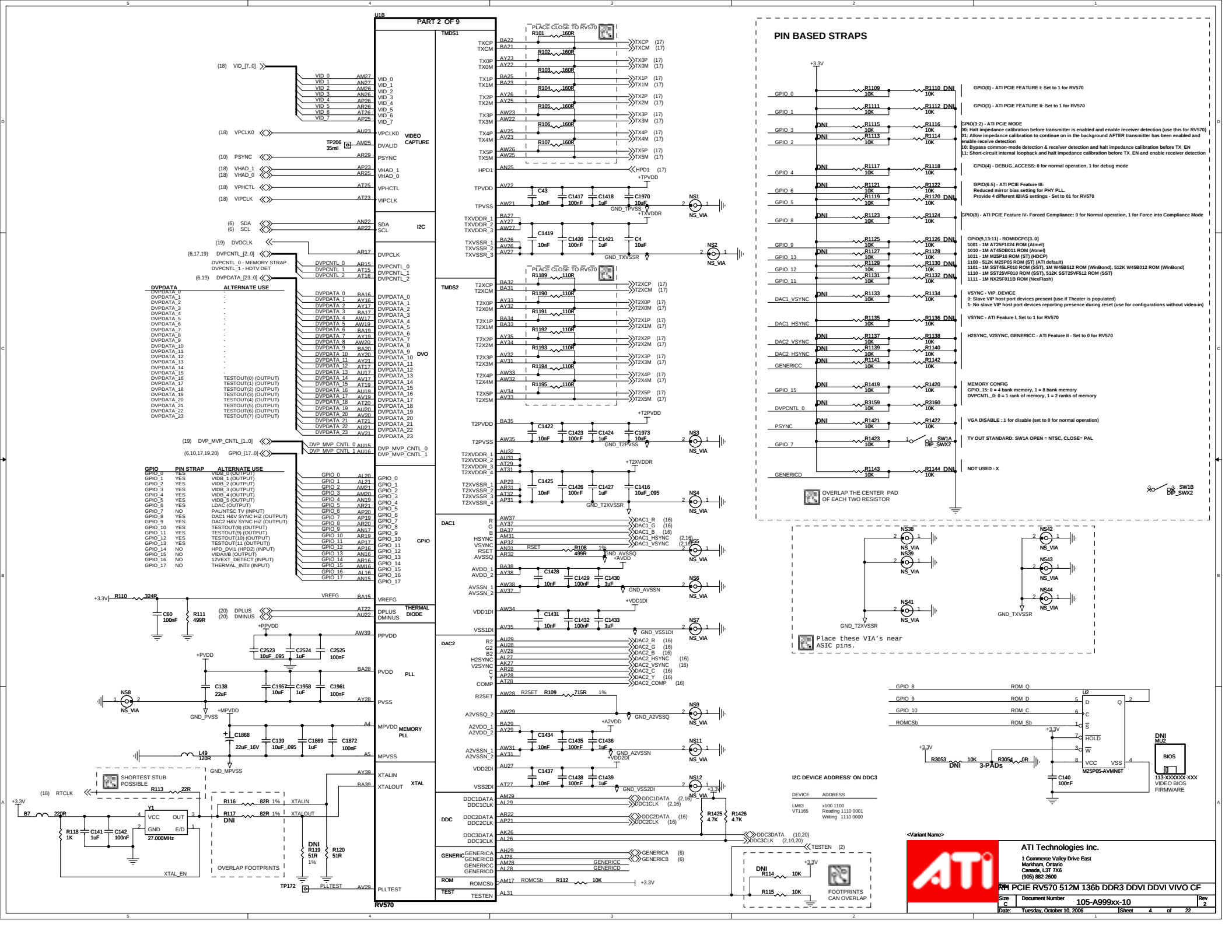


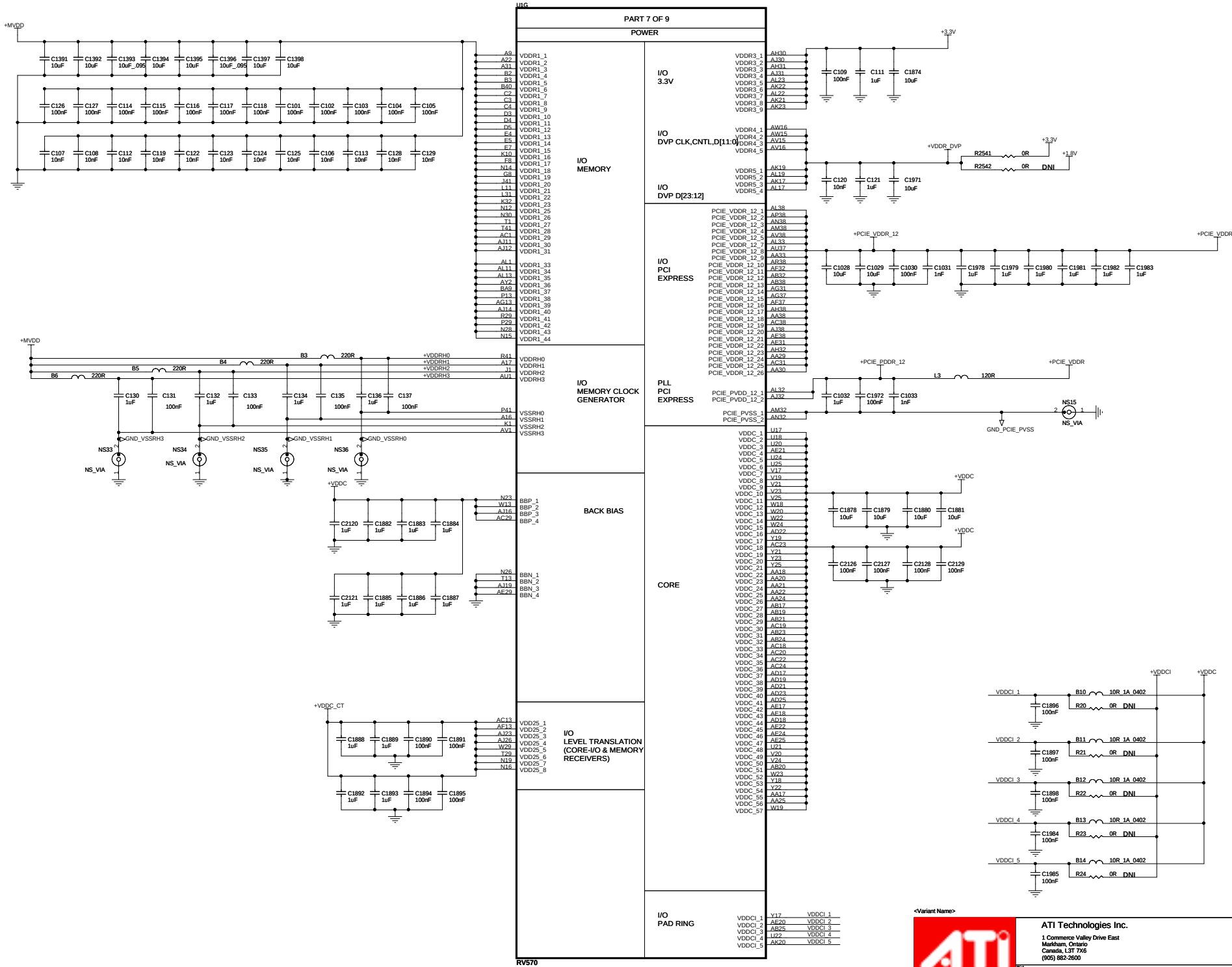
<Variant Name>

ATI Technologies Inc.

1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF	
Size C	Document Number 105-A999xx-10	Rev 2
Date: Tuesday, October 10, 2006	Sheet 3 of 22	

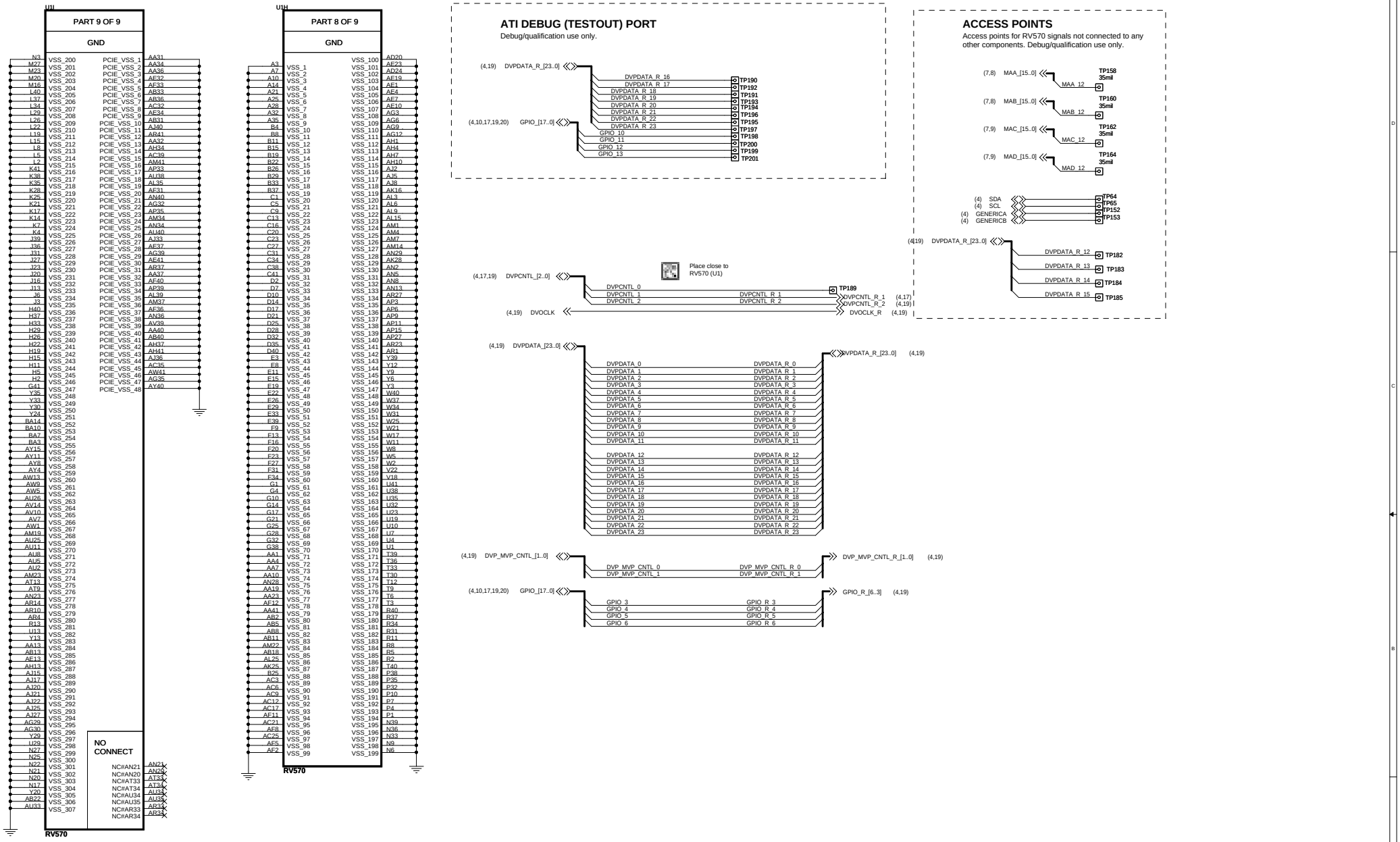

U1B
PART 2 OF 9
RV570
TMDS1
TMDS2
DVO
GPIO
THERMAL DIODE
PLL
MEMORY PLL
XTAL
DAC1
DAC2
DDC
GENERIC
ROM
TEST
VIDEO CAPTURE
I2C
PLACE CLOSE TO RV570
PIN BASED STRAPS
GPIO(0) - ATI PCIE FEATURE I: Set to 1 for RV570
GPIO(1) - ATI PCIE FEATURE II: Set to 1 for RV570
GPIO(3:2) - ATI PCIE MODE
00: Halt impedance calibration before transmitter is enabled and enable receiver detection (use this for RV570)
01: Allow impedance calibration to continue on in the background AFTER transmitter has been enabled and enable receive detection
10: Bypass common-mode detection & receiver detection and halt impedance calibration before TX_EN
11: Short-circuit internal loopback and halt impedance calibration before TX_EN and enable receiver detection
GPIO(4) - DEBUG_ACCESS: 0 for normal operation, 1 for debug mode
GPIO(6:5) - ATI PCIE Feature III:
Reduced mirror bias setting for PHY PLL.
Provide 4 different IBIAS settings - Set to 01 for RV570
GPIO(8) - ATI PCIE Feature IV- Forced Compliance: 0 for Normal operation, 1 for Force into Compliance Mode
GPIO(9,13:11) - ROMIDCFG[3..0]
1001 - 1M AT25F1024 ROM (Atmel)
1010 - 1M AT45DB011 ROM (Atmel)
1011 - 1M M25P10 ROM (ST) (HDCP)
1100 - 512K M25P05 ROM (ST) (ATI default)
1101 - 1M SST45LF010 ROM (SST), 1M W45B512 ROM (WinBond), 512K W45B012 ROM (WinBond)
1110 - 1M SST25VF010 ROM (SST), 512K SST25VF512 ROM (SST)
1111 - 1M NX25F011B ROM (NexFlash)
VSYNC - VIP_DEVICE
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)
VSYNC - ATI Feature I, Set to 1 for RV570
H2SYNC, V2SYNC, GENERICC - ATI Feature II - Set to 0 for RV570
MEMORY CONFIG
GPIO_15: 0 = 4 bank memory, 1 = 8 bank memory
DVPCNTL_0: 0 = 1 rank of memory, 1 = 2 ranks of memory
VGA DISABLE : 1 for disable (set to 0 for normal operation)
TV OUT STANDARD: SW1A OPEN = NTSC, CLOSE= PAL
NOT USED - X
OVERLAP THE CENTER PAD OF EACH TWO RESISTOR
SW1A DIP_SWX2
SW1B DIP_SWX2
NS_VIA
Place these VIA's near ASIC pins.
I2C DEVICE ADDRESS' ON DDC3
DEVICE ADDRESS
LM63 x100 1100
VT1165 Reading 1110 0001
Writing 1110 0000
SHORTEST STUB POSSIBLE
OVERLAP FOOTPRINTS
FOOTPRINTS CAN OVERLAP
3-PADS
M25P05-AVMN6T
BIOS
113-XXXXXX-XXX
VIDEO BIOS FIRMWARE
<Variant Name>
ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600
ATI PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF
Size C
Document Number 105-A999xx-10
Rev 2
Date: Tuesday, October 10, 2006
Sheet 4 of 22



ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF	
Size C	Document Number 105-A999xx-10	Rev 2
Date: Tuesday, October 10, 2006	Sheet 5 of 22	

<Variant Name>



<variant_name>

ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF		
Size C	Document Number 105-A999xx-10		Rev 2
Date: Tuesday, October 10, 2006	Sheet 6 of 22		

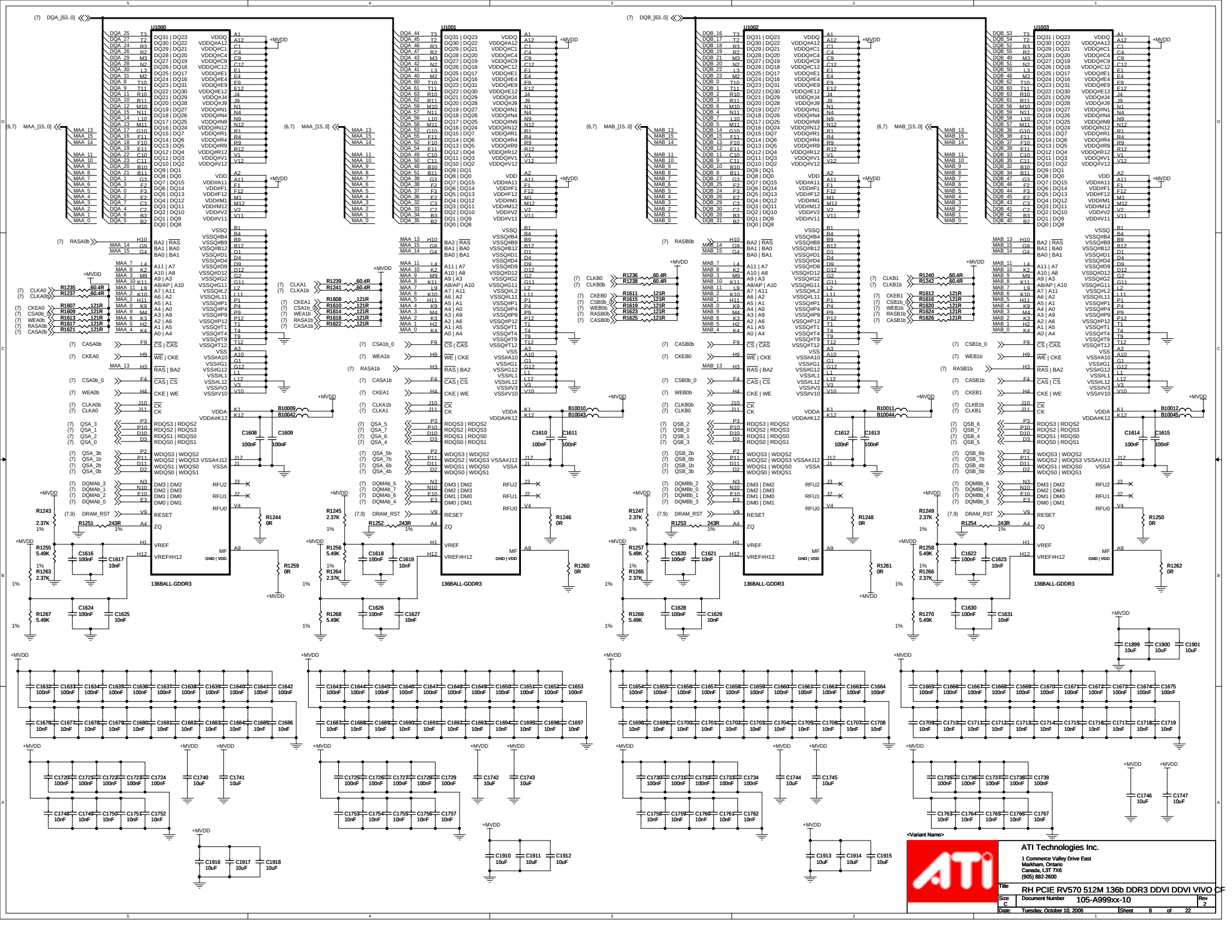
ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

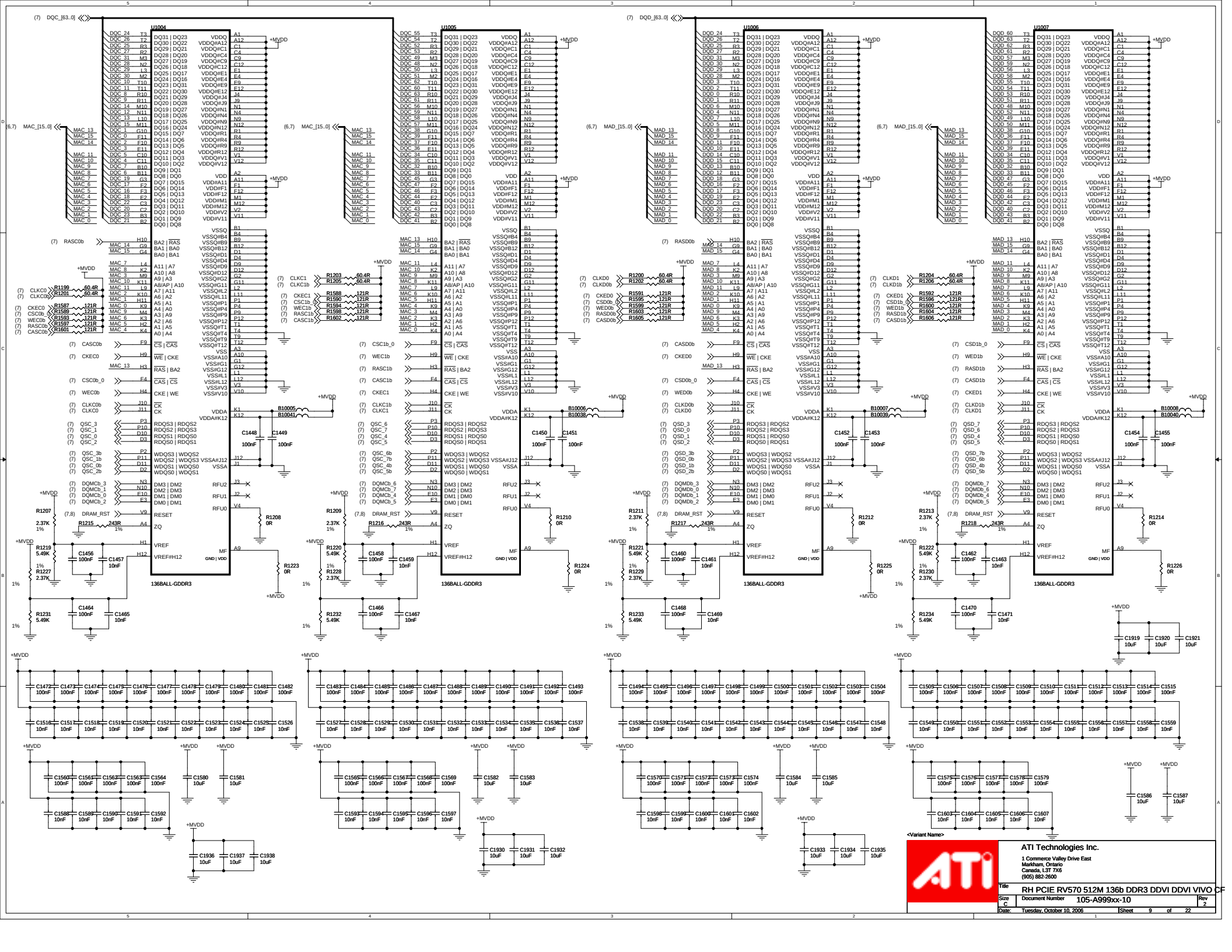
<variant_name>

Title: RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF

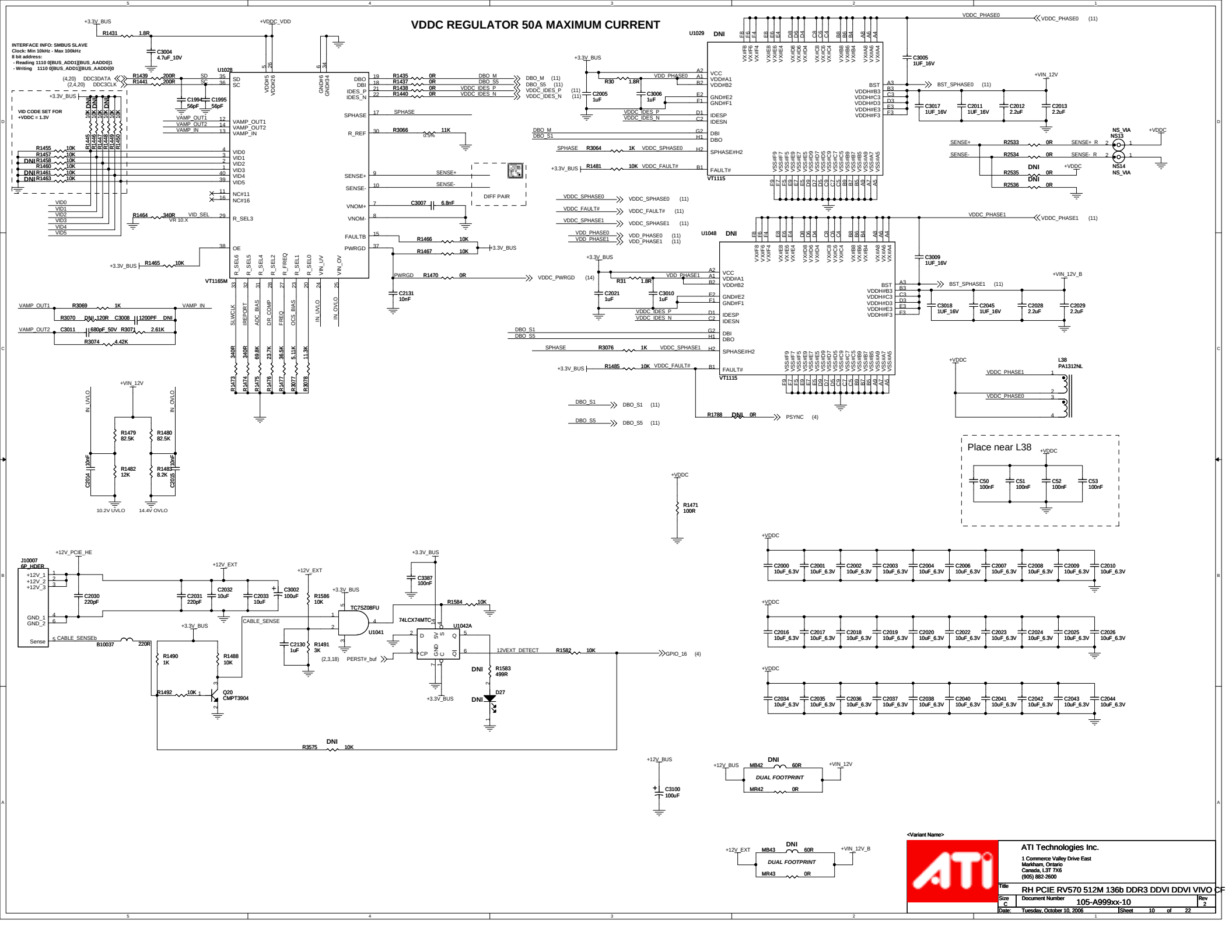
Size: C | Document Number: 105-A999xx-10 | Rev: I 2

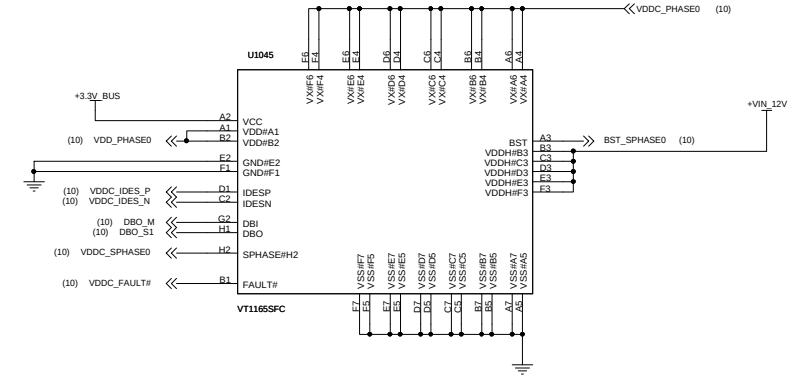
Date: Tuesday, October 10, 2006 | Sheet 7 of 22

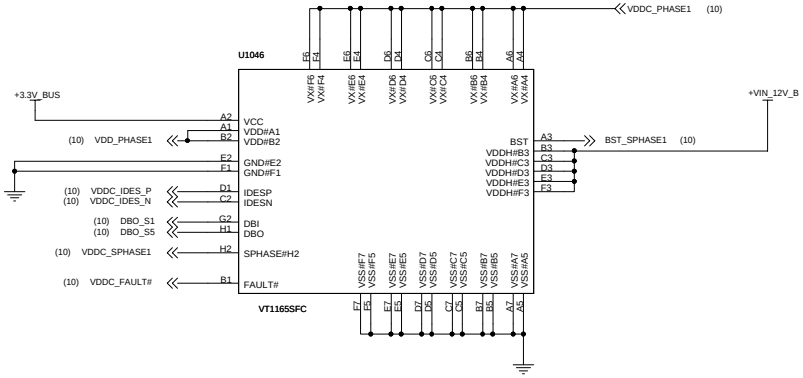

U1000
U1001
U1002
U1003
136BALL-GDDR3
DQA_[63..0]
DQB_[63..0]
MAA_[15..0]
MAB_[15..0]
+MVDD
RASA0b
RASB0b
CASA0b
CASB0b
CKEA0
CKEB0
WEA0b
WEB0b
CLKA0
CLKA0b
CLKB0
CLKB0b
DRAM_RST
R1235 60.4R
R1237 60.4R
R1607 121R
R1609 121R
R1613 121R
R1617 121R
R1621 121R
R1608 121R
R1610 121R
R1614 121R
R1618 121R
R1622 121R
R1236 60.4R
R1238 60.4R
R1611 121R
R1615 121R
R1619 121R
R1623 121R
R1625 121R
R1239 60.4R
R1241 60.4R
R1240 60.4R
R1242 60.4R
R1612 121R
R1616 121R
R1620 121R
R1624 121R
R1626 121R
R1243 2.37K 1%
R1245 2.37K 1%
R1247 2.37K 1%
R1249 2.37K 1%
R1251 243R 1%
R1252 243R 1%
R1253 243R 1%
R1254 243R 1%
R1244 0R
R1246 0R
R1248 0R
R1250 0R
R1255 5.49K 1%
R1256 5.49K 1%
R1257 5.49K 1%
R1258 5.49K 1%
R1263 2.37K 1%
R1264 2.37K 1%
R1265 2.37K 1%
R1266 2.37K 1%
R1259 0R
R1260 0R
R1261 0R
R1262 0R
R1267 5.49K 1%
R1268 5.49K 1%
R1269 5.49K 1%
R1270 5.49K 1%
B10009 B10042
B10010 B10043
B10011 B10044
B10012 B10045
C1608 100nF
C1609 100nF
C1610 100nF
C1611 100nF
C1612 100nF
C1613 100nF
C1614 100nF
C1615 100nF
C1616 100nF
C1617 10nF
C1618 100nF
C1619 10nF
C1620 100nF
C1621 10nF
C1622 100nF
C1623 10nF
C1624 100nF
C1625 10nF
C1626 100nF
C1627 10nF
C1628 100nF
C1629 10nF
C1630 100nF
C1631 10nF
C1632 100nF
C1633 100nF
C1634 100nF
C1635 100nF
C1636 100nF
C1637 100nF
C1638 100nF
C1639 100nF
C1640 100nF
C1641 100nF
C1642 100nF
C1643 100nF
C1644 100nF
C1645 100nF
C1646 100nF
C1647 100nF
C1648 100nF
C1649 100nF
C1650 100nF
C1651 100nF
C1652 100nF
C1653 100nF
C1654 100nF
C1655 100nF
C1656 100nF
C1657 100nF
C1658 100nF
C1659 100nF
C1660 100nF
C1661 100nF
C1662 100nF
C1663 100nF
C1664 100nF
C1665 100nF
C1666 100nF
C1667 100nF
C1668 100nF
C1669 100nF
C1670 100nF
C1671 100nF
C1672 100nF
C1673 100nF
C1674 100nF
C1675 100nF
C1676 10nF
C1677 10nF
C1678 10nF
C1679 10nF
C1680 10nF
C1681 10nF
C1682 10nF
C1683 10nF
C1684 10nF
C1685 10nF
C1686 10nF
C1687 10nF
C1688 10nF
C1689 10nF
C1690 10nF
C1691 10nF
C1692 10nF
C1693 10nF
C1694 10nF
C1695 10nF
C1696 10nF
C1697 10nF
C1698 10nF
C1699 10nF
C1700 10nF
C1701 10nF
C1702 10nF
C1703 10nF
C1704 10nF
C1705 10nF
C1706 10nF
C1707 10nF
C1708 10nF
C1709 10nF
C1710 10nF
C1711 10nF
C1712 10nF
C1713 10nF
C1714 10nF
C1715 10nF
C1716 10nF
C1717 10nF
C1718 10nF
C1719 10nF
C1720 100nF
C1721 100nF
C1722 100nF
C1723 100nF
C1724 100nF
C1725 100nF
C1726 100nF
C1727 100nF
C1728 100nF
C1729 100nF
C1730 100nF
C1731 100nF
C1732 100nF
C1733 100nF
C1734 100nF
C1735 100nF
C1736 100nF
C1737 100nF
C1738 100nF
C1739 100nF
C1740 10uF
C1741 10uF
C1742 10uF
C1743 10uF
C1744 10uF
C1745 10uF
C1746 10uF
C1747 10uF
C1748 10nF
C1749 10nF
C1750 10nF
C1751 10nF
C1752 10nF
C1753 10nF
C1754 10nF
C1755 10nF
C1756 10nF
C1757 10nF
C1758 10nF
C1759 10nF
C1760 10nF
C1761 10nF
C1762 10nF
C1763 10nF
C1764 10nF
C1765 10nF
C1766 10nF
C1767 10nF
C1899 10uF
C1900 10uF
C1901 10uF
C1910 10uF
C1911 10uF
C1912 10uF
C1913 10uF
C1914 10uF
C1915 10uF
C1916 10uF
C1917 10uF
C1918 10uF
<Variant Name>
ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600
Title
RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF
Size C
Document Number 105-A999xx-10
Rev 2
Date: Tuesday, October 10, 2006
Sheet 8 of 22


U1004
U1005
U1006
U1007
136BALL-GDDR3
(7) DQC_[63..0]
(7) DQD_[63..0]
(6,7) MAC_[15..0]
(6,7) MAD_[15..0]
(7) RASC0b
(7) RASD0b
(7) CLKC0
(7) CLKC0b
(7) CLKD0
(7) CLKD0b
(7) CLKC1
(7) CLKC1b
(7) CLKD1
(7) CLKD1b
(7) CKEC0
(7) CKEC1
(7) CKED0
(7) CKED1
(7) CSC0b_0
(7) CSC1b_0
(7) CSD0b_0
(7) CSD1b_0
(7) WEC0b
(7) WEC1b
(7) WED0b
(7) WED1b
(7) CASC0b
(7) CASC1b
(7) CASD0b
(7) CASD1b
(7) RASC1b
(7) RASD1b
(7,8) DRAM_RST
+MVDD
<Variant Name>
ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600
Title
RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF
Size C
Document Number 105-A999xx-10
Rev 2
Date: Tuesday, October 10, 2006
Sheet 9 of 22

VDDC REGULATOR 50A MAXIMUM CURRENT





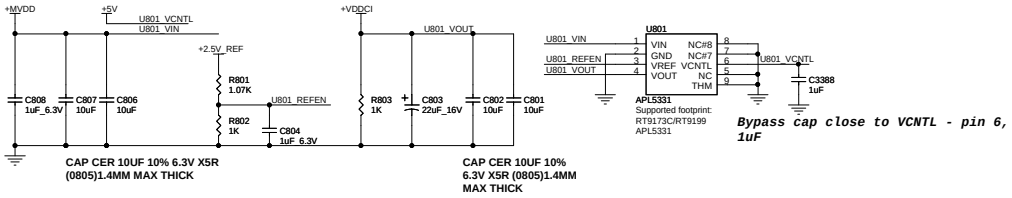


ATI Technologies Inc.

1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

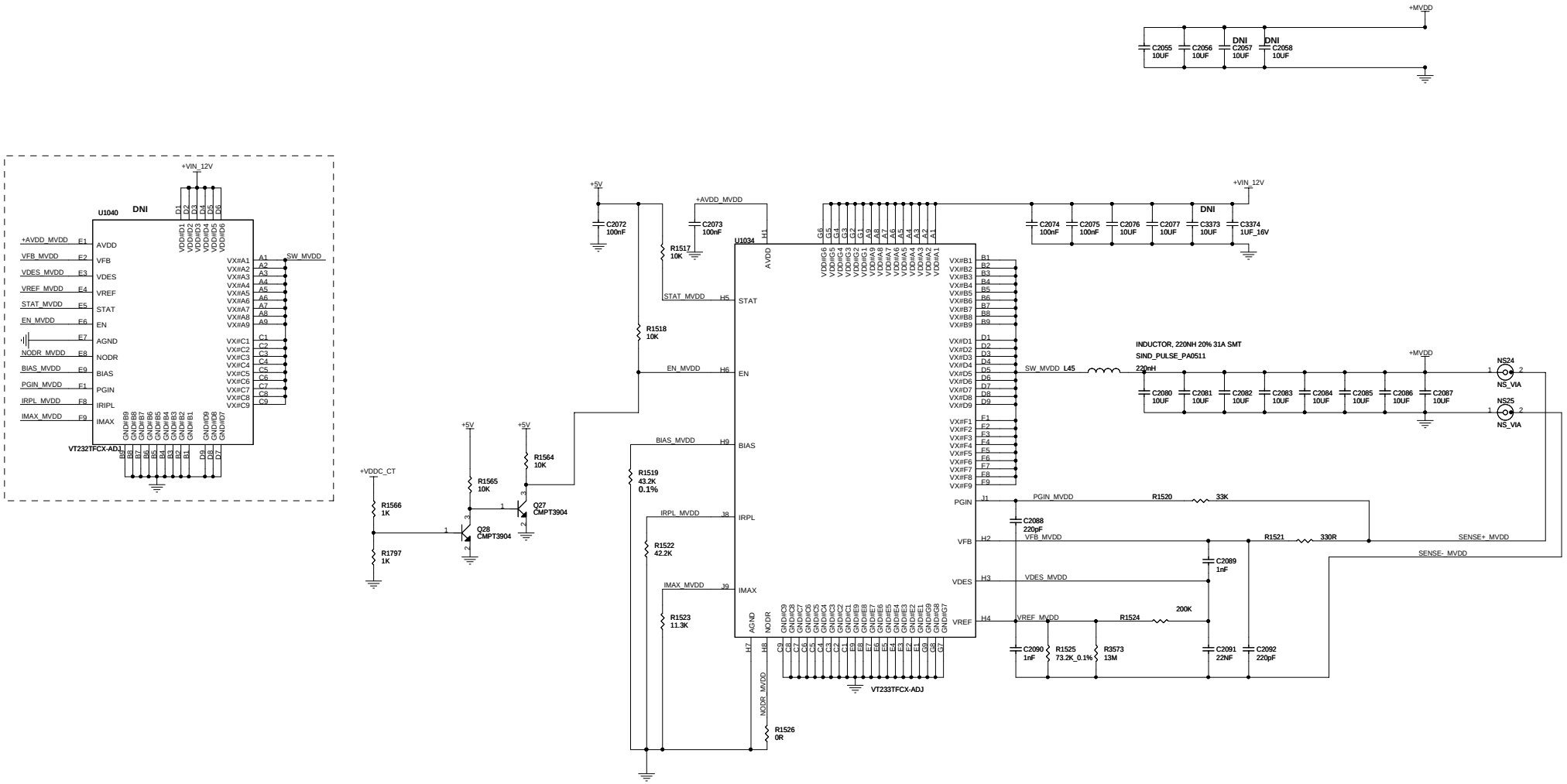
Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF	
Size: Custom	Document Number: 105-A999xx-10	Rev: 2
Date: Tuesday, October 10, 2006	Sheet 11 of 22	

Optional Regulator for +VDDCI
Vout = 1.2V ~ 1.4V
Iout = 1.2A MAX



ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF	
Size: Custom	Document Number: 105-A999xx-10	Rev: 2
Date: Tuesday, October 10, 2006	Sheet 12 of 22	

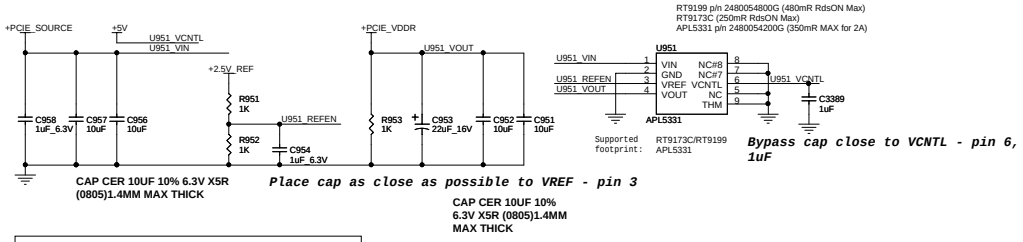


<Variant Name>

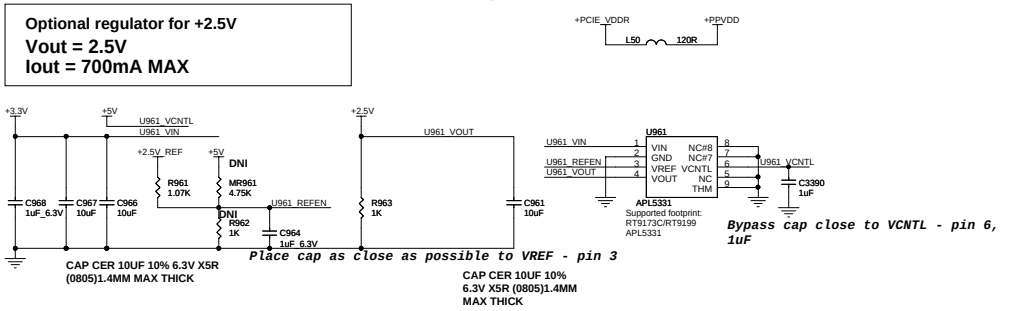
ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF	
Size C	Document Number 105-A999xx-10	Rev 2
Date: Tuesday, October 10, 2006	Sheet 13 of 22	

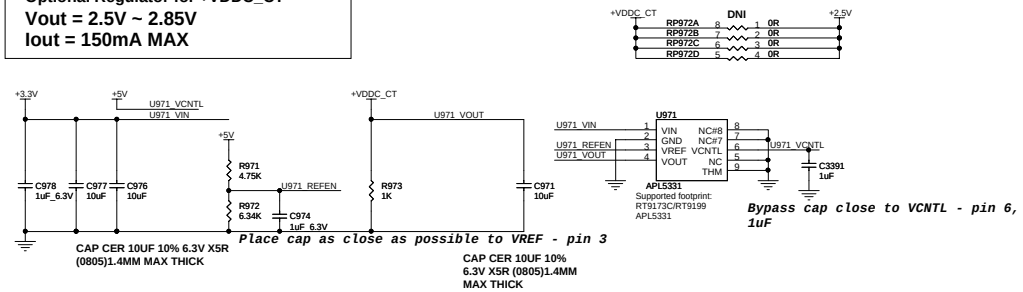
Optional regulator for +PCIE
Vout = 1.2V ~1.25V
Iout = 1.2A MAX

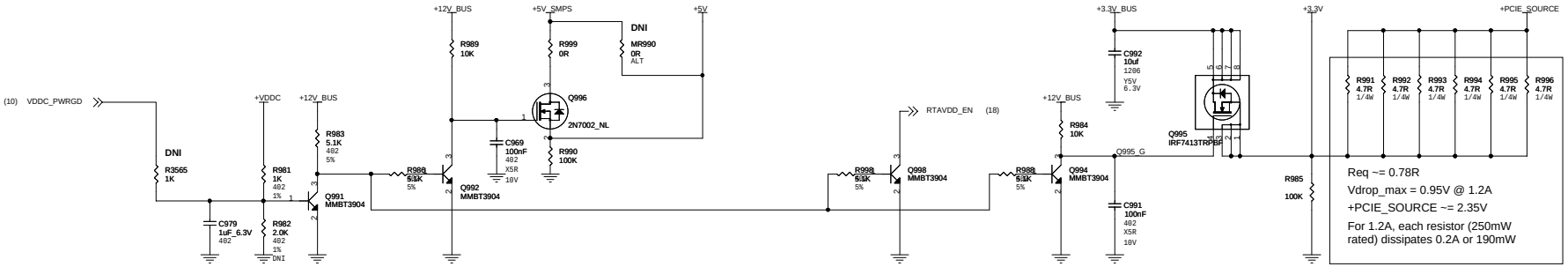


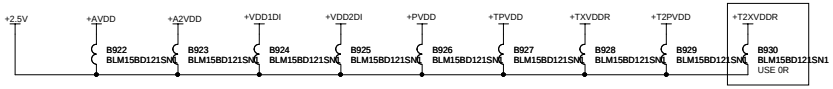
Optional regulator for +2.5V
Vout = 2.5V
Iout = 700mA MAX



Optional Regulator for +VDDC_CT
Vout = 2.5V ~ 2.85V
Iout = 150mA MAX

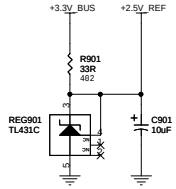




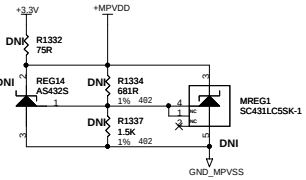


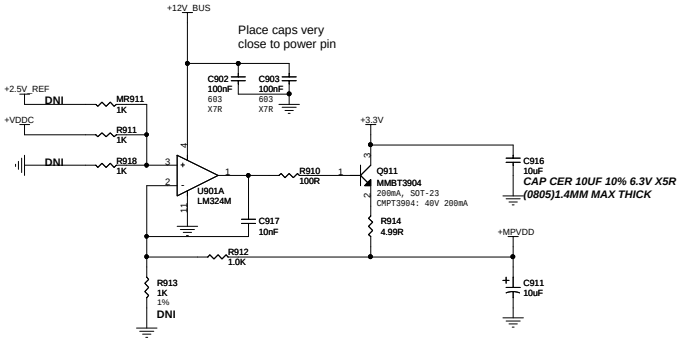
ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

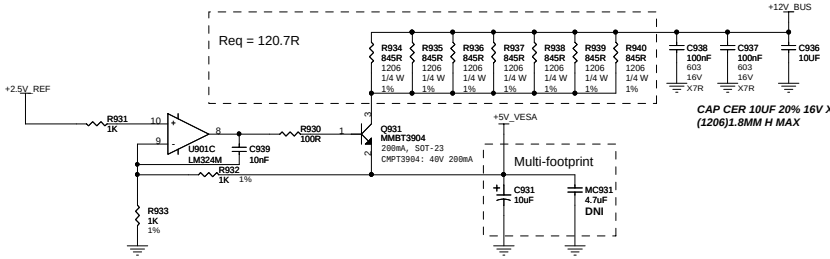
Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF	
Size C	Document Number 105-A999xx-10	Rev 2
Date: Tuesday, October 10, 2006	Sheet 14 of 22	

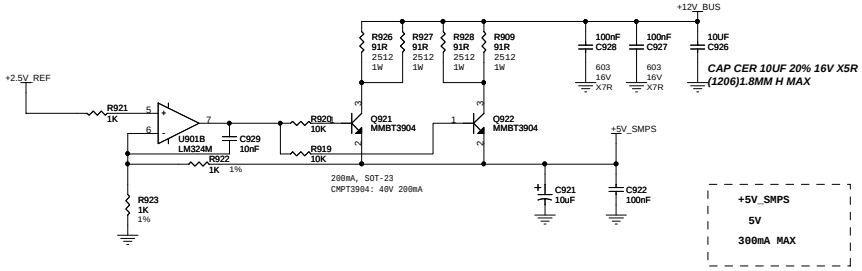


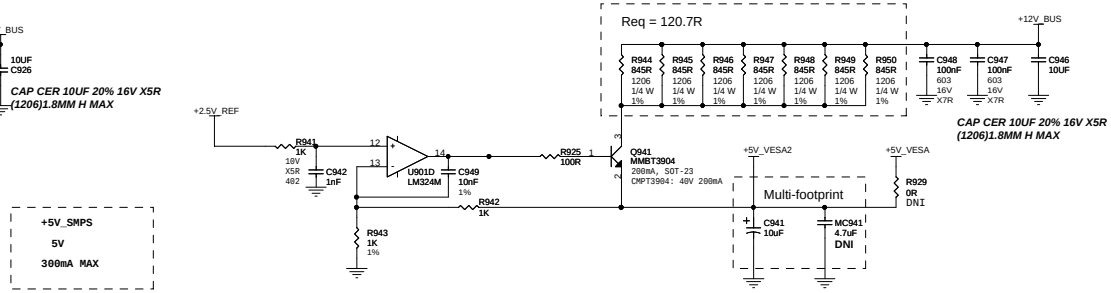
Alt regulator for +MPVDD
Vout = 1.2V (not tracking to VDDC)
Iout = 10mA MAX









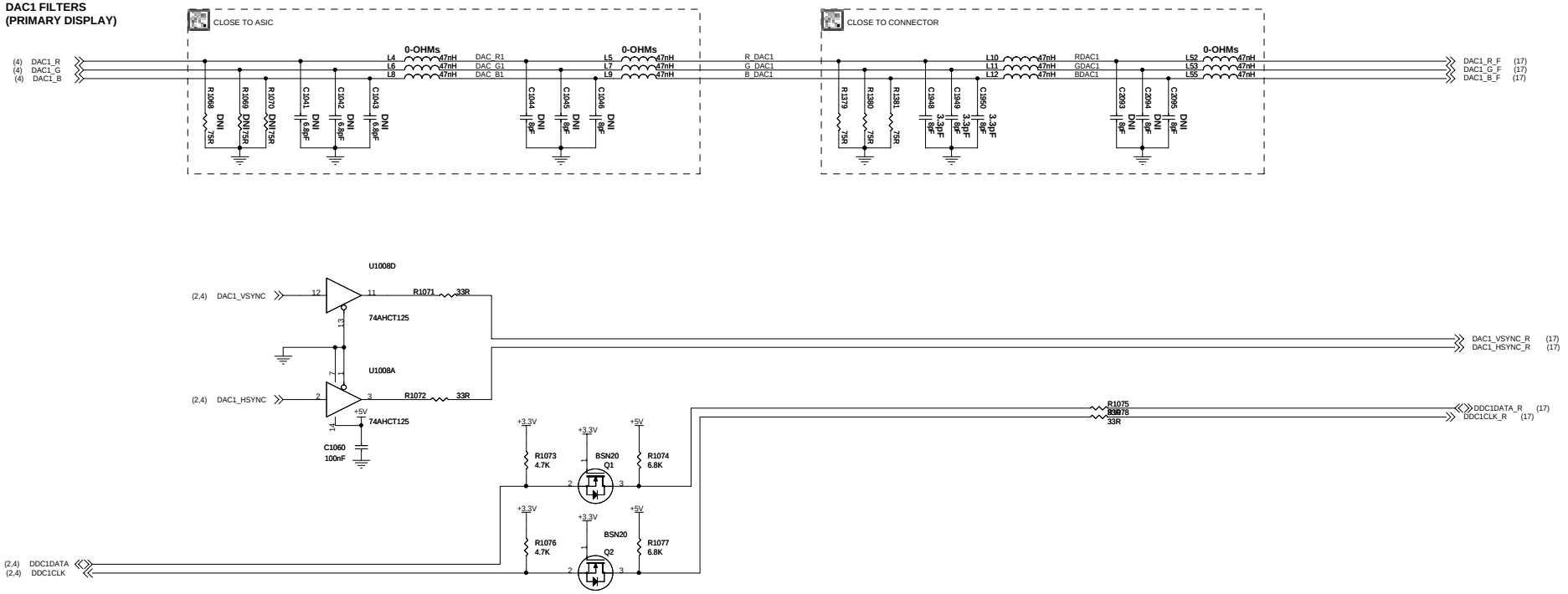


+5V_SMPS
5V
300mA MAX

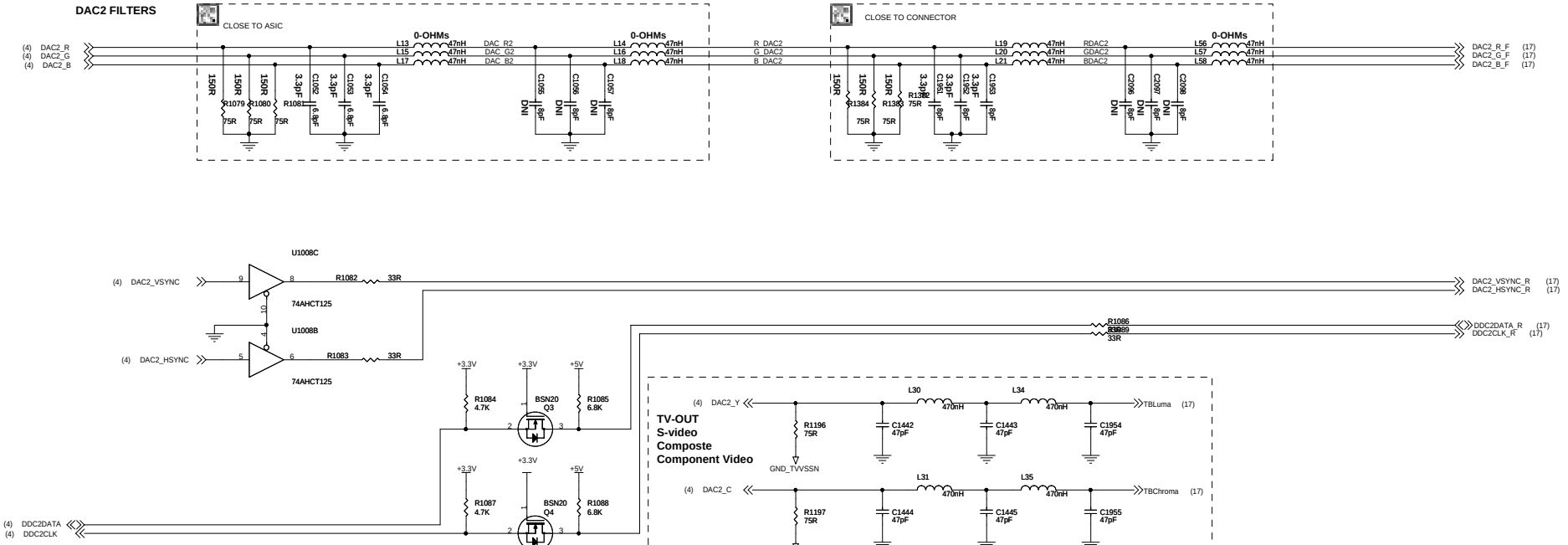
ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

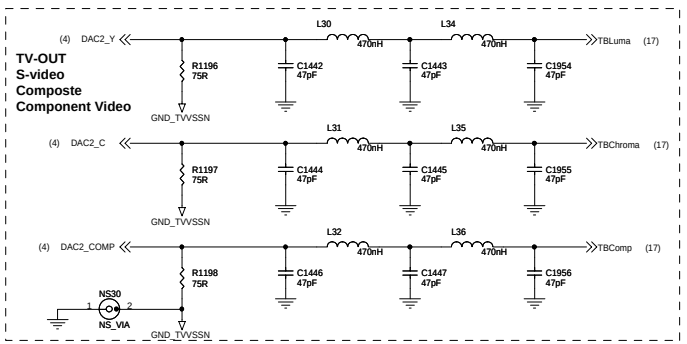
Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF	
Size C	Document Number 105-A999xx-10	Rev 2
Date: Tuesday, October 10, 2006	Sheet 15 of 22	

DAC1 FILTERS (PRIMARY DISPLAY)



DAC2 FILTERS



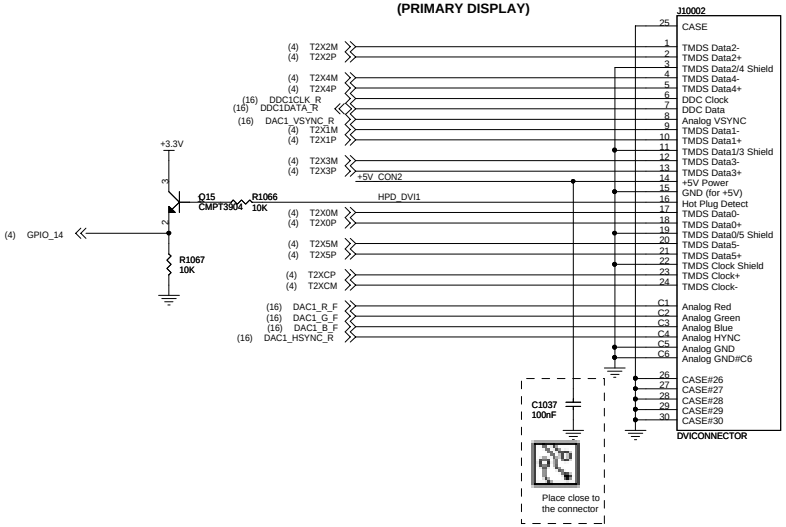


<Variant Name>

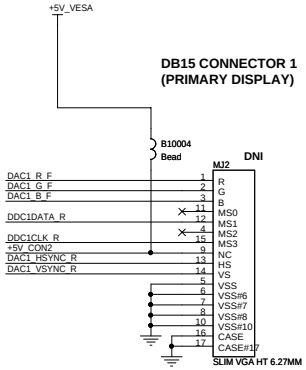
ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF	
Size C	Document Number 105-A999xx-10	Rev 2
Date: Tuesday, October 10, 2006	Sheet 16 of 22	

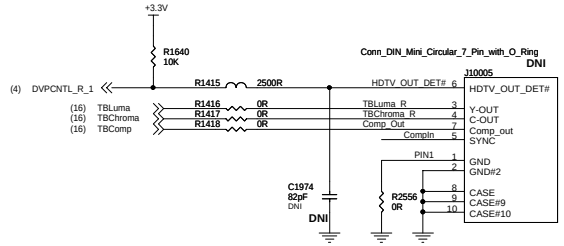
DVI-I CONNECTOR 1 (PRIMARY DISPLAY)



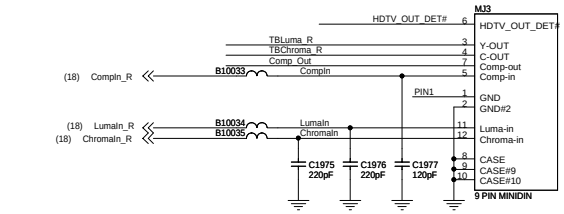
DB15 CONNECTOR 1 (PRIMARY DISPLAY)



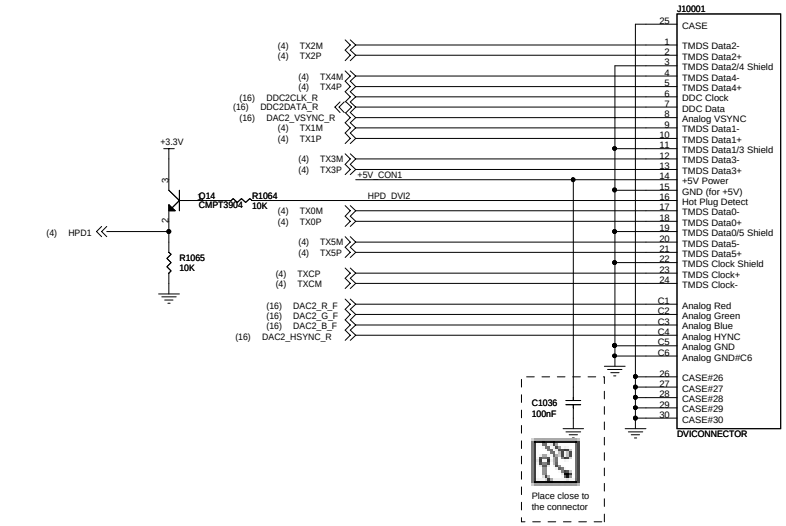
TV Out MiniDIN 7-pin



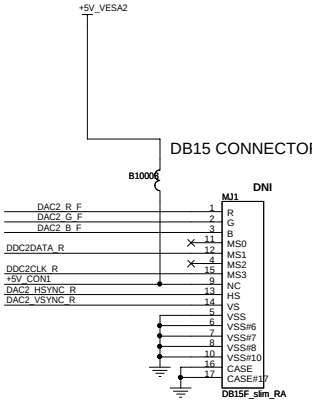
VIVO MiniDIN 9-pin



DVI-I CONNECTOR 2



DB15 CONNECTOR 2

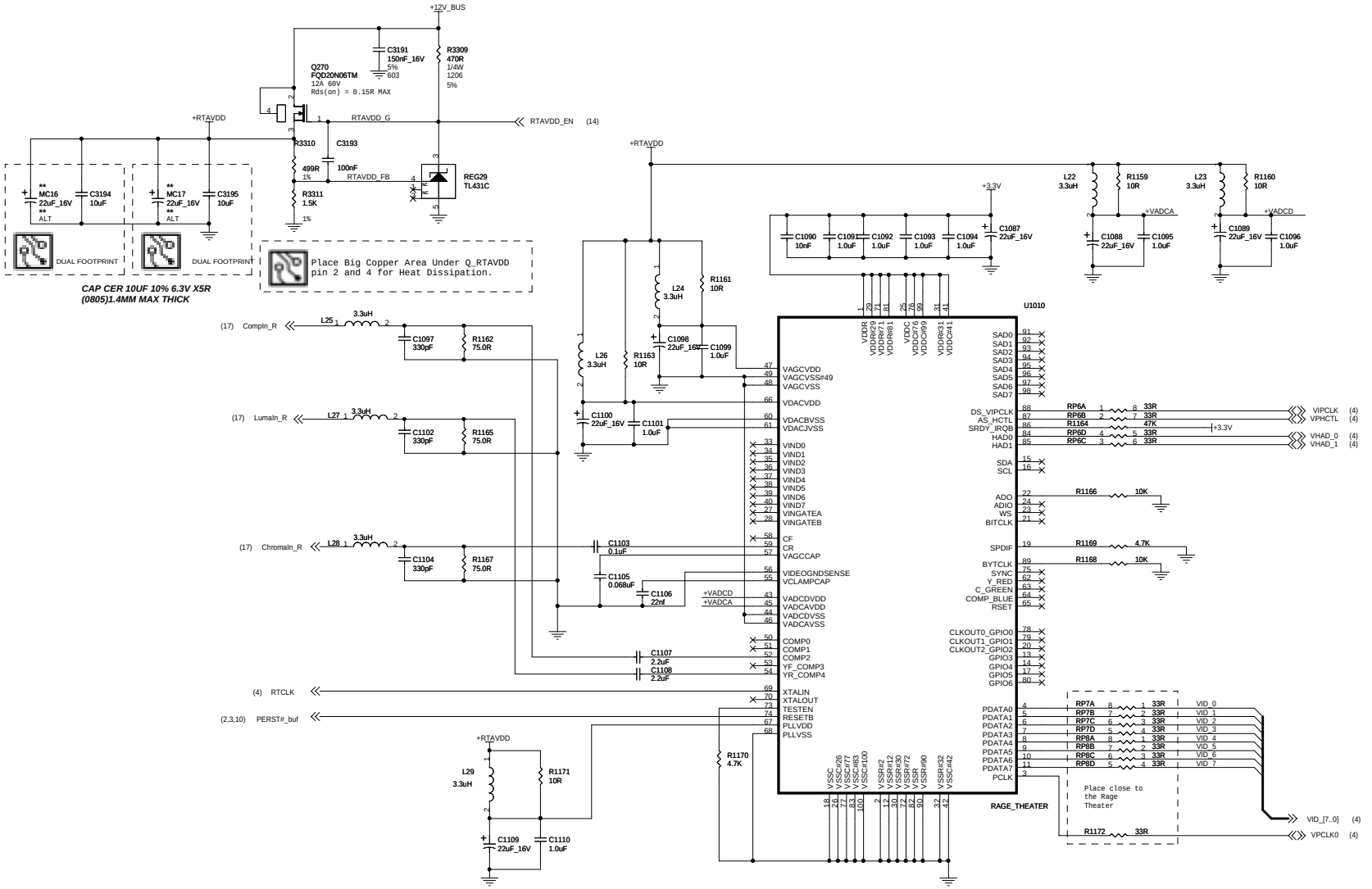


<Variant Name>

ATI Technologies Inc.

1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF	
Size C	Document Number 105-A999xx-10	Rev 2
Date: Tuesday, October 10, 2006	Sheet 17 of 22	



STUFFING OPTIONS

DISPLAY CONFIGURATION	INSTALL	DO NOT INSTALL
DVI DVI VIVO DVI VGA VIVO	ALL COMPONENTS	-
DVI VGA TVO	-	ALL COMPONENTS

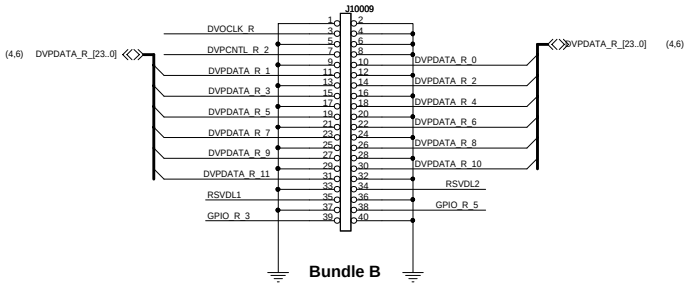
NOTE:
1 - Other components are to be installed.
2 - Components marked as DNI should not be installed. They should only be installed if default board settings are to be changed in which case other components may have to be adjusted accordingly.

ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

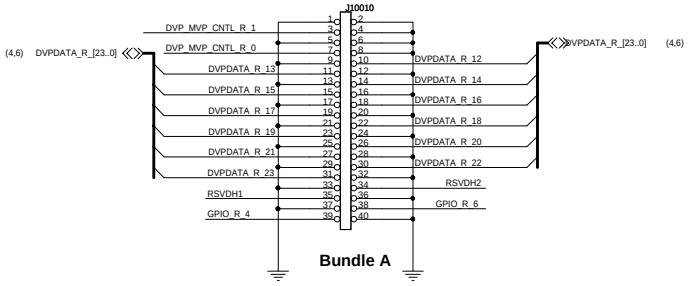
Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF	
Size C	Document Number 105-A999xx-10	Rev 2
Date: Tuesday, October 10, 2006	Sheet 18 of 22	

CrossFire Card-Edge

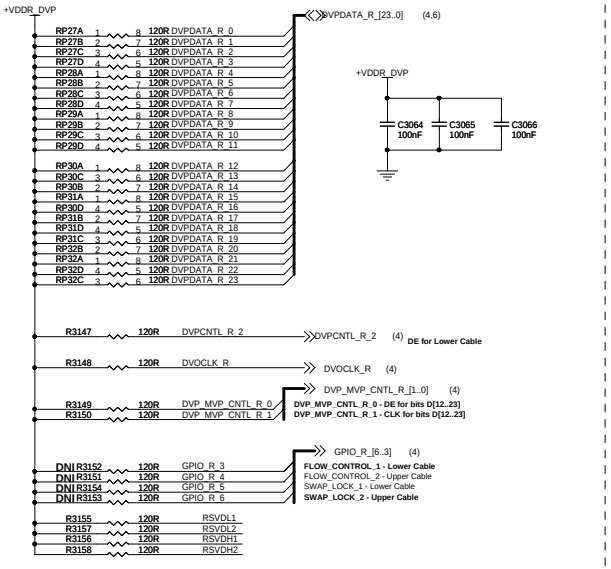
Lower Cable Card Edge



Upper Cable Card Edge



DNI - if CrossFire is not used

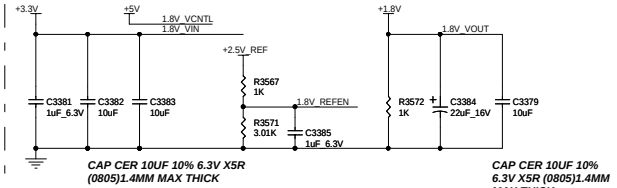


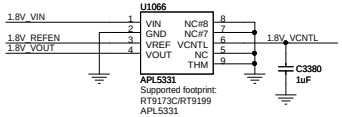
Place all terminations close to ASIC

Optional regulator for +1.8V

Vout = 1.8V
Iout = 1A MAX
P = 1W MAX

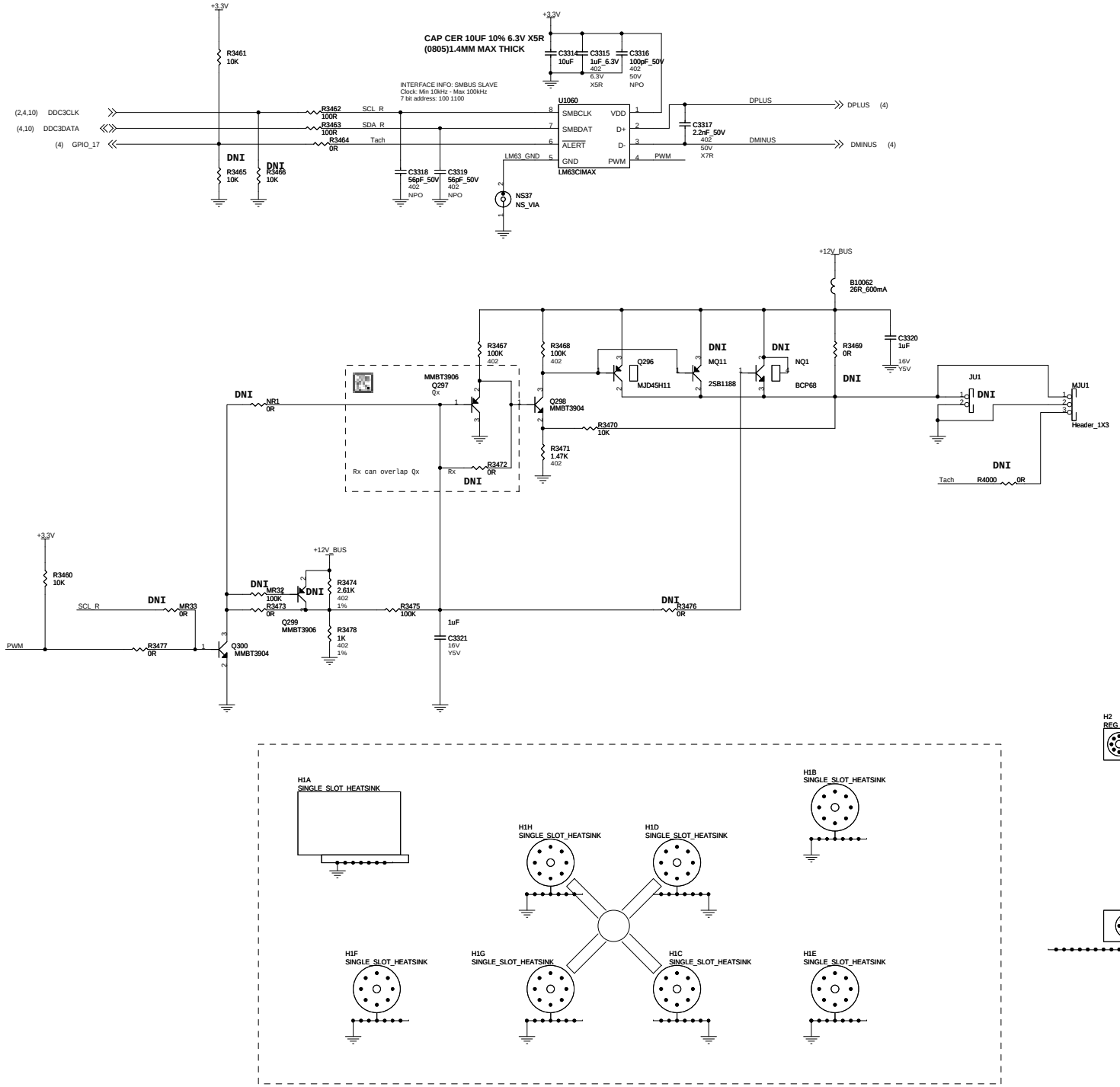
DNI





ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF	
Size C	Document Number 105-A999xx-10	Rev 2
Date: Tuesday, October 10, 2006	Sheet 19 of 22	



ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF	
Size C	Document Number 105-A999xx-10	Rev 2
Date: Tuesday, October 10, 2006	Sheet 20 of 22	

ASSY1
BRACKET DUAL
8020038800
DNI

ASSY2
BRACKET DUAL
80200388A0
DNI

ASSY3
BRACKET DUAL
80200388B0
DNI

ASSY4
BRACKET
8020038600G

DVI SCREWS
ASSY5
SCREW JACKSCREW ASSY

DVI SCREWS
ASSY6
SCREW JACKSCREW ASSY

ASSY7
SCREW JACKSCREW ASSY

ASSY8
SCREW JACKSCREW ASSY

ASSY9
SCREW PAN_HEAD

MISC. BOARD PARTS
ASSY10
BLANK LABEL
1.5W_X_0.50H

REF1
PCB
109-A52031-20

ASSY11
ANTISTATIC BAG
6_X_11
ASSY

REF2
ATI LOGO LABEL
ATI_LOGO_LABEL

MT1
MT_Hole_0.136_in.
DNI

MT2
MT_Hole_0.136_in_6VIA
DNI

SK1
DNI
10100102521

STUFFING OPTIONS

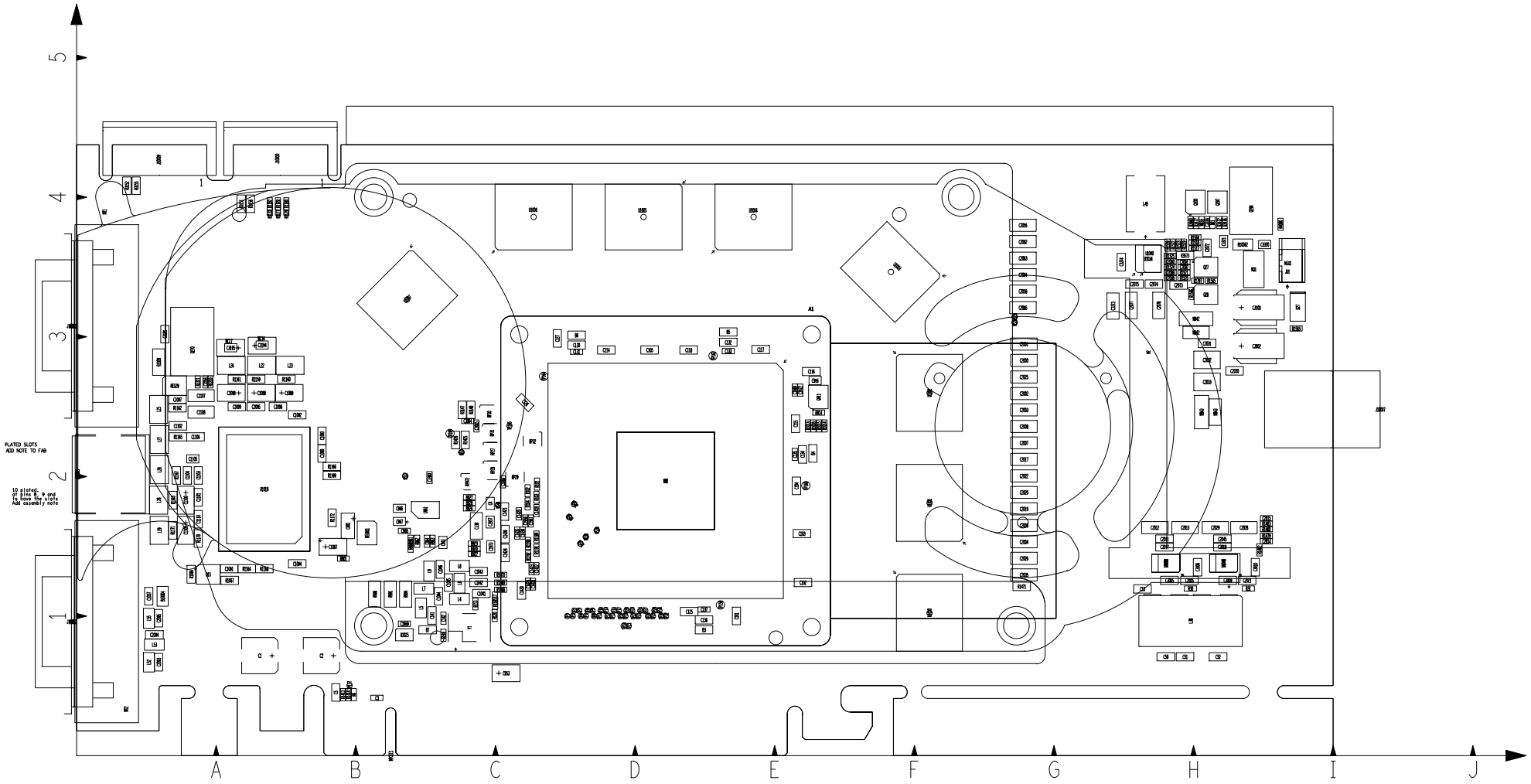
DISPLAY CONFIGURATION	INSTALL	DO NOT INSTALL
DVI DVI VIVO	ASSY1	ASSY2, ASSY3
DVI VGA VIVO	ASSY3	
~~DVI VGA TVO~~		~~ASSY1, ASSY2~~

NOTE:
1 - Other components are to be installed.
2 - Components marked as DNI should not be installed. They should only be installed if default board settings are to be changed in which case other components may have to be adjusted accordingly.

<Variant Name>

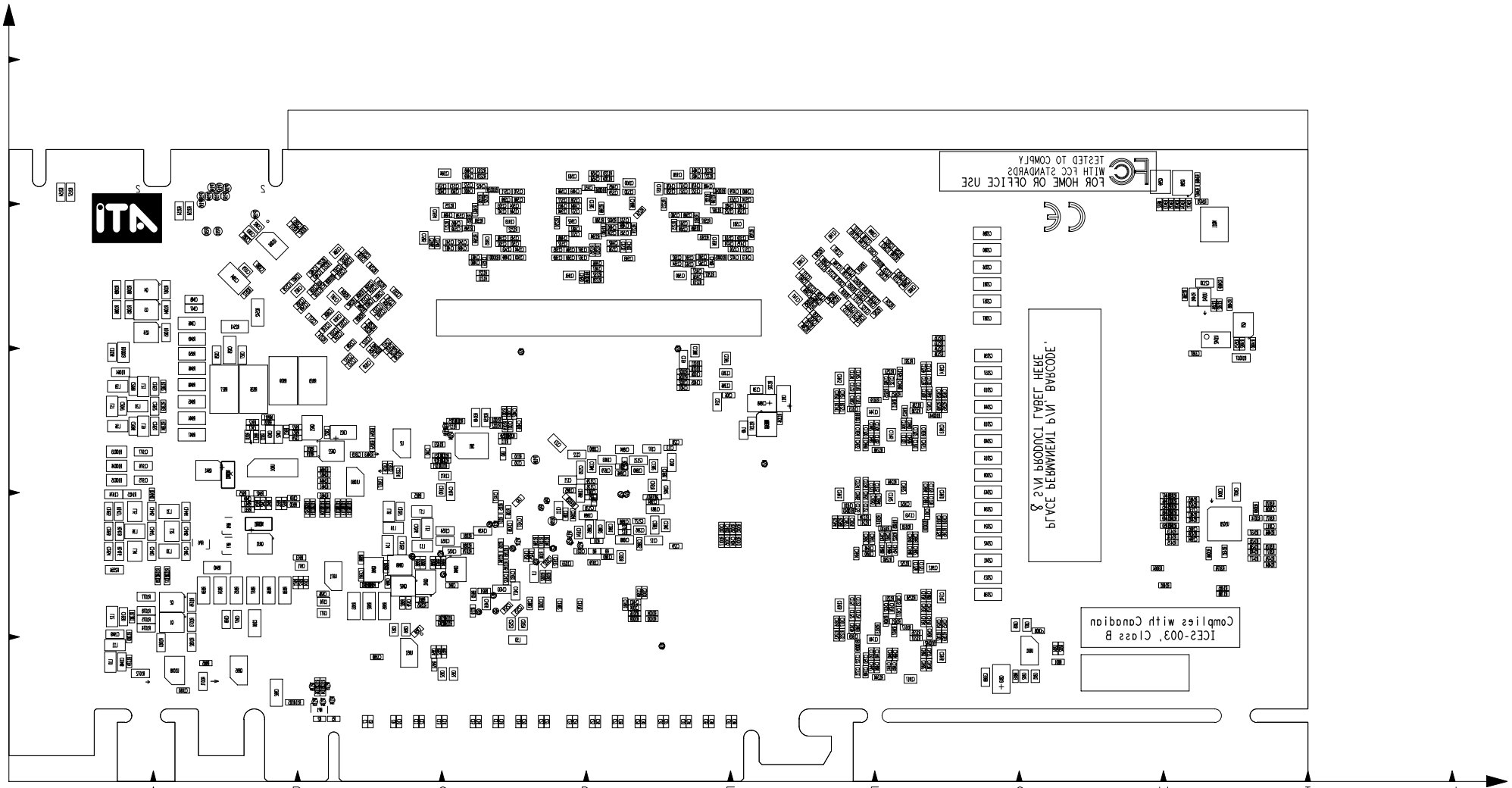
ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600

Title	RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF		
Size B	Document Number 105-A999xx-10		Rev 2
Date: Tuesday, October 10, 2006	Sheet 21 of 22		



RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF
PN 109-A99931-10
Sept 13, 2006 ASSEMBLY TOP
Jasmine Lin\SOS SHEET 1 OF 2

RESTRICTION NOTICE
THIS PCB ARTWORK CONTAINS INFORMATION WHICH IS PROPRIETARY TO AND IS THE PROPERTY OF ATI, AND MAY NOT BE USED, REPRODUCED OR DISCLOSED IN ANY MANNER WITHOUT EXPRESSED WRITTEN PERMISSION FROM ATI.
© 2006 ATI TECHNOLOGIES INC.



RH PCIE RV570 512M 136b DDR3 DDVI DDVI VIVO CF
PN 109-A99931-10
Sept 13, 2006 ASSEMBLY BOTTOM
Jasmine Lin\SOS SHEET 2 OF 2

RESTRICTION NOTICE
THIS PCB ARTWORK CONTAINS INFORMATION WHICH IS PROPRIETARY TO AND IS THE PROPERTY OF ATI, AND MAY NOT BE USED, REPRODUCED OR DISCLOSED IN ANY MANNER WITHOUT EXPRESSED WRITTEN PERMISSION FROM ATI.
© 2006 ATI TECHNOLOGIES INC.