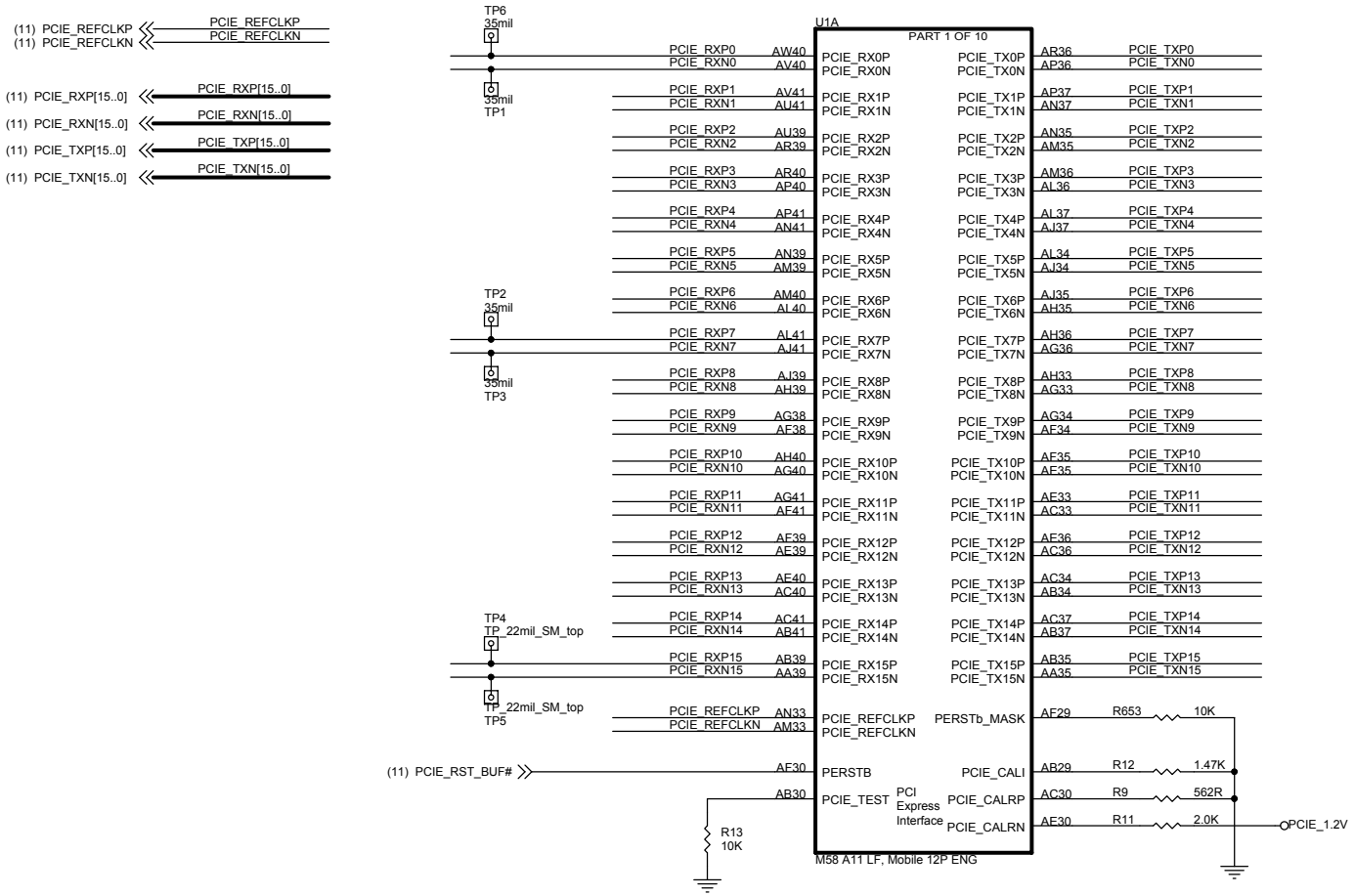

<Variant Name>

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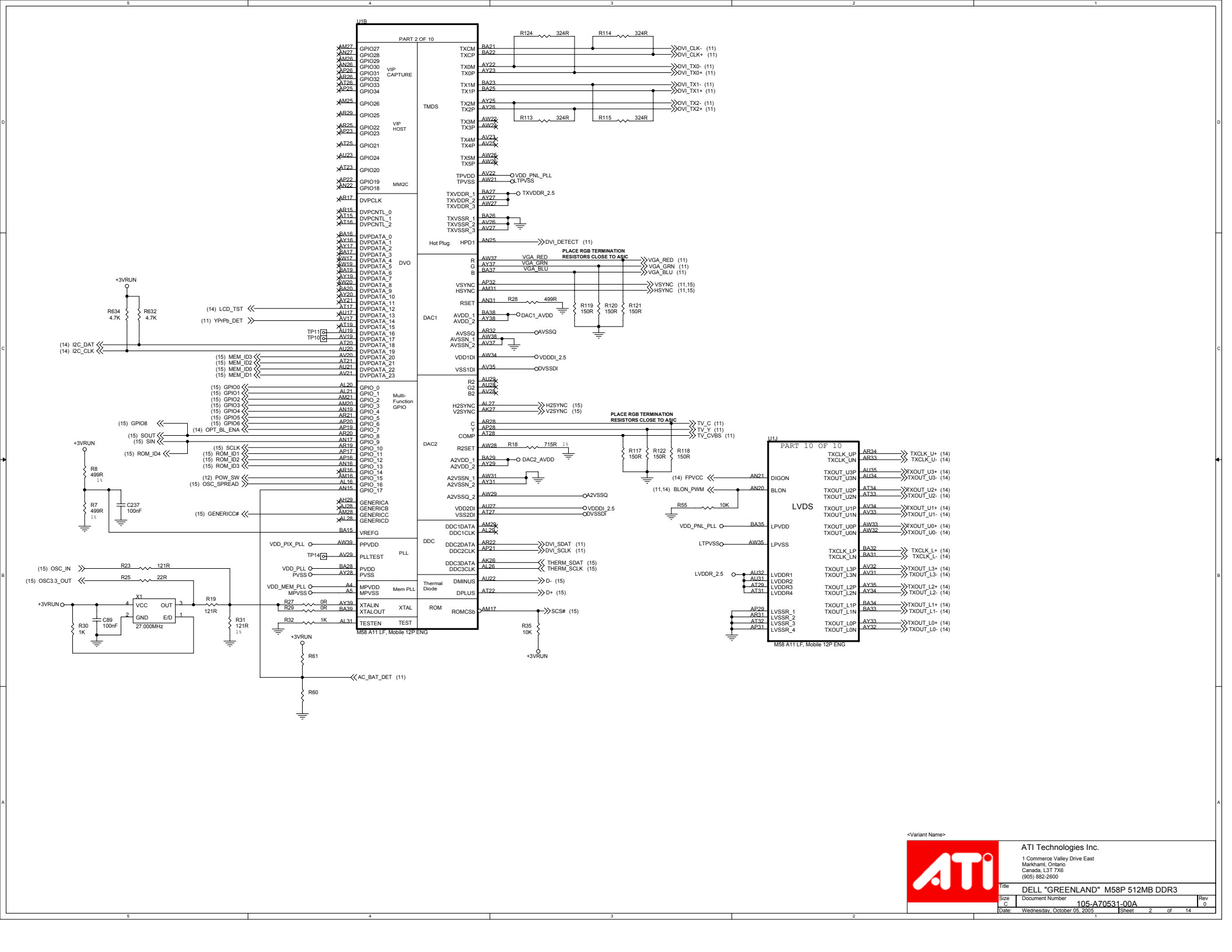
Canada, L3T 7X6
(905) 882-2600

Title	DELL "GREENLAND" M58P 512MB DDR3	
Size: B	Document Number: 105-A70531-00A	Rev: 0
Date: Wednesday, October 05, 2005	Sheet 1 of 14	



<Variant Name>

ATI Technologies Inc.
1 Commerce Valley Drive East
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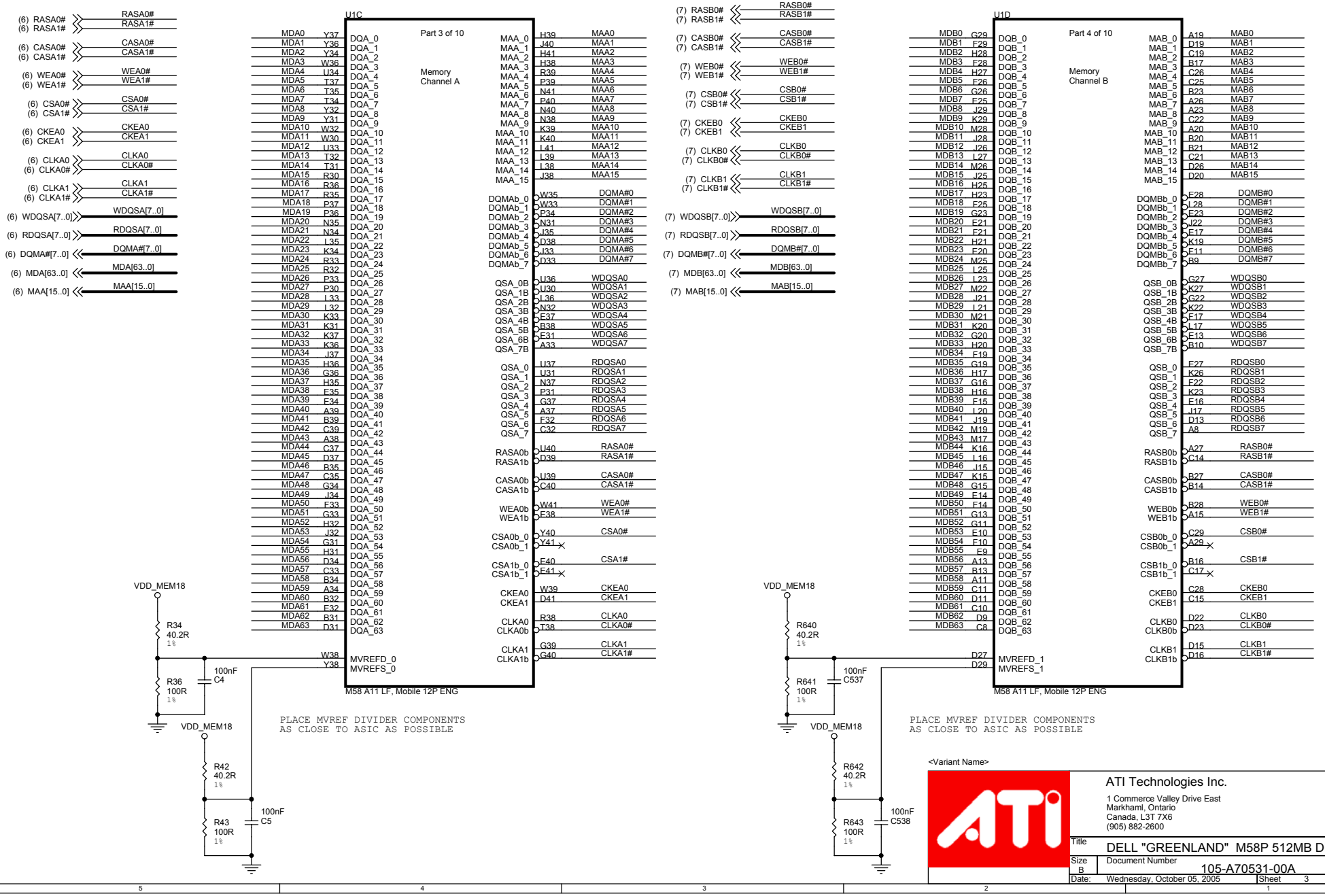
(905) 882-2600

Title	DELL "GREENLAND" M58P 512MB DDR3	
Size: C	Document Number: 105-A70531-00A	Rev: 0
Date: Wednesday, October 05, 2005	Sheet 2 of 14	


(6) RASA0#
(6) RASA1#
RASA0#
RASA1#
(6) CASA0#
(6) CASA1#
CASA0#
CASA1#
(6) WEA0#
(6) WEA1#
WEA0#
WEA1#
(6) CSA0#
(6) CSA1#
CSA0#
CSA1#
(6) CKEA0
(6) CKEA1
CKEA0
CKEA1
(6) CLKA0
(6) CLKA0#
CLKA0
CLKA0#
(6) CLKA1
(6) CLKA1#
CLKA1
CLKA1#
(6) WDQSA[7..0]
WDQSA[7..0]
(6) RDQSA[7..0]
RDQSA[7..0]
(6) DQMA#[7..0]
DQMA#[7..0]
(6) MDA[63..0]
MDA[63..0]
(6) MAA[15..0]
MAA[15..0]
U1C
Part 3 of 10
Memory
Channel A
M58 A11 LF, Mobile 12P ENG
(7) RASB0#
(7) RASB1#
RASB0#
RASB1#
(7) CASB0#
(7) CASB1#
CASB0#
CASB1#
(7) WEB0#
(7) WEB1#
WEB0#
WEB1#
(7) CSB0#
(7) CSB1#
CSB0#
CSB1#
(7) CKEB0
(7) CKEB1
CKEB0
CKEB1
(7) CLKB0
(7) CLKB0#
CLKB0
CLKB0#
(7) CLKB1
(7) CLKB1#
CLKB1
CLKB1#
(7) WDQSB[7..0]
WDQSB[7..0]
(7) RDQSB[7..0]
RDQSB[7..0]
(7) DQMB#[7..0]
DQMB#[7..0]
(7) MDB[63..0]
MDB[63..0]
(7) MAB[15..0]
MAB[15..0]
U1D
Part 4 of 10
Memory
Channel B
M58 A11 LF, Mobile 12P ENG
VDD_MEM18
R34
40.2R
1%
R36
100R
1%
100nF
C4
VDD_MEM18
R42
40.2R
1%
R43
100R
1%
100nF
C5
PLACE MVREF DIVIDER COMPONENTS
AS CLOSE TO ASIC AS POSSIBLE
VDD_MEM18
R640
40.2R
1%
R641
100R
1%
100nF
C537
VDD_MEM18
R642
40.2R
1%
R643
100R
1%
100nF
C538
PLACE MVREF DIVIDER COMPONENTS
AS CLOSE TO ASIC AS POSSIBLE
<Variant Name>
ATI Technologies Inc.
1 Commerce Valley Drive East
Markham, Ontario
Canada, L3T 7X6
(905) 882-2600
Title
DELL "GREENLAND" M58P 512MB DDR3
Size
B
Document Number
105-A70531-00A
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0
Date:
Wednesday, October 05, 2005
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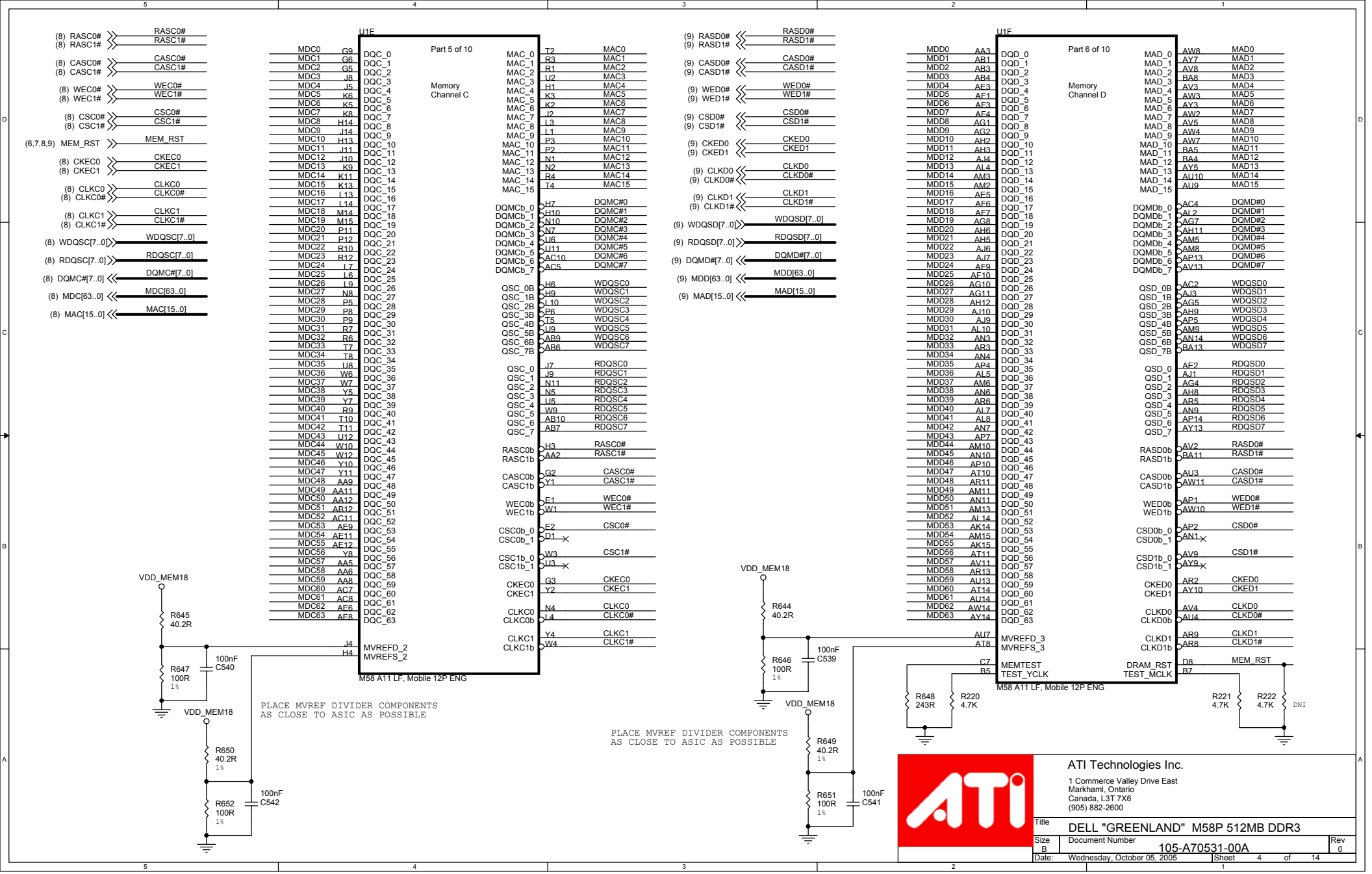
14



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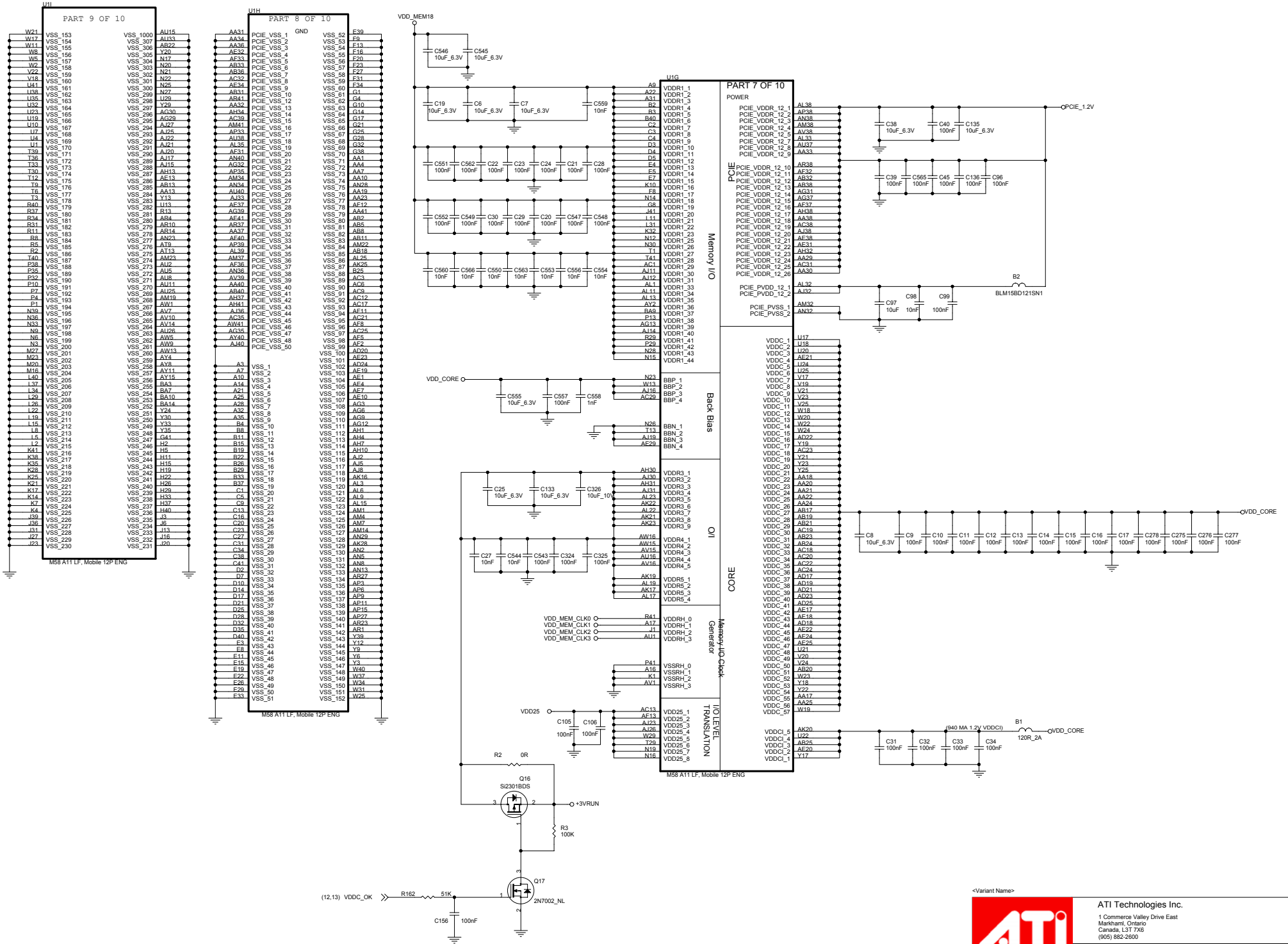
Title	DELL "GREENLAND" M58P 512MB DDR3		
Size B	Document Number 105-A70531-00A		Rev 0
Date: Wednesday, October 05, 2005		Sheet 4 of 14	



ATI Technologies Inc.
1 Commerce Valley Drive East
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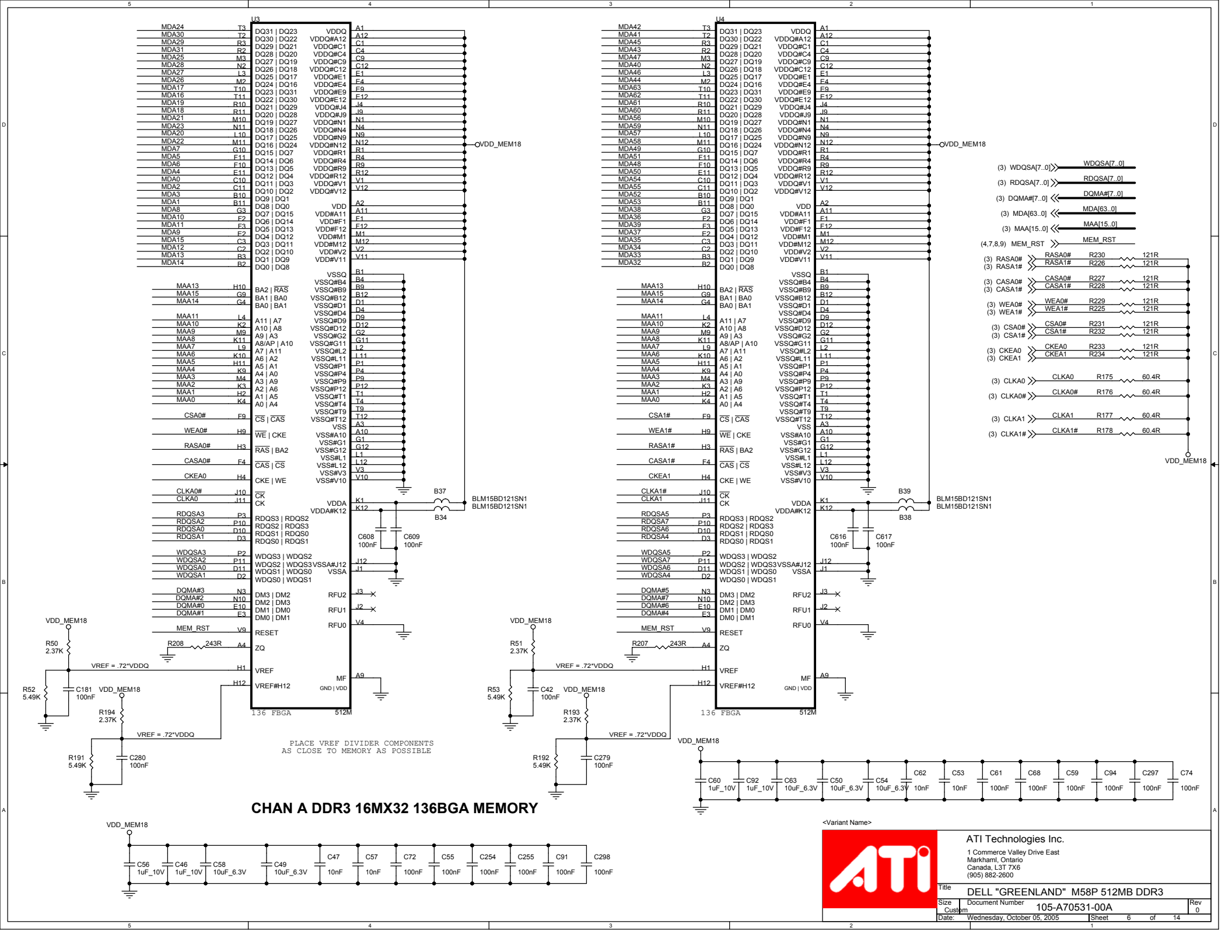
(905) 882-2600

<variant_name>

Title	DELL "GREENLAND" M58P 512MB DDR3		
Size: C	Document Number: 105-A70531-00A		Rev: 0
Date: Wednesday, October 05, 2005		Sheet 5 of 14	


U3
U4
136 FBGA
512M
VDD_MEM18
VDDQ
VDD
VSSQ
VSS
VDDA
MF
GND | VDD
RESET
ZQ
VREF
VREF#H12
VSSA#J12
RFU2
RFU1
RFU0
BLM15BD121SN1
B37
B34
B39
B38
C608 100nF
C609 100nF
C616 100nF
C617 100nF
R208 243R
R207 243R
R50 2.37K
R51 2.37K
R52 5.49K
R53 5.49K
R194 2.37K
R193 2.37K
R191 5.49K
R192 5.49K
C181 100nF
C42 100nF
C280 100nF
C279 100nF
VREF = .72*VDDQ
MDA24
MDA30
MDA29
MDA31
MDA25
MDA28
MDA27
MDA26
MDA17
MDA16
MDA19
MDA18
MDA21
MDA23
MDA20
MDA22
MDA7
MDA5
MDA6
MDA4
MDA0
MDA2
MDA3
MDA1
MDA8
MDA10
MDA11
MDA9
MDA15
MDA12
MDA13
MDA14
MDA42
MDA41
MDA45
MDA43
MDA47
MDA40
MDA46
MDA44
MDA63
MDA62
MDA61
MDA60
MDA56
MDA59
MDA57
MDA58
MDA49
MDA51
MDA48
MDA50
MDA54
MDA55
MDA52
MDA53
MDA38
MDA36
MDA39
MDA37
MDA35
MDA34
MDA33
MDA32
MAA13
MAA15
MAA14
MAA11
MAA10
MAA9
MAA8
MAA7
MAA6
MAA5
MAA4
MAA3
MAA2
MAA1
MAA0
CSA0#
CSA1#
WEA0#
WEA1#
RASA0#
RASA1#
CASA0#
CASA1#
CKEA0
CKEA1
CLKA0#
CLKA1#
CLKA0
CLKA1
RDQSA3
RDQSA2
RDQSA0
RDQSA1
RDQSA5
RDQSA7
RDQSA6
RDQSA4
WDQSA3
WDQSA2
WDQSA0
WDQSA1
WDQSA5
WDQSA7
WDQSA6
WDQSA4
DQMA#3
DQMA#2
DQMA#0
DQMA#1
DQMA#5
DQMA#7
DQMA#6
DQMA#4
MEM_RST
(3) WDQSA[7..0]
WDQSA[7..0]
(3) RDQSA[7..0]
RDQSA[7..0]
(3) DQMA#[7..0]
DQMA#[7..0]
(3) MDA[63..0]
MDA[63..0]
(3) MAA[15..0]
MAA[15..0]
(4,7,8,9) MEM_RST
(3) RASA0#
(3) RASA1#
(3) CASA0#
(3) CASA1#
(3) WEA0#
(3) WEA1#
(3) CSA0#
(3) CSA1#
(3) CKEA0
(3) CKEA1
(3) CLKA0
(3) CLKA0#
(3) CLKA1
(3) CLKA1#
R230 121R
R226 121R
R227 121R
R228 121R
R229 121R
R225 121R
R231 121R
R232 121R
R233 121R
R234 121R
R175 60.4R
R176 60.4R
R177 60.4R
R178 60.4R
C60 1uF_10V
C92 1uF_10V
C63 10uF_6.3V
C50 10uF_6.3V
C54 10uF_6.3V
C62 10nF
C53 10nF
C61 100nF
C68 100nF
C59 100nF
C94 100nF
C297 100nF
C74 100nF
C56 1uF_10V
C46 1uF_10V
C58 10uF_6.3V
C49 10uF_6.3V
C47 10nF
C57 10nF
C72 100nF
C55 100nF
C254 100nF
C255 100nF
C91 100nF
C298 100nF
PLACE VREF DIVIDER COMPONENTS
AS CLOSE TO MEMORY AS POSSIBLE
CHAN A DDR3 16MX32 136BGA MEMORY
<Variant Name>
ATI Technologies Inc.
1 Commerce Valley Drive East
Markhaml, Ontario
Canada, L3T 7X6
(905) 882-2600
Title
DELL "GREENLAND" M58P 512MB DDR3
Size
Custom
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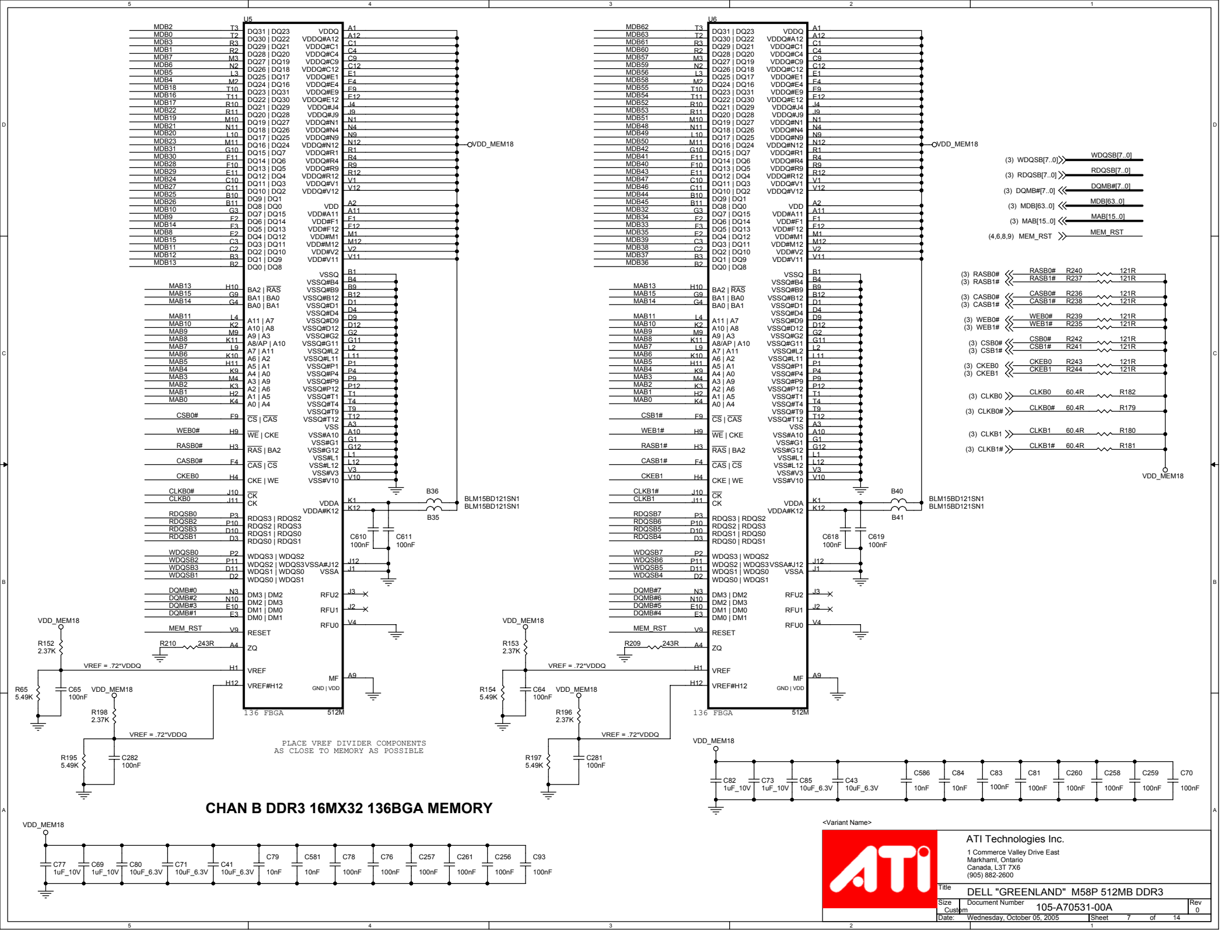
U5
U6
136 FBGA
512M
VDD_MEM18
VREF = .72*VDDQ
PLACE VREF DIVIDER COMPONENTS
AS CLOSE TO MEMORY AS POSSIBLE
CHAN B DDR3 16MX32 136BGA MEMORY
<Variant Name>
ATI Technologies Inc.
1 Commerce Valley Drive East
Markhaml, Ontario
Canada, L3T 7X6
(905) 882-2600
Title
DELL "GREENLAND" M58P 512MB DDR3
Size
Custom
Document Number
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0
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Wednesday, October 05, 2005
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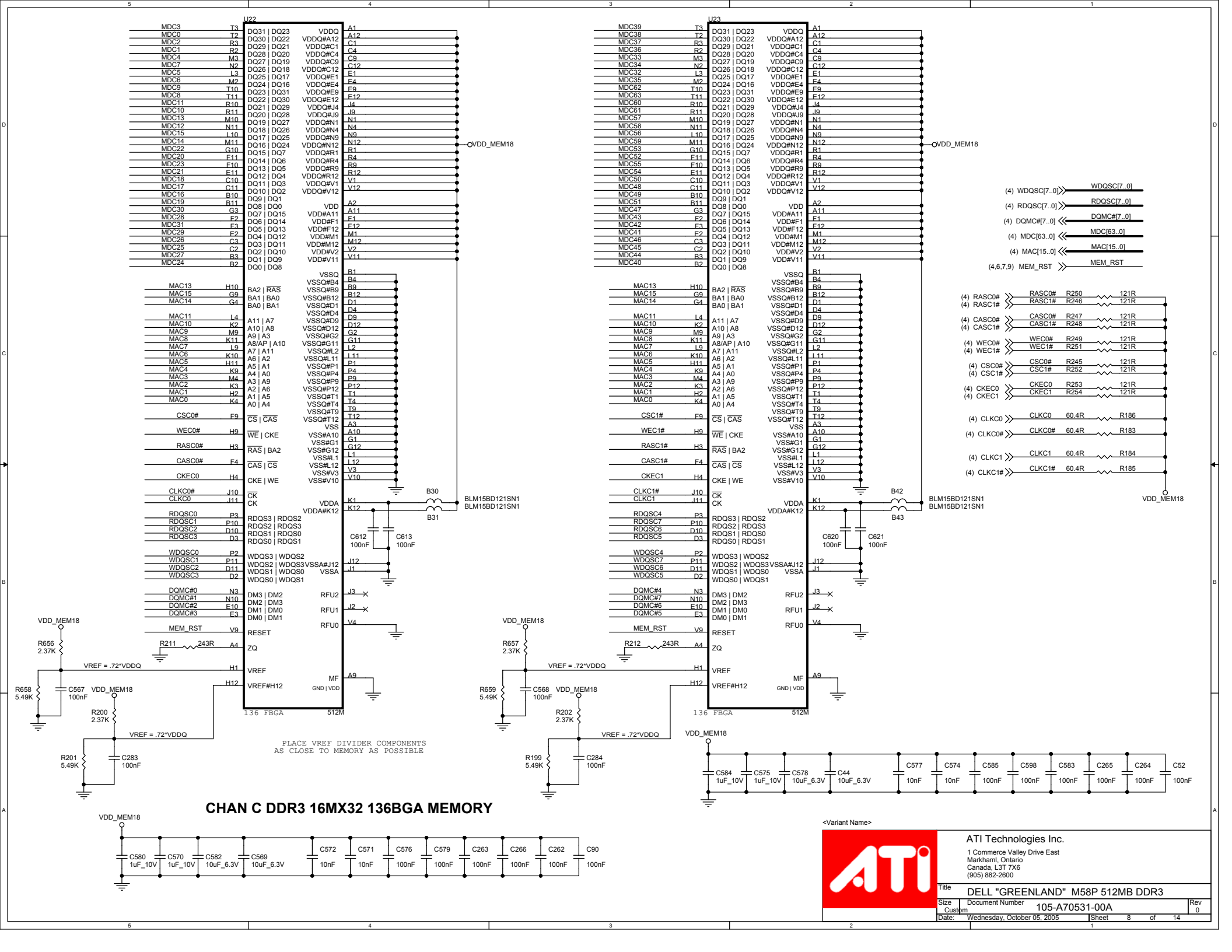
14



<variant_name>

ATI Technologies Inc.
1 Commerce Valley Drive East
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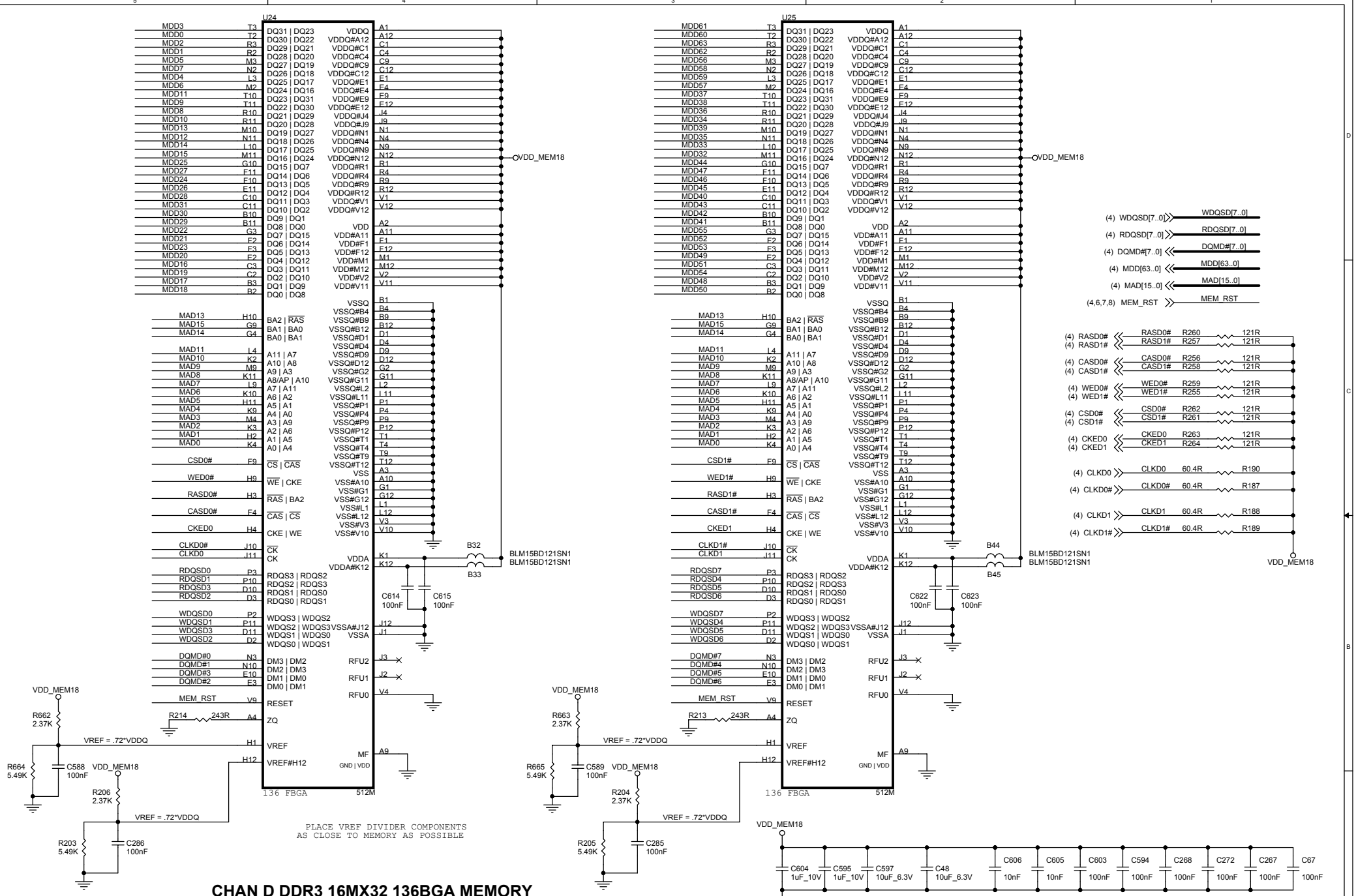
Title	DELL "GREENLAND" M58P 512MB DDR3	
Size: Custom	Document Number: 105-A70531-00A	Rev: 0
Date: Wednesday, October 05, 2005	Sheet 8 of 14	



ATI Technologies Inc.
1 Commerce Valley Drive East
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<Variant Name>

Title	DELL "GREENLAND" M58P 512MB DDR3		
Size: Custom	Document Number: 105-A70531-00A		Rev: 0
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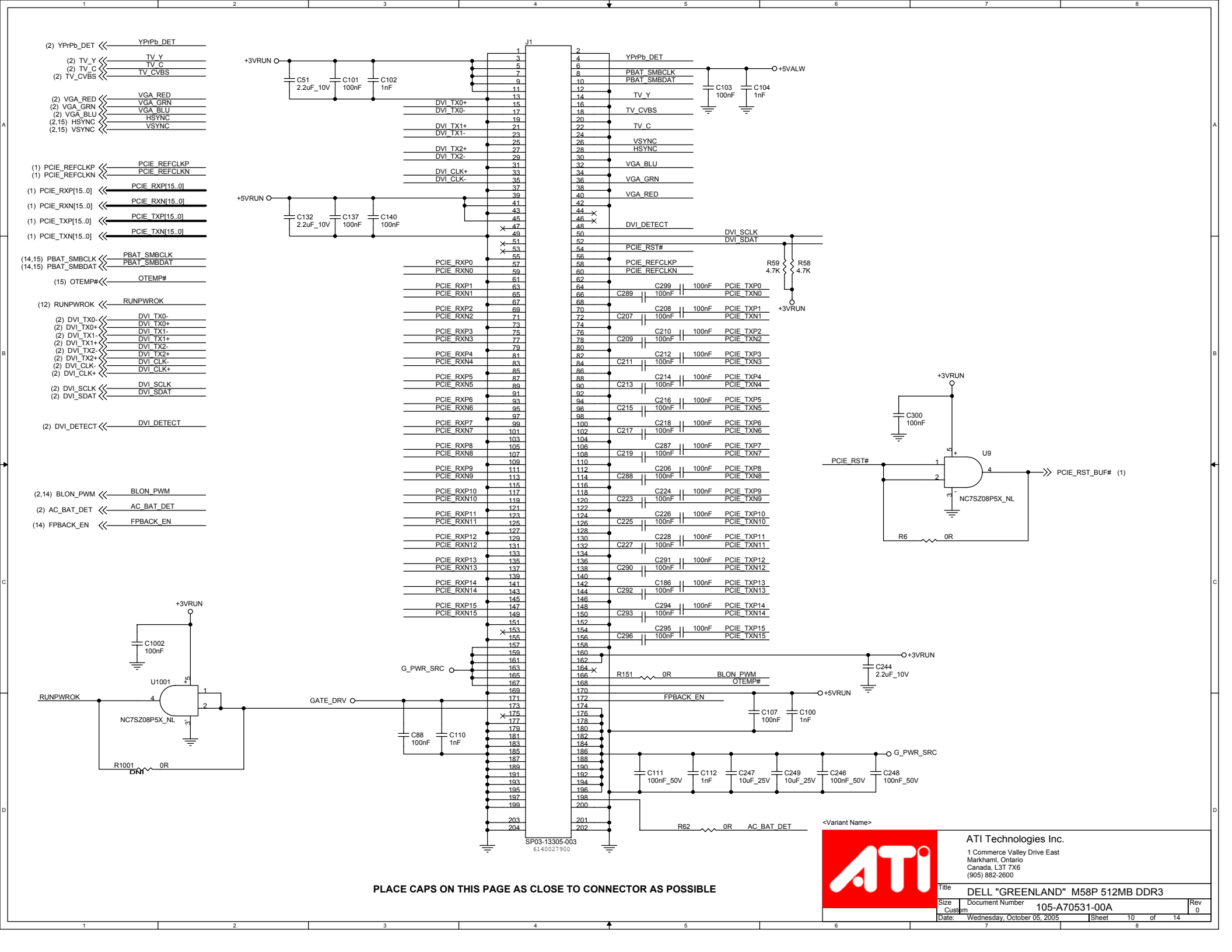
(2) YPrPb_DET
YPrPb_DET
(2) TV_Y
TV_Y
(2) TV_C
TV_C
(2) TV_CVBS
TV_CVBS
(2) VGA_RED
VGA_RED
(2) VGA_GRN
VGA_GRN
(2) VGA_BLU
VGA_BLU
(2,15) HSYNC
HSYNC
(2,15) VSYNC
VSYNC
(1) PCIE_REFCLKP
PCIE_REFCLKP
(1) PCIE_REFCLKN
PCIE_REFCLKN
(1) PCIE_RXP[15..0]
PCIE_RXP[15..0]
(1) PCIE_RXN[15..0]
PCIE_RXN[15..0]
(1) PCIE_TXP[15..0]
PCIE_TXP[15..0]
(1) PCIE_TXN[15..0]
PCIE_TXN[15..0]
(14,15) PBAT_SMBCLK
PBAT_SMBCLK
(14,15) PBAT_SMBDAT
PBAT_SMBDAT
(15) OTEMP#
OTEMP#
(12) RUNPWROK
RUNPWROK
(2) DVI_TX0-
DVI_TX0-
(2) DVI_TX0+
DVI_TX0+
(2) DVI_TX1-
DVI_TX1-
(2) DVI_TX1+
DVI_TX1+
(2) DVI_TX2-
DVI_TX2-
(2) DVI_TX2+
DVI_TX2+
(2) DVI_CLK-
DVI_CLK-
(2) DVI_CLK+
DVI_CLK+
(2) DVI_SCLK
DVI_SCLK
(2) DVI_SDAT
DVI_SDAT
(2) DVI_DETECT
DVI_DETECT
(2,14) BLON_PWM
BLON_PWM
(2) AC_BAT_DET
AC_BAT_DET
(14) FPBACK_EN
FPBACK_EN
+3VRUN
C51 2.2uF_10V
C101 100nF
C102 1nF
+5VRUN
C132 2.2uF_10V
C137 100nF
C140 100nF
J1
SP03-13305-003
6140027900
+5VALW
C103 100nF
C104 1nF
R59 4.7K
R58 4.7K
C299 100nF
C289 100nF
C208 100nF
C207 100nF
C210 100nF
C209 100nF
C212 100nF
C211 100nF
C214 100nF
C213 100nF
C216 100nF
C215 100nF
C218 100nF
C217 100nF
C287 100nF
C219 100nF
C206 100nF
C288 100nF
C224 100nF
C223 100nF
C226 100nF
C225 100nF
C228 100nF
C227 100nF
C291 100nF
C290 100nF
C186 100nF
C292 100nF
C294 100nF
C293 100nF
C295 100nF
C296 100nF
C300 100nF
U9
NC7SZ08P5X_NL
R6 0R
C1002 100nF
U1001
NC7SZ08P5X_NL
R1001 0R
DNI
G_PWR_SRC
GATE_DRV
C88 100nF
C110 1nF
R151 0R
C244 2.2uF_10V
C107 100nF
C100 1nF
C111 100nF_50V
C112 1nF
C247 10uF_25V
C249 10uF_25V
C246 100nF_50V
C248 100nF_50V
R62 0R
PCIE_RST#
PCIE_RST_BUF# (1)
DVI_SCLK
DVI_SDAT
DVI_DETECT
PCIE_RST#
PCIE_REFCLKP
PCIE_REFCLKN
PBAT_SMBCLK
PBAT_SMBDAT
TV_Y
TV_CVBS
TV_C
VSYNC
HSYNC
VGA_BLU
VGA_GRN
VGA_RED
BLON_PWM
OTEMP#
FPBACK_EN
AC_BAT_DET
PCIE_RXP0
PCIE_RXN0
PCIE_RXP1
PCIE_RXN1
PCIE_RXP2
PCIE_RXN2
PCIE_RXP3
PCIE_RXN3
PCIE_RXP4
PCIE_RXN4
PCIE_RXP5
PCIE_RXN5
PCIE_RXP6
PCIE_RXN6
PCIE_RXP7
PCIE_RXN7
PCIE_RXP8
PCIE_RXN8
PCIE_RXP9
PCIE_RXN9
PCIE_RXP10
PCIE_RXN10
PCIE_RXP11
PCIE_RXN11
PCIE_RXP12
PCIE_RXN12
PCIE_RXP13
PCIE_RXN13
PCIE_RXP14
PCIE_RXN14
PCIE_RXP15
PCIE_RXN15
PCIE_TXP0
PCIE_TXN0
PCIE_TXP1
PCIE_TXN1
PCIE_TXP2
PCIE_TXN2
PCIE_TXP3
PCIE_TXN3
PCIE_TXP4
PCIE_TXN4
PCIE_TXP5
PCIE_TXN5
PCIE_TXP6
PCIE_TXN6
PCIE_TXP7
PCIE_TXN7
PCIE_TXP8
PCIE_TXN8
PCIE_TXP9
PCIE_TXN9
PCIE_TXP10
PCIE_TXN10
PCIE_TXP11
PCIE_TXN11
PCIE_TXP12
PCIE_TXN12
PCIE_TXP13
PCIE_TXN13
PCIE_TXP14
PCIE_TXN14
PCIE_TXP15
PCIE_TXN15
PLACE CAPS ON THIS PAGE AS CLOSE TO CONNECTOR AS POSSIBLE
<Variant Name>
ATI Technologies Inc.
1 Commerce Valley Drive East
Markhaml, Ontario
Canada, L3T 7X6
(905) 882-2600
Title
DELL "GREENLAND" M58P 512MB DDR3
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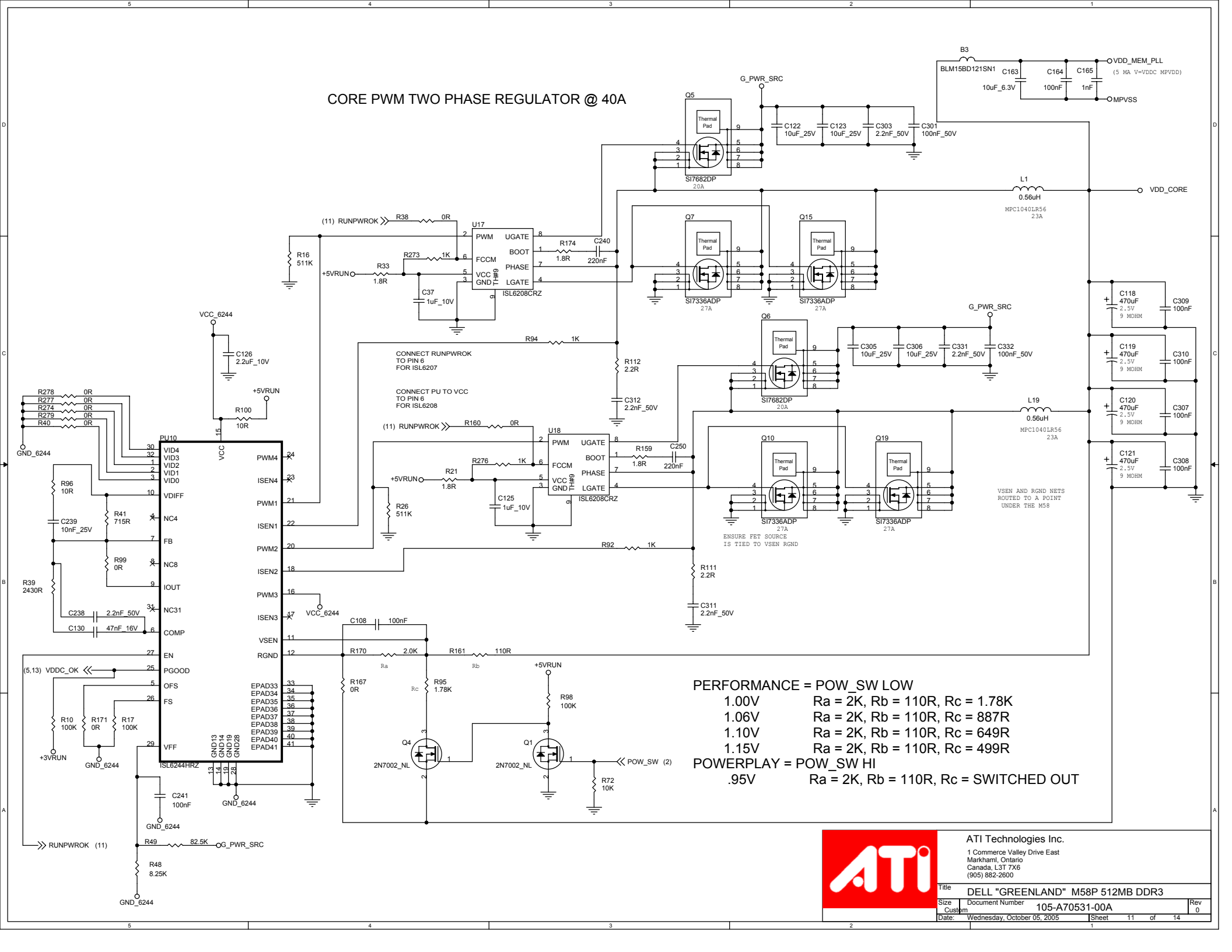
CORE PWM TWO PHASE REGULATOR @ 40A
PERFORMANCE = POW_SW LOW
1.00V Ra = 2K, Rb = 110R, Rc = 1.78K
1.06V Ra = 2K, Rb = 110R, Rc = 887R
1.10V Ra = 2K, Rb = 110R, Rc = 649R
1.15V Ra = 2K, Rb = 110R, Rc = 499R
POWERPLAY = POW_SW HI
.95V Ra = 2K, Rb = 110R, Rc = SWITCHED OUT
CONNECT RUNPWROK TO PIN 6 FOR ISL6207
CONNECT PU TO VCC TO PIN 6 FOR ISL6208
ENSURE FET SOURCE IS TIED TO VSEN RGND
VSEN AND RGND NETS ROUTED TO A POINT UNDER THE M58
ATI Technologies Inc.
1 Commerce Valley Drive East
Markhaml, Ontario
Canada, L3T 7X6
(905) 882-2600
DELL "GREENLAND" M58P 512MB DDR3
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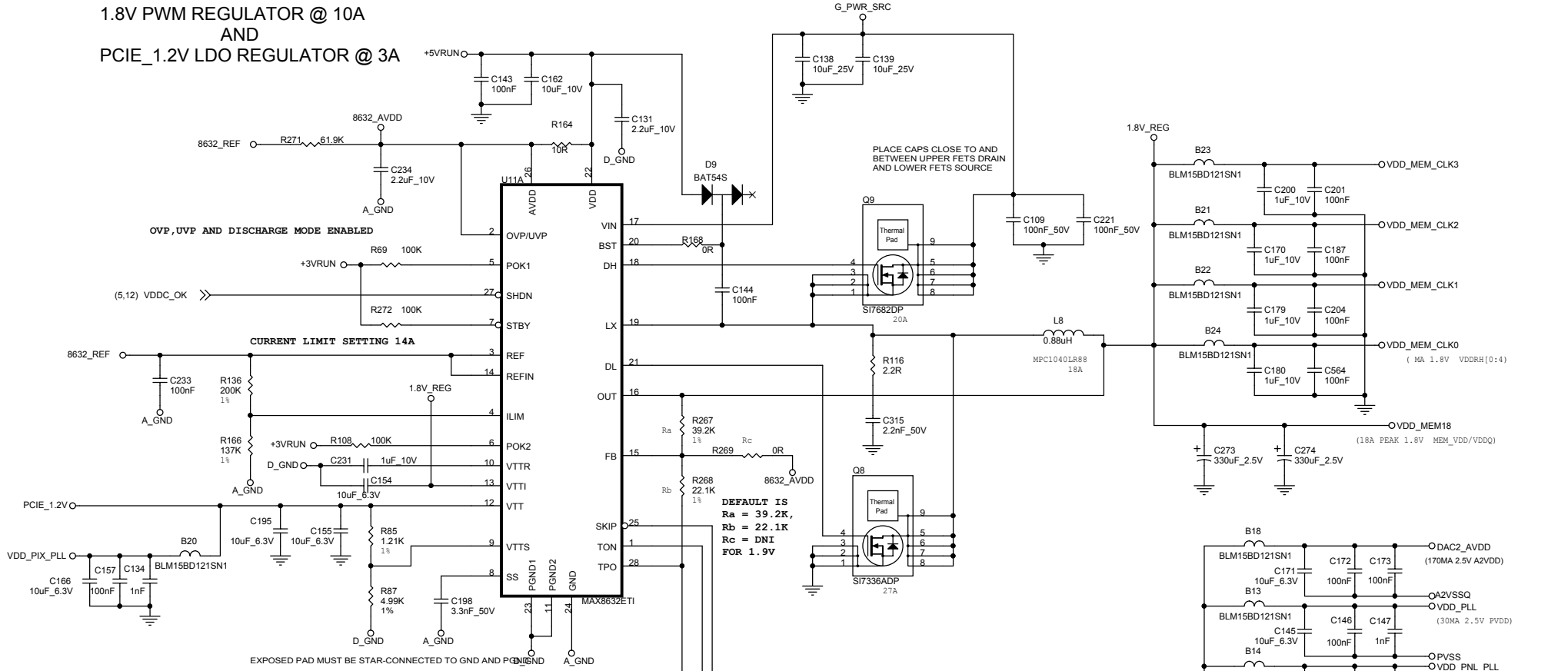
Wednesday, October 05, 2005

1.8V PWM REGULATOR @ 10A AND PCIE_1.2V LDO REGULATOR @ 3A



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Title	DELL "GREENLAND" M58P 512MB DDR3	
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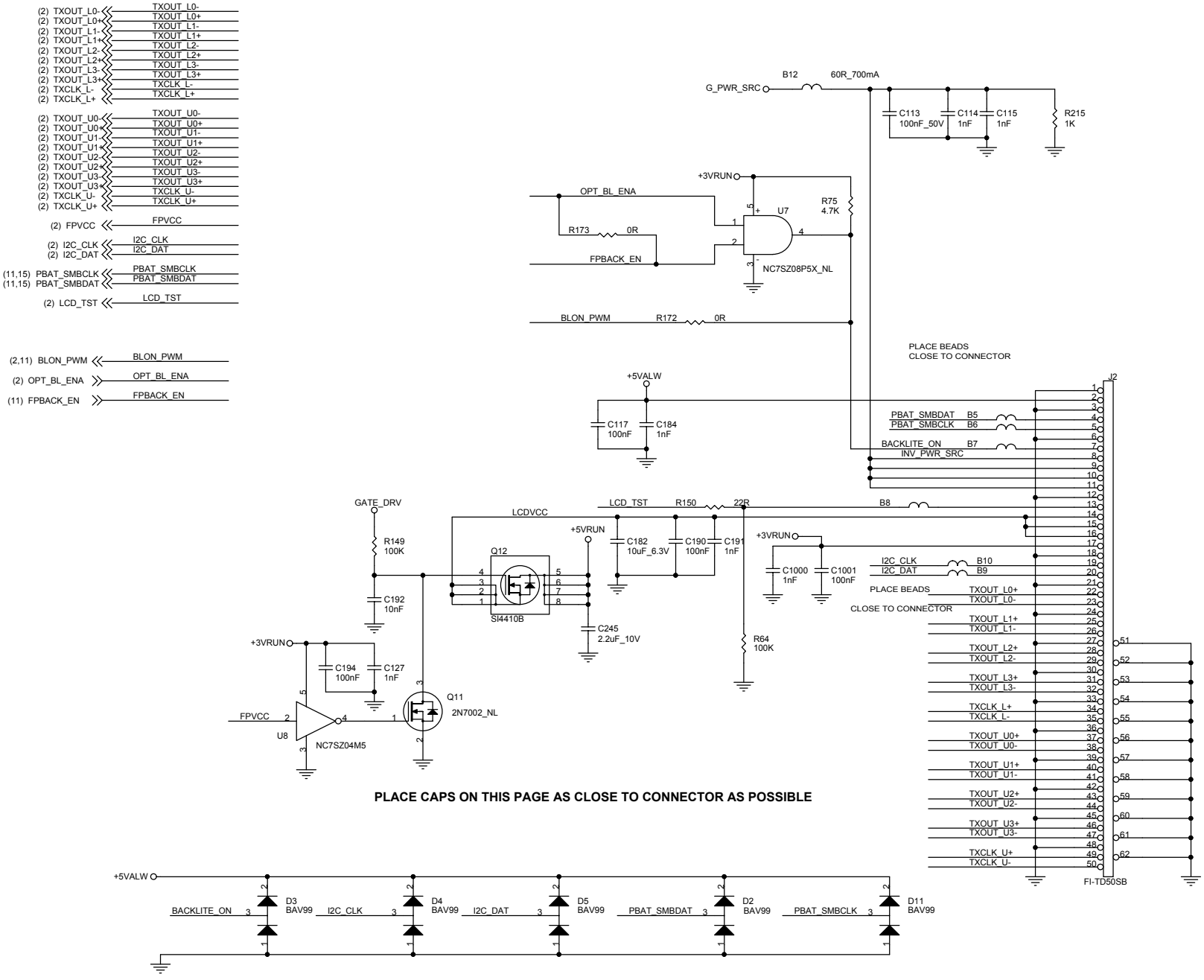

<Variant Name>

ATI Technologies Inc.
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Markhaml, Ontario
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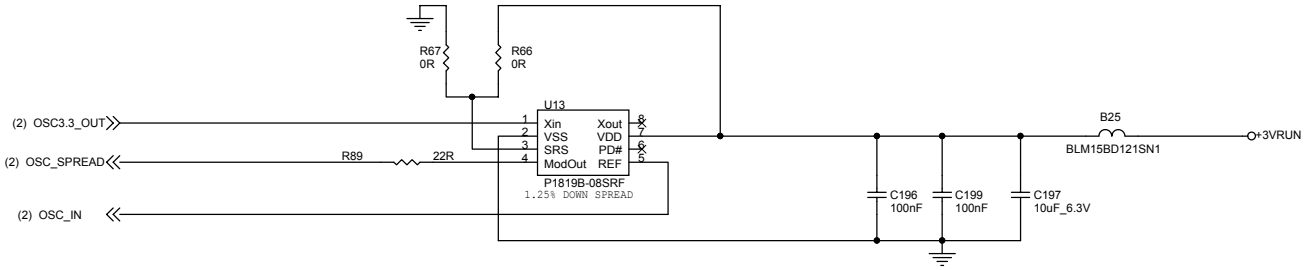
(905) 882-2600

Title: DELL "GREENLAND" M58P 512MB DDR3

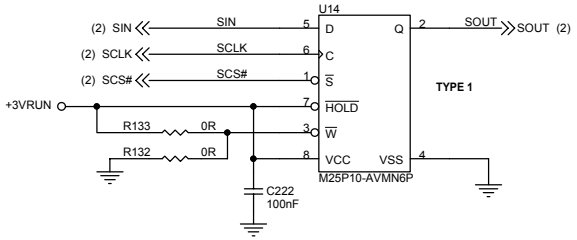
Size: Custom | Document Number: 105-A70531-00A | Rev: 0

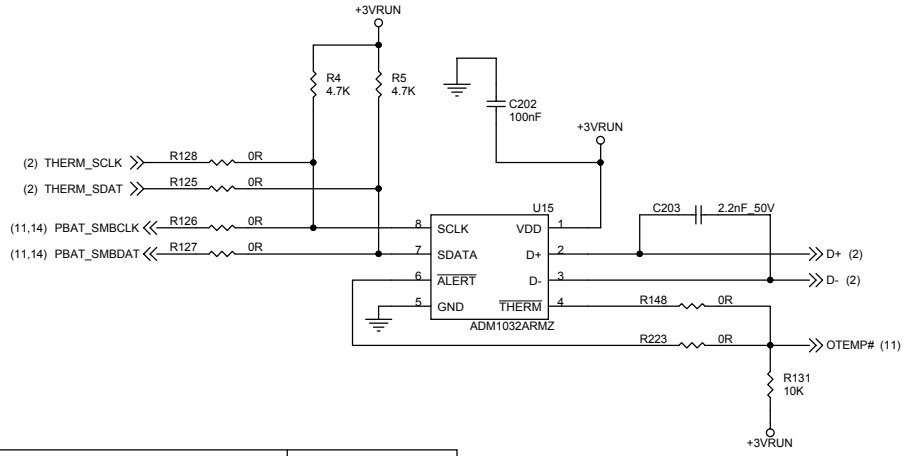
Date: Wednesday, October 05, 2005 | Sheet 13 of 14

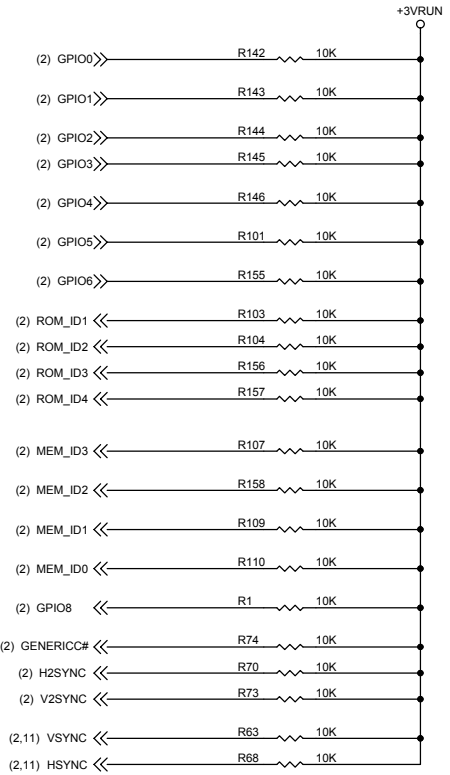
MEMORY CLOCK SPREAD SPECTRUM



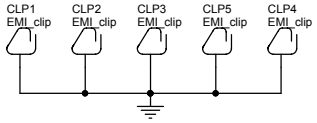
FLASH ROM







STRAPS	PIN	DESCRIPTION OF RECOMMENDED SETTING	RECOMMENDED
TX_PWRS_ENB	GPIO0	TRANSMITTER POWER SAVINGS ENABLE - FULL TX OUTPUT SWING	INSTALL 10K RESISTOR
TX_DEEMPH_EN	GPIO1	TRANSMITTER DE-EMPHASIS ENABLE - TX DE-EMPHASIS DISABLED FOR MOBILE	INSTALL 10K RESISTOR
PCIE_MISC0/1	GPIO(3:2)	PCIE MISCELLANEOUS MODES - HALT IMPEDENCE CALCULATION BEFORE TX ENABLED AND ENABLE RX DETECT	DO NOT INSTALL 10K RESISTORS
DEBUG_ACCESS	GPIO4	- NORMAL MODE	DO NOT INSTALL 10K RESISTOR
PLL_IBIAS_RD	GPIO(6:5)	REDUCE MIRROR BIAS SETTING FOR PHY PLL	01
ROMIDCFG(3:0)	ROMID (4:1)	SERIAL FLASH ROM TYPE SELECT - SERIAL M25P10 ROM	1011
MEM_TYPE	MEMID (3:0)	MEMORY TYPE AND SPEED SELECT - SAMSUNG GDDR3 256MB 8MX32	TBD
FORCE COMPLIANCE	GPIO8	DO NOT FORCE COMPLIANCE STATE QUICKLY	DO NOT INSTALL 10K RESISTOR
ATI FEATURE II	GENERICC H2SYNC V2SYNC	SET TO 000	DO NOT INSTALL 10K RESISTORS
VIP DEVICE	VSYNC	NO SLAVE VIP DEVICE PRESENT AT RESET	INSTALL 10K RESISTOR
ATI FEATURE I	HSYNC	SET TO 1	INSTALL 10K RESISTOR



<Variant Name>

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Title	DELL "GREENLAND" M58P 512MB DDR3	
Size B	Document Number 105-A70531-00A	Rev 0
Date: Wednesday, October 05, 2005	Sheet 14 of 14	

Title	Schematic No.	Date:
DELL "GREENLAND" M58P 512MB DDR3	105-A70531-00A	**Wednesday, October 05, 2005**

REVISION HISTORY

Rev 0

Sch Rev	PCB Rev	Date	REVISION DESCRIPTION
0	00A	07/09/05	PROTOTYPE DESIGN BASED ON 105-A743-00B WITH FOLLOWING CHANGES: - CHANGE TO NEW LCD CONNECTOR AND PINOUT,ADD 24 BIT - CHANGES TO BOARD TO BOARD PINOUT TO ADD SOME +5VRUN PINS AND REMOVE RGB DDC, AND REMOVE INTERNAL TMDS DVI2
		13/09/05	- REMOVE EXTERNAL TMDS LOGIC AND CONNECT INTEGRATED TMDS - CHANGES TO CORE REGULATOR ISL6244/ISL6207 AND I/O REGULATOR MAX8632 AS PER DELL REVIEWS
		20/09/05	- CORRECT MEMORY U4,U6,U23,U25 CONTROL SIGNALS FOR NON MIRRORED - ADD OPTIONAL PD/PU FOR NON HDCP/HDCP ON EEPROM WP PIN - ADD PU RESISTOR TO J2 BACKLITE_ON PIN - REMOVE DIODE D6 FROM IO REG LOWER FET Q8 - CHANGE TO ISL6208 SYMBOL
		28/09/05	- PULLUP I/O REG MAX8632 OVP/UVP PIN TO +5VRUN INSTEAD OF +5VALW
		04/10/05	- CORRECT MISSING GROUND ON +3VRUN CAPS AT MODULE CONNECTOR
		05/10/05	- CONNECT PIN 17 TO +3VRUN AT LVDS CONNECTOR AND ADD TWO CAPS