

S-SERIES 2009

INVICTA (Intel-Discrete)

MV Build (A03) - Final

2009.03.18

DatasheetLive

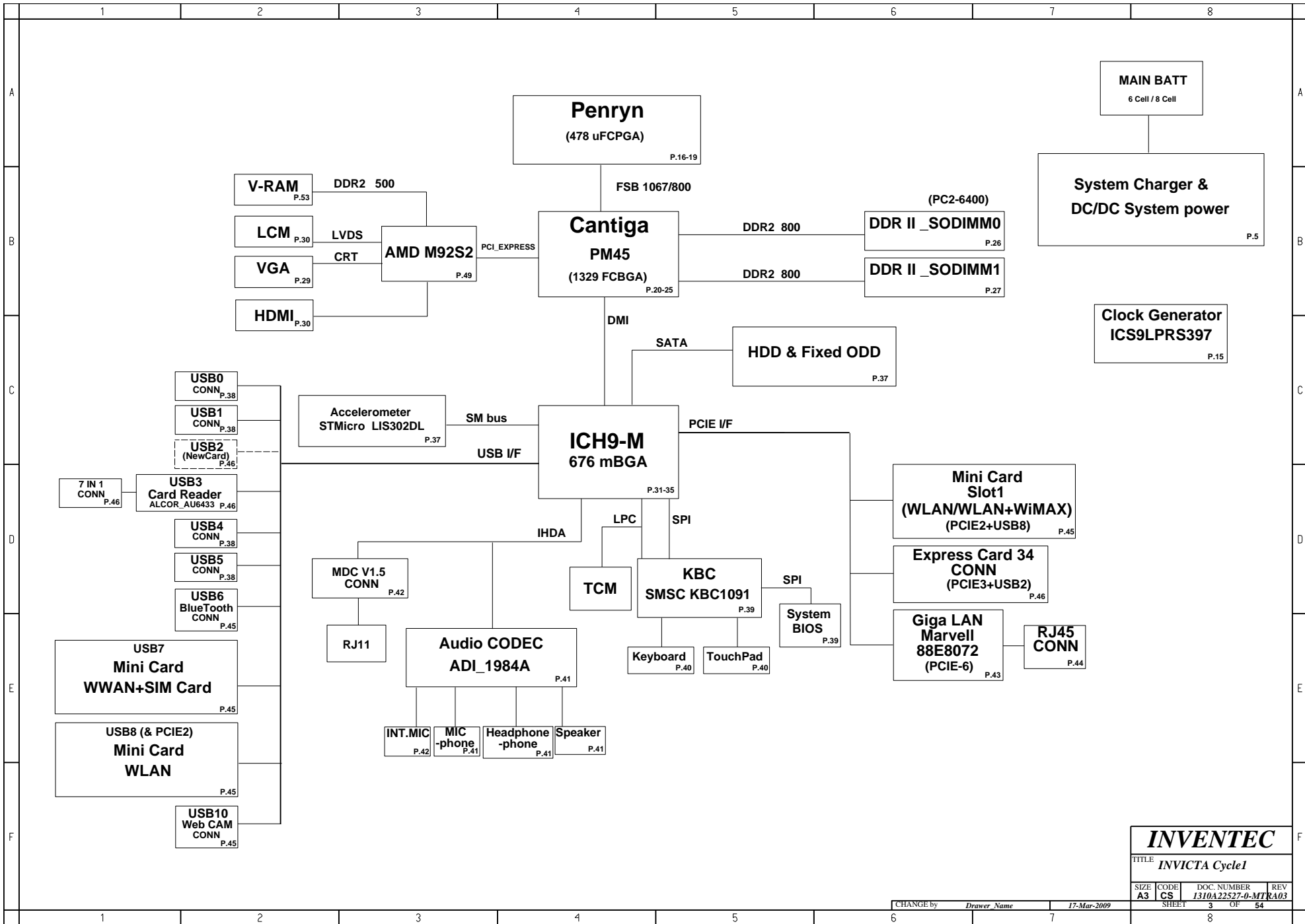
DATE	CHANGE NO.	REV

DRAWER	EE	DATE	POWER	DATE	INVENTEC			
DESIGN								
CHECK								
RESPONSIBLE								
TITLE					<i>INVICTA Cycle1</i>			
SIZE =	3	VER :						
FILE NAME :	XXXX-XXXXXX-XX				SIZE	CODE	DOC NUMBER	REV
P/N	XXXXXXXXXXXX				A3	CS	J310A22527-0-MTR	A03
					SHEET	1 OF 54		

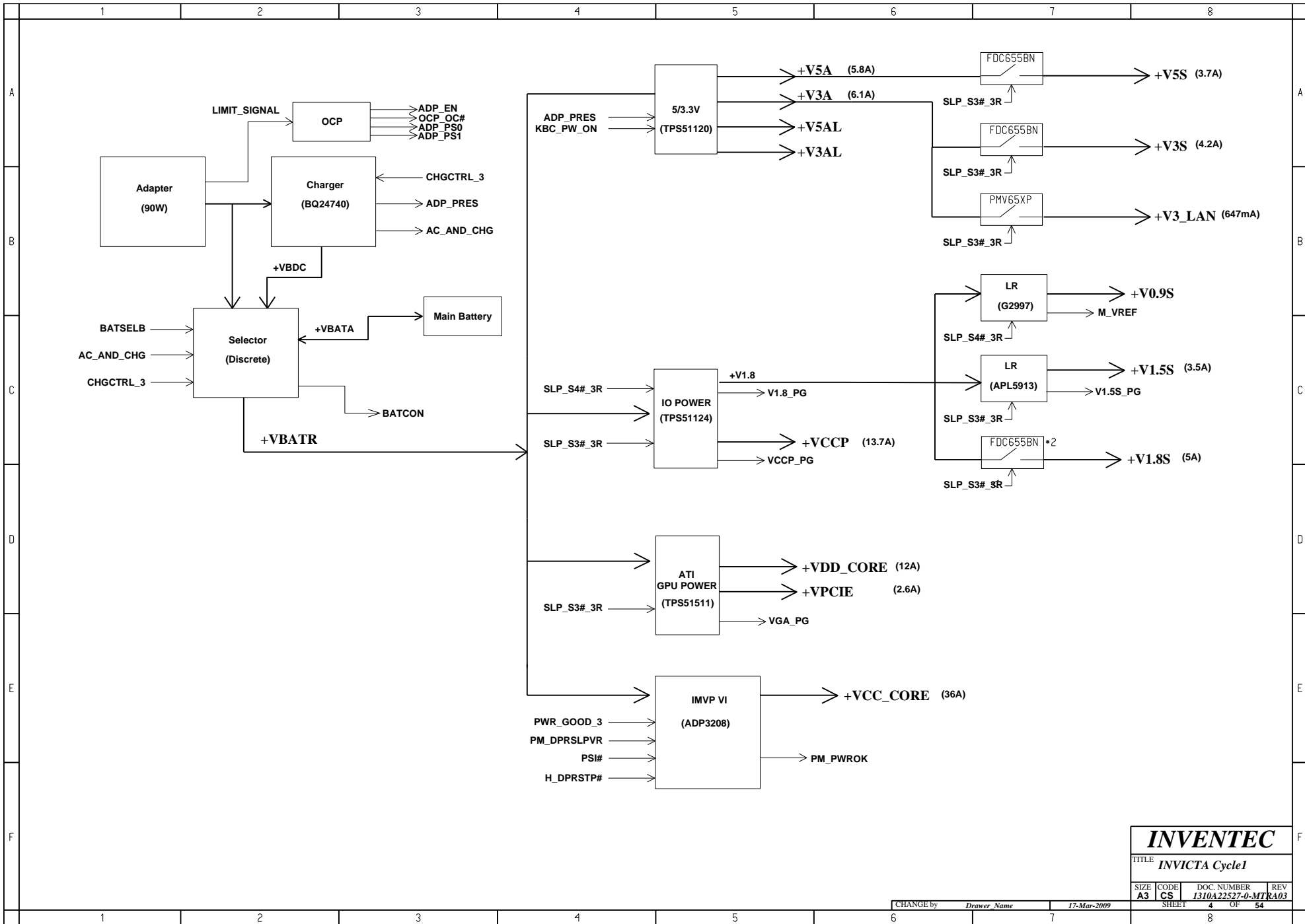
Table Of Contents

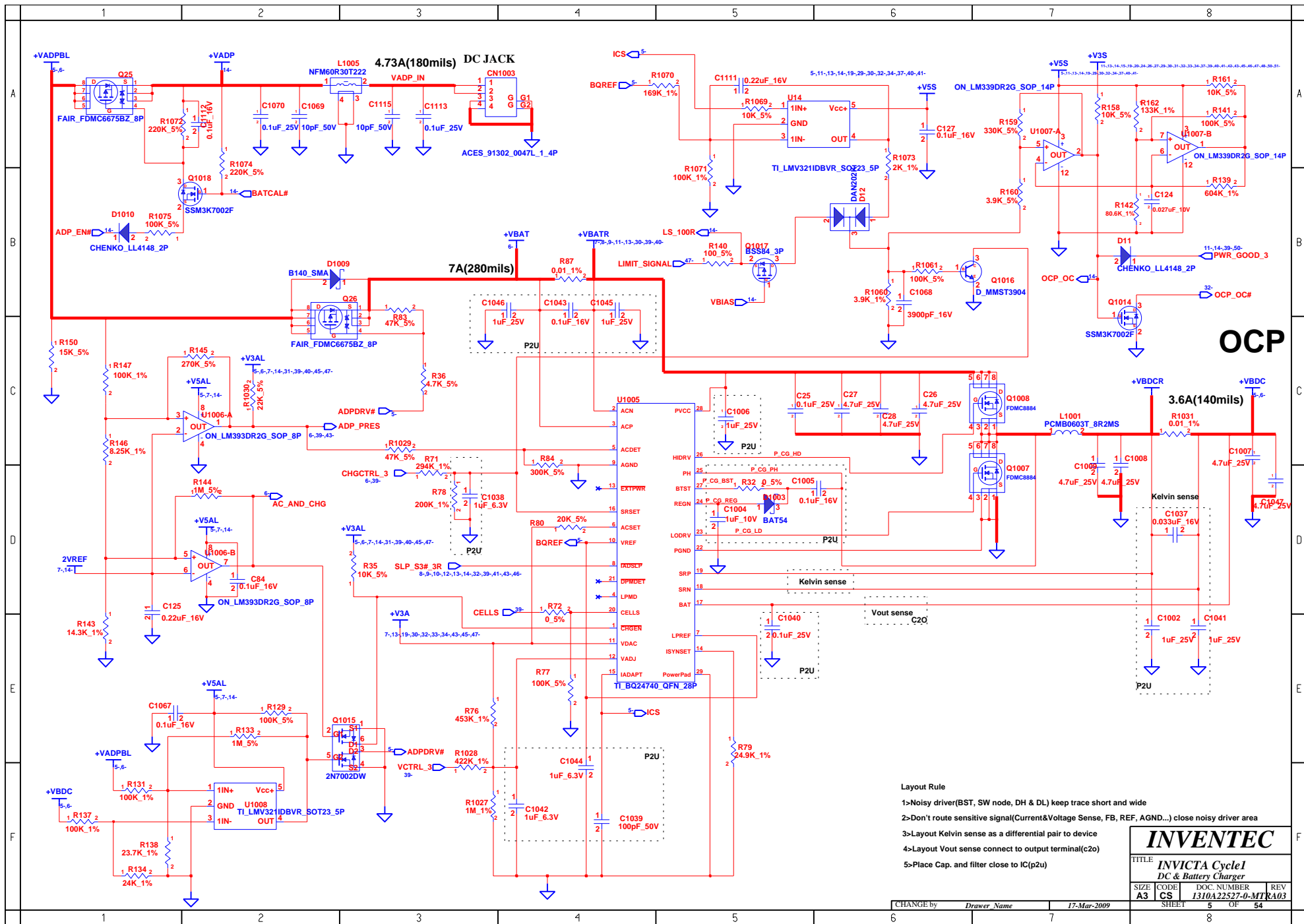
Page	Page	Page
5- DC & Battery Charger & OCP.	15- Clock Generator.	36- Power, LID, APP SW/B.
6- Select & Battery CONN.	16- CPU Penryn-1.	37- HDD & ODD,Accelerometer,15" ODD EXT/B.
7- System Power (+V3A/+V5A).	17- CPU Penryn-2.	38- USB CONN.
8- System Power (+V1.8/+VCCP) .	18- CPU Penryn-3.	39- KBC, BIOS ROM, Debug Port.
9- Graphic Power (+VDD_CORE & +VPCIE).	19- XDP & Thermal & Fan.	40- Internal Keyboard & TouchPad CONN.
10- System Power (+V1.5S) .	20- N/B Cantiga-1.	41- Audio CODEC & Earphone & Speaker.
11- CPU Power (+VCC_CORE).	21- N/B Cantiga-2.	42- Audio MIC & MDC CONN.
12- DDR Termination Voltage(+V0.9S).	22- N/B Cantiga-3.	43- Giga LAN controller.
13- Power (Sleep: +V5S/+V3S/+V1.8S).	23- N/B Cantiga-4.	44- Magnetic & RJ45 CONN.
14- Power (Sequence).	24- N/B Cantiga-5.	45- Mini Card(WLAN/WWAN), BT.
	25- N/B Cantiga-6.	46- New Card & 4 in 1 Card (SD/MMC/MS/XD).
	26- DDR2-DIMM0.	47- LEDs, TCM CONN.
	27- DDR2-DIMM1.	48- Screws, Crack testing circuit.
	28- DDR2-Termination.	49- AMD M92S2-1.
	29- VGA CONN.	50- AMD M92S2-2.
	30- LCD,WebCam,HDMI CONN.	51- AMD M92S2-3.
	31- S/B ICH9-1.	52- AMD M92S2-4.
	32- S/B ICH9-2.	53- Video RAM-1 (DDR2).
	33- S/B ICH9-3.	54- Video RAM-2 (DDR2).
	34- S/B ICH9-4.	
	35- S/B ICH9-5.	

INVENTEC			
TITLE <i>INVICTA Cycle1</i>			
Contents			
SIZE A3	CODE CS	DOC NUMBER <i>1310A22527-0-MTR</i>	REV A03
CHANGE by <i>Drawer Name</i>		<i>17-Mar-2009</i>	
SHEET		2 OF 54	



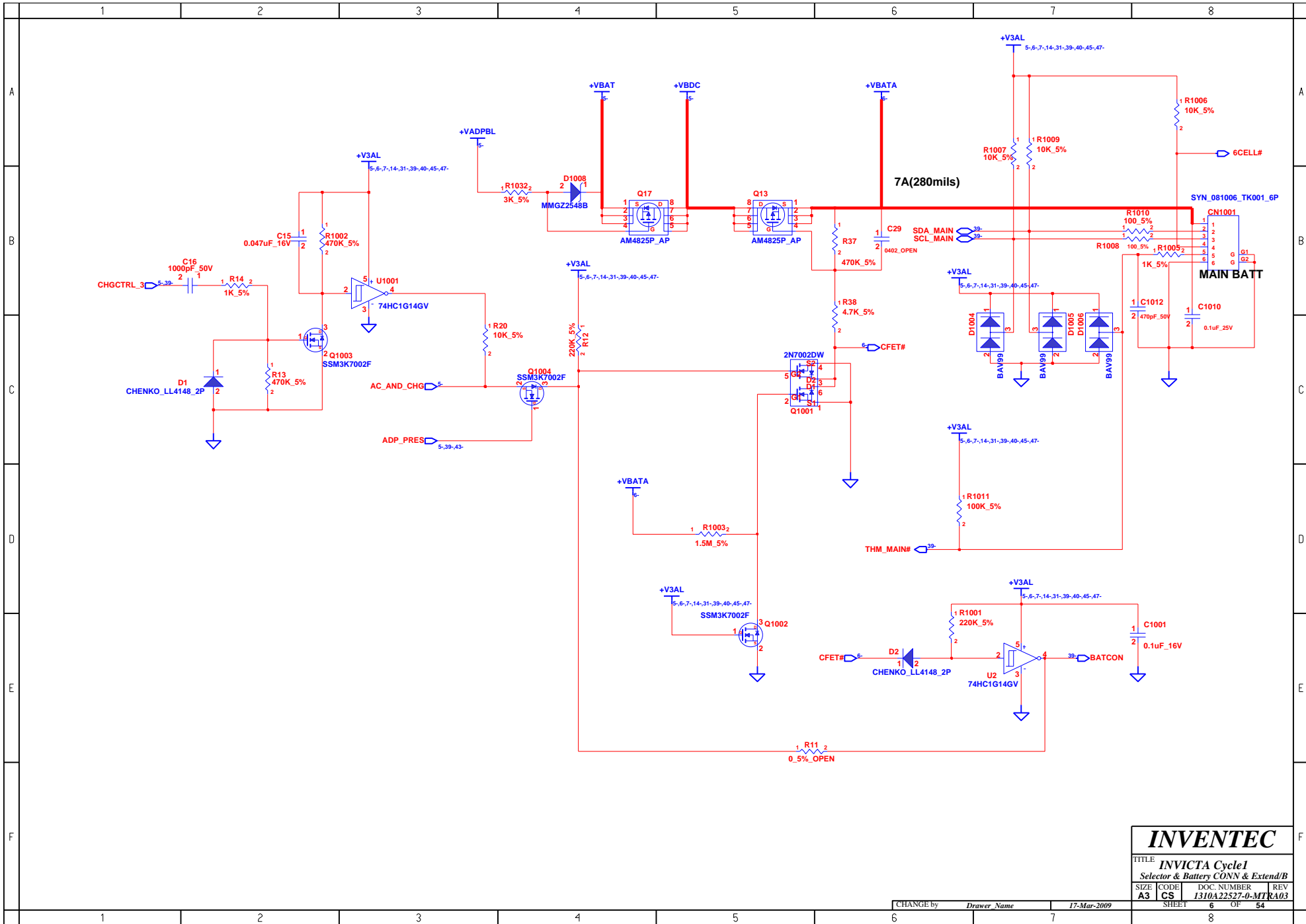
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SIZE A3	CODE CS	DOC. NUMBER <i>1310A22527-0-MTR</i>	REV A03
CHANGE by <i>Drawer Name</i>		17-Mar-2009	SHEET 3 OF 54



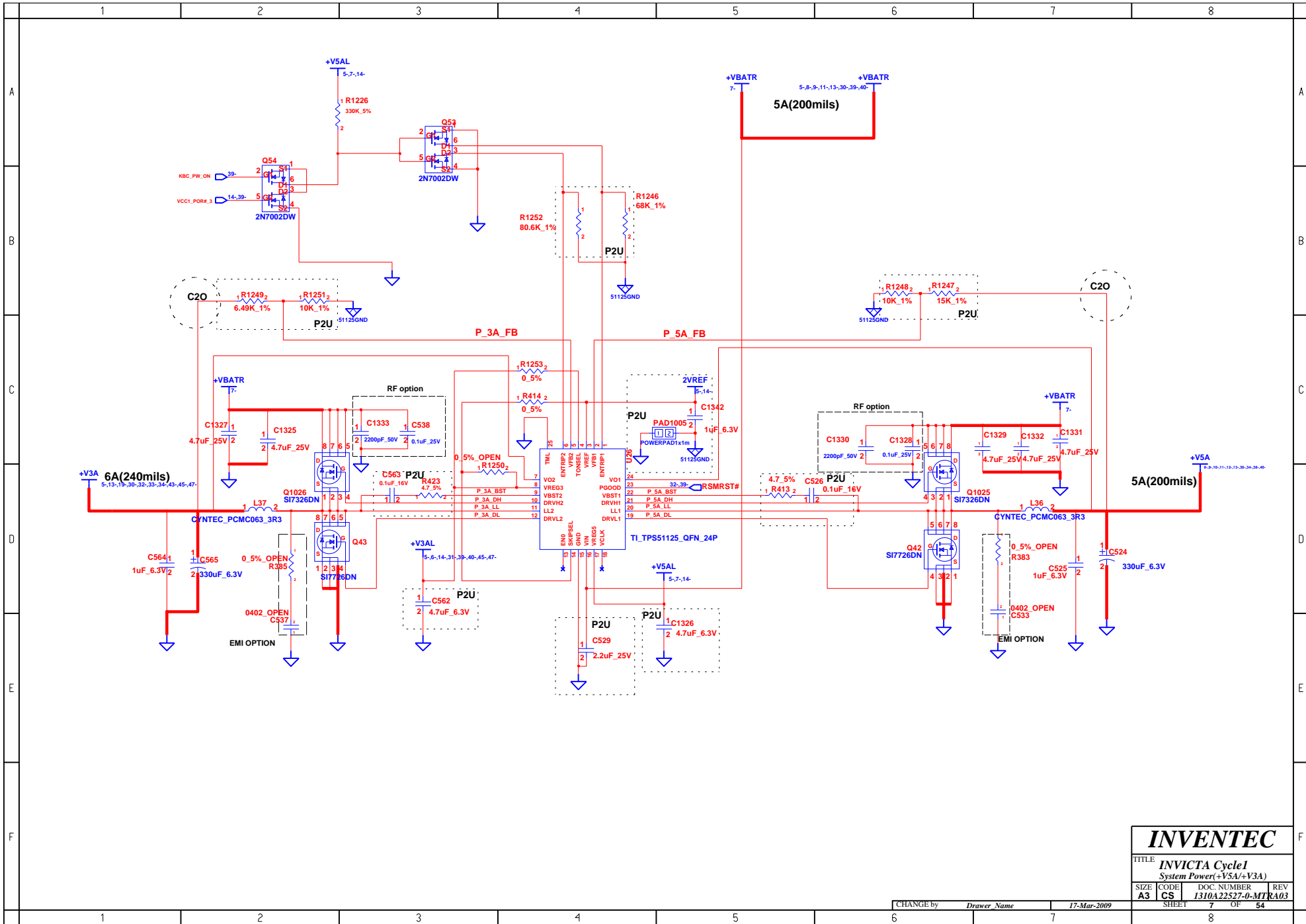


- Layout Rule**
- 1>Noisy driver(BST, SW node, DH & DL) keep trace short and wide
 - 2>Don't route sensitive signal(Current&Voltage Sense, FB, REF, AGND...) close noisy driver area
 - 3>Layout Kelvin sense as a differential pair to device
 - 4>Layout Vout sense connect to output terminal(c2o)
 - 5>Place Cap. and filter close to IC(p2u)

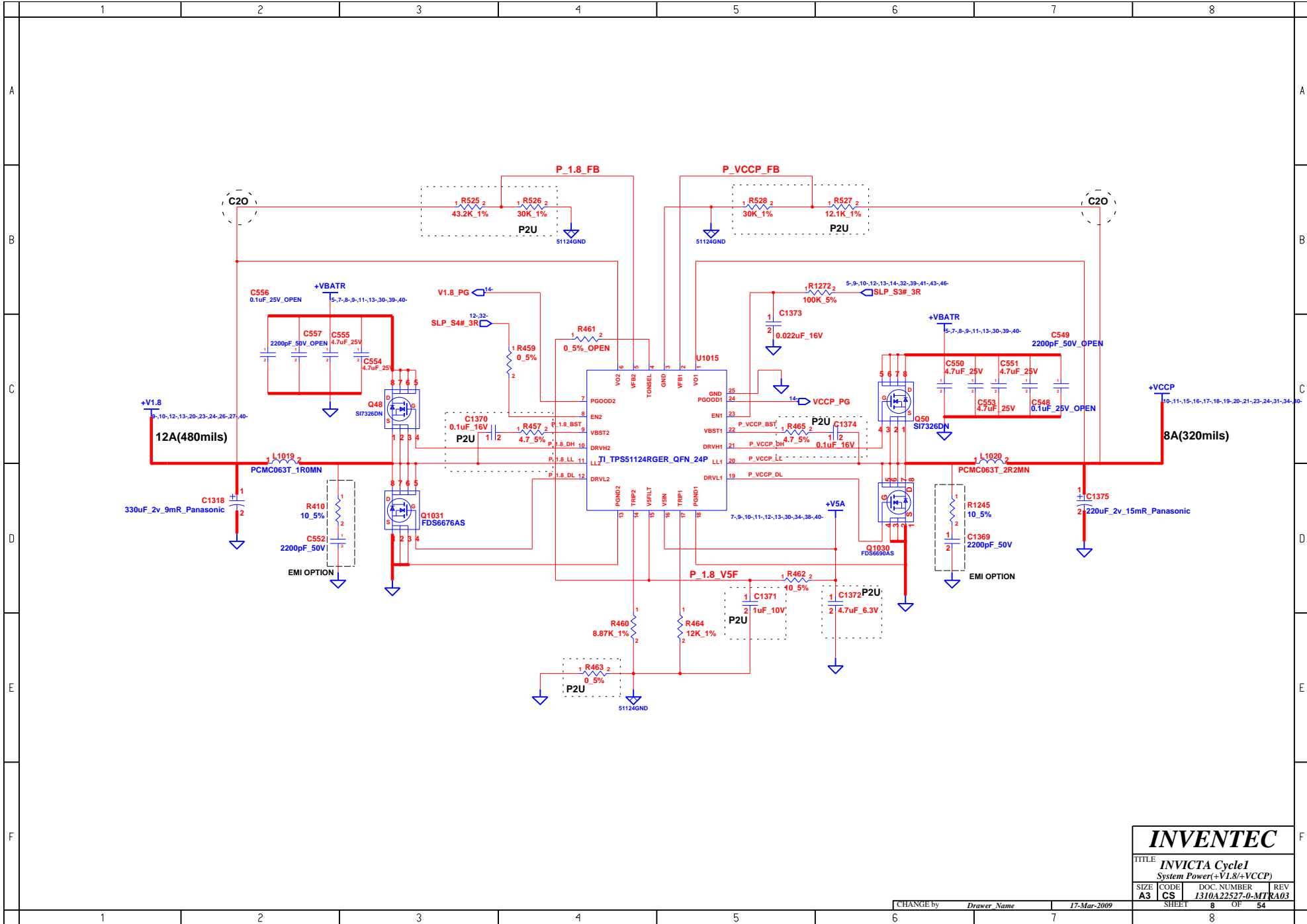
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DC & Battery Charger			
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A3	CS	I310A22527-0-MTR	A03
CHANGE by		DRAWER Name	
17-Mar-2009		17-Mar-2009	
SHEET		OF	
5		54	



INVENTEC			
TITLE <i>INVICTA Cycle1</i>			
Selector & Battery CONN & Extend/B			
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CHANGE by		Drawer Name	17-Mar-2009
		SHEET	6 OF 54



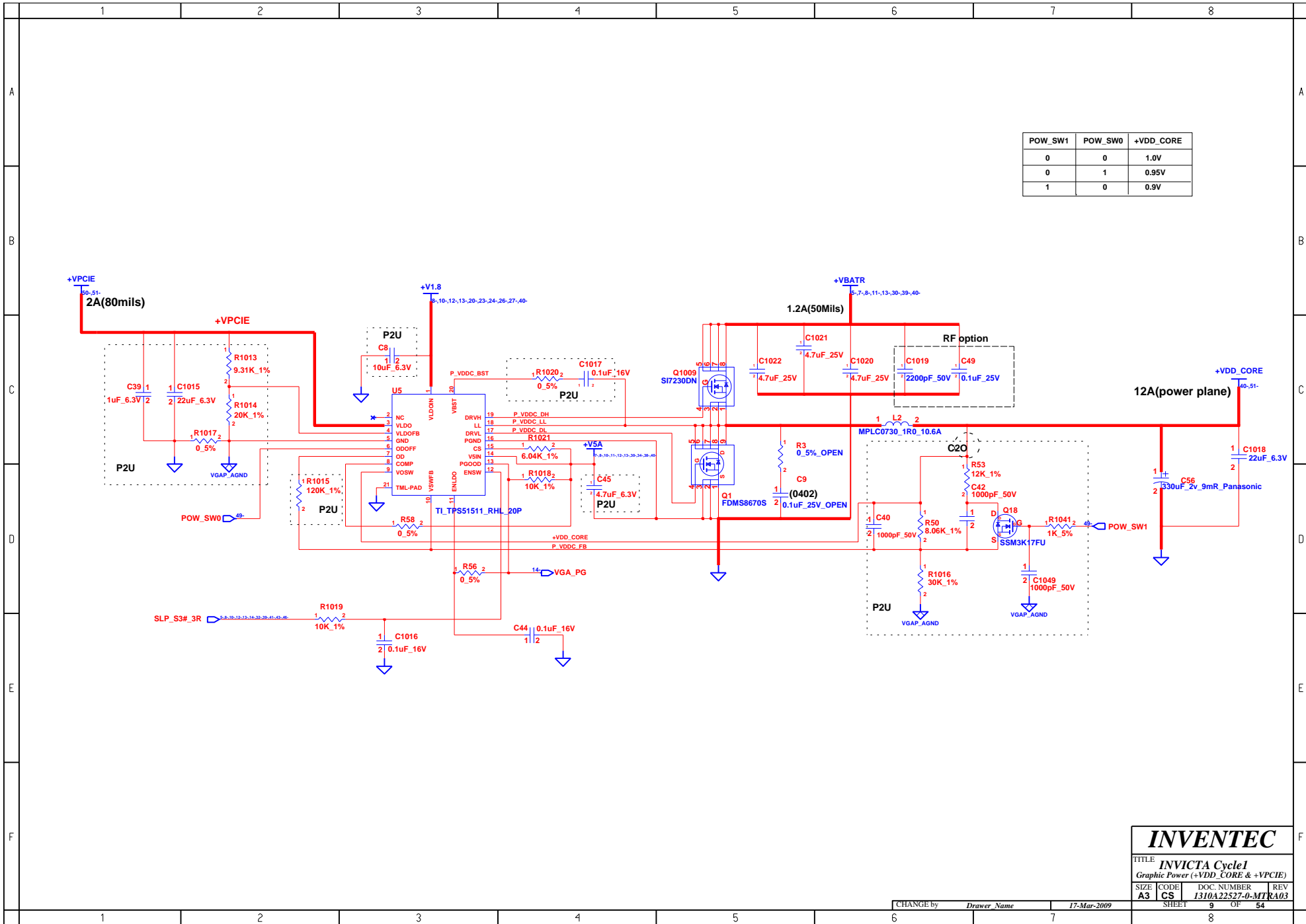
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System Power(+V5A/+V3A)			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	1310A22527-0-MT	R403
CHANGE by		Drawer Name	17-Mar-2009
SHEET		7	OF 54



INVENTEC

TITLE *INVICTA Cycle 1*
System Power(+V1.8/+VCCP)

SIZE	CODE	DOC NUMBER	REV
A3	CS	I310A22527-0-MTR	A03

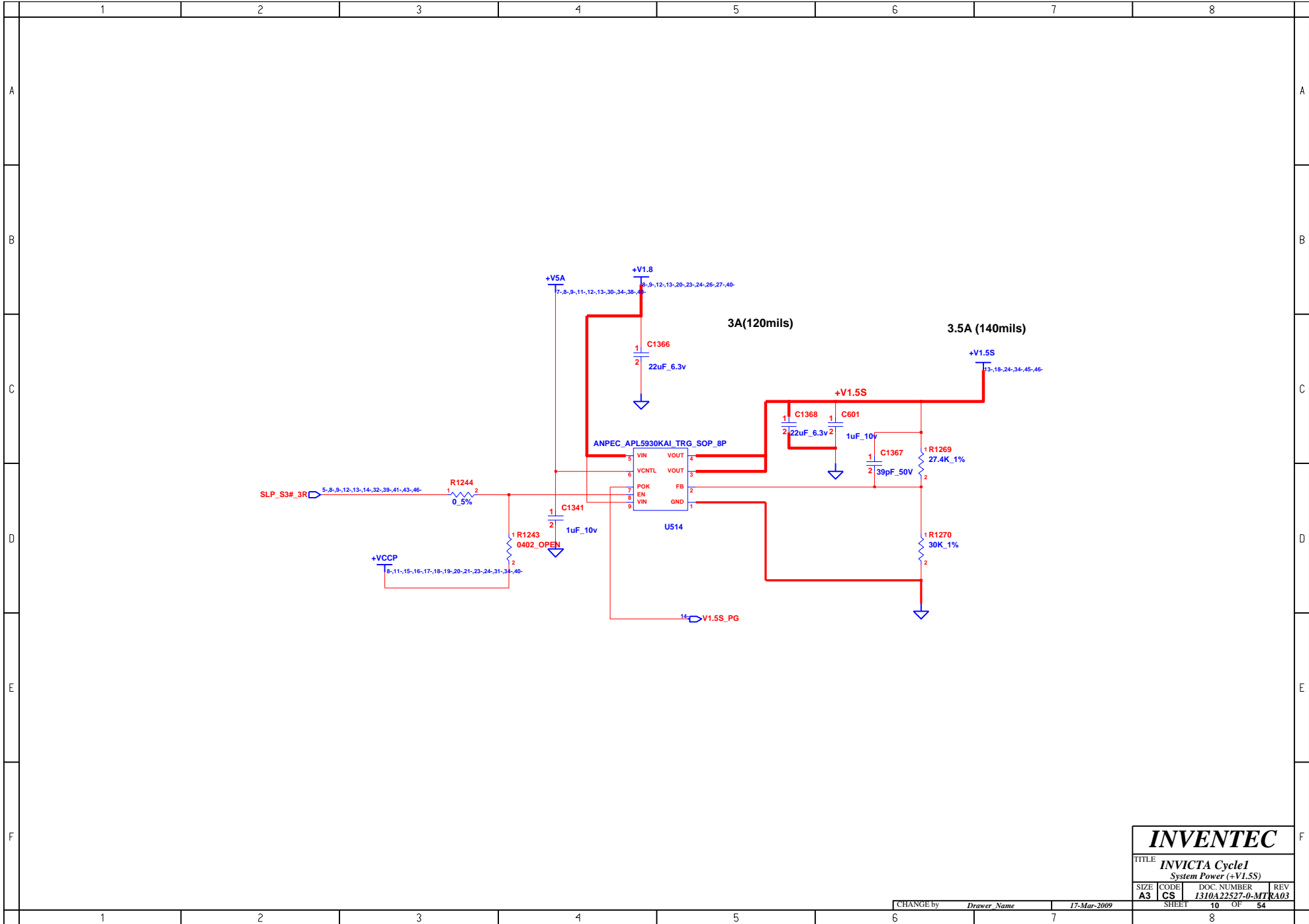


INVENTEC

TITLE: **INVICTA Cycle1**
 Graphic Power (+VDD_CORE & +VPCIE)

SIZE: A3	CODE: CS	DOC. NUMBER: I310A22527-0-MTR	REV: A03
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CHANGE by: *Drawer Name* 17-Mar-2009 SHEET 9 OF 54



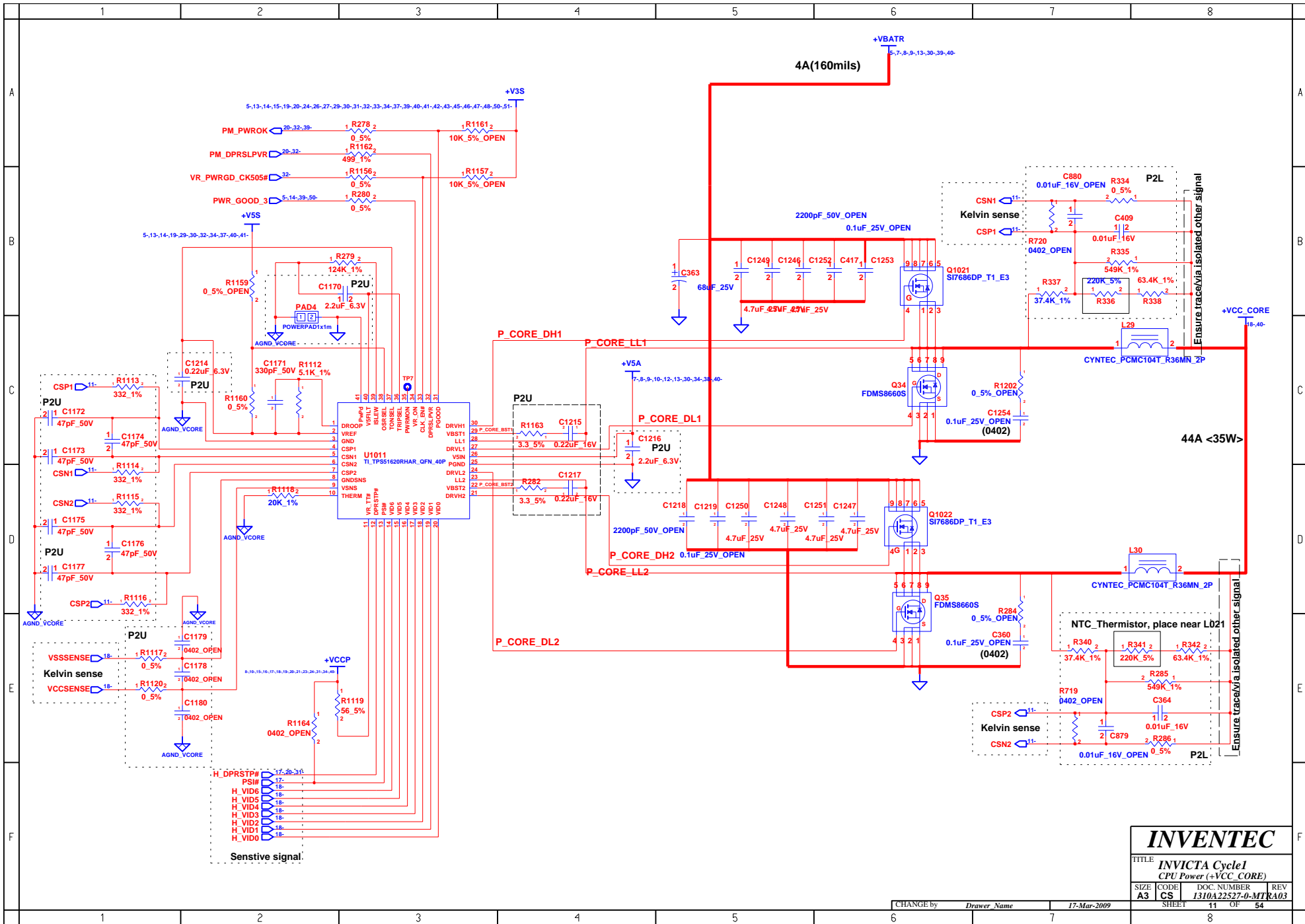
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TITLE **INVICTA Cycle 1**
System Power (+V1.5S)

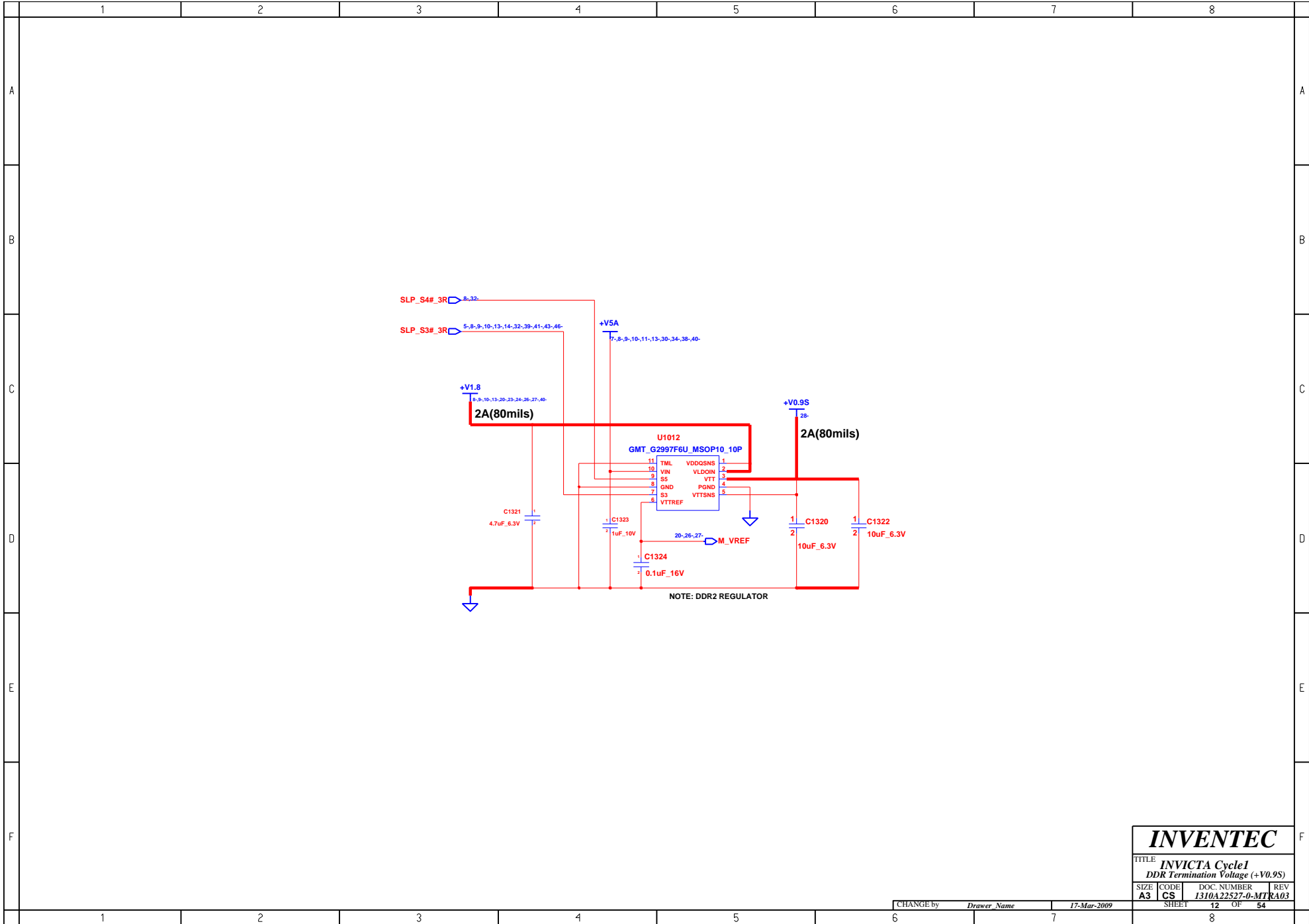
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CHANGE by *Drawer Name* 17-Mar-2009

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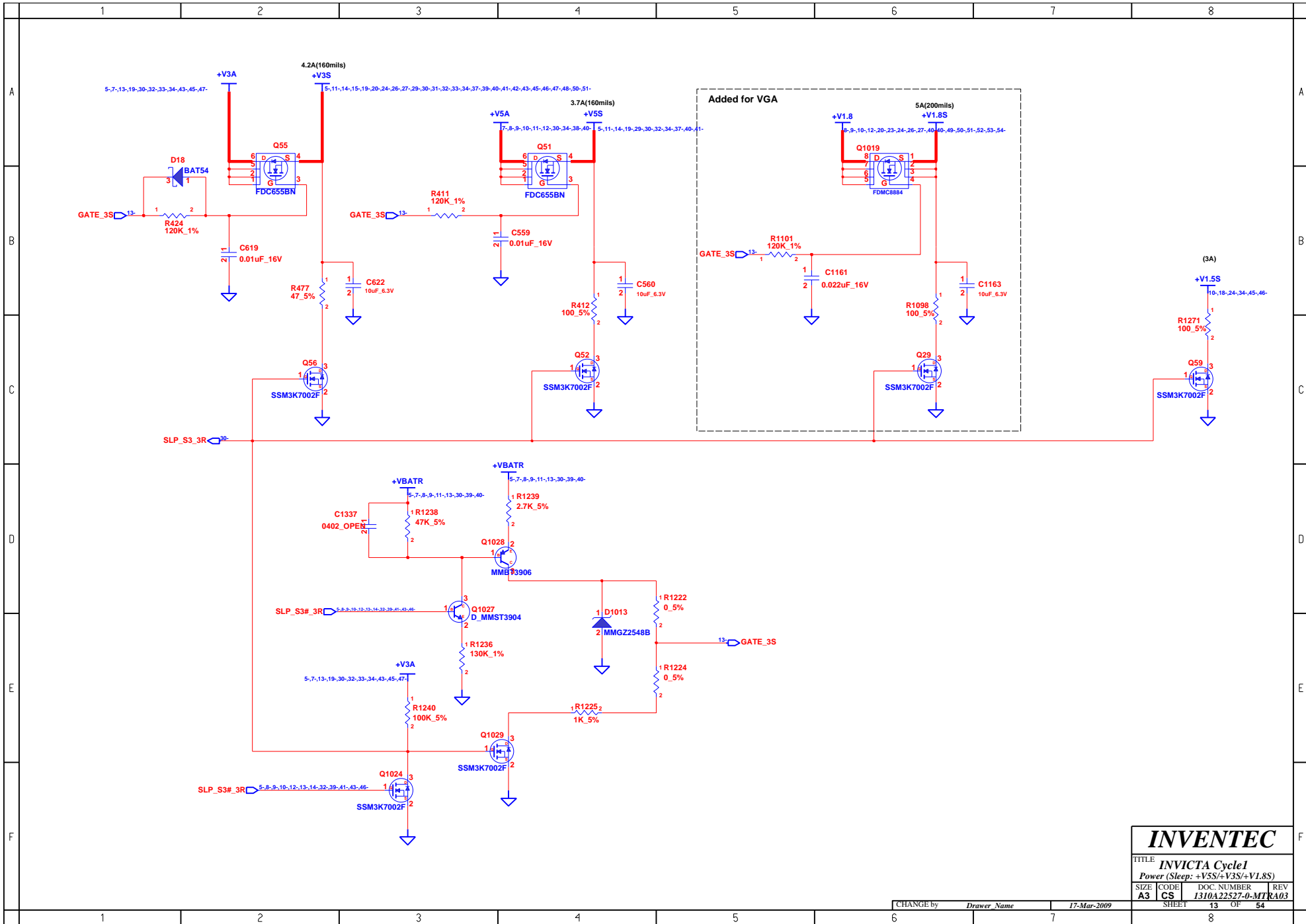
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CPU Power (+VCC_CORE)			
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CHANGE by		Drawer Name	17-Mar-2009
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INVENTEC

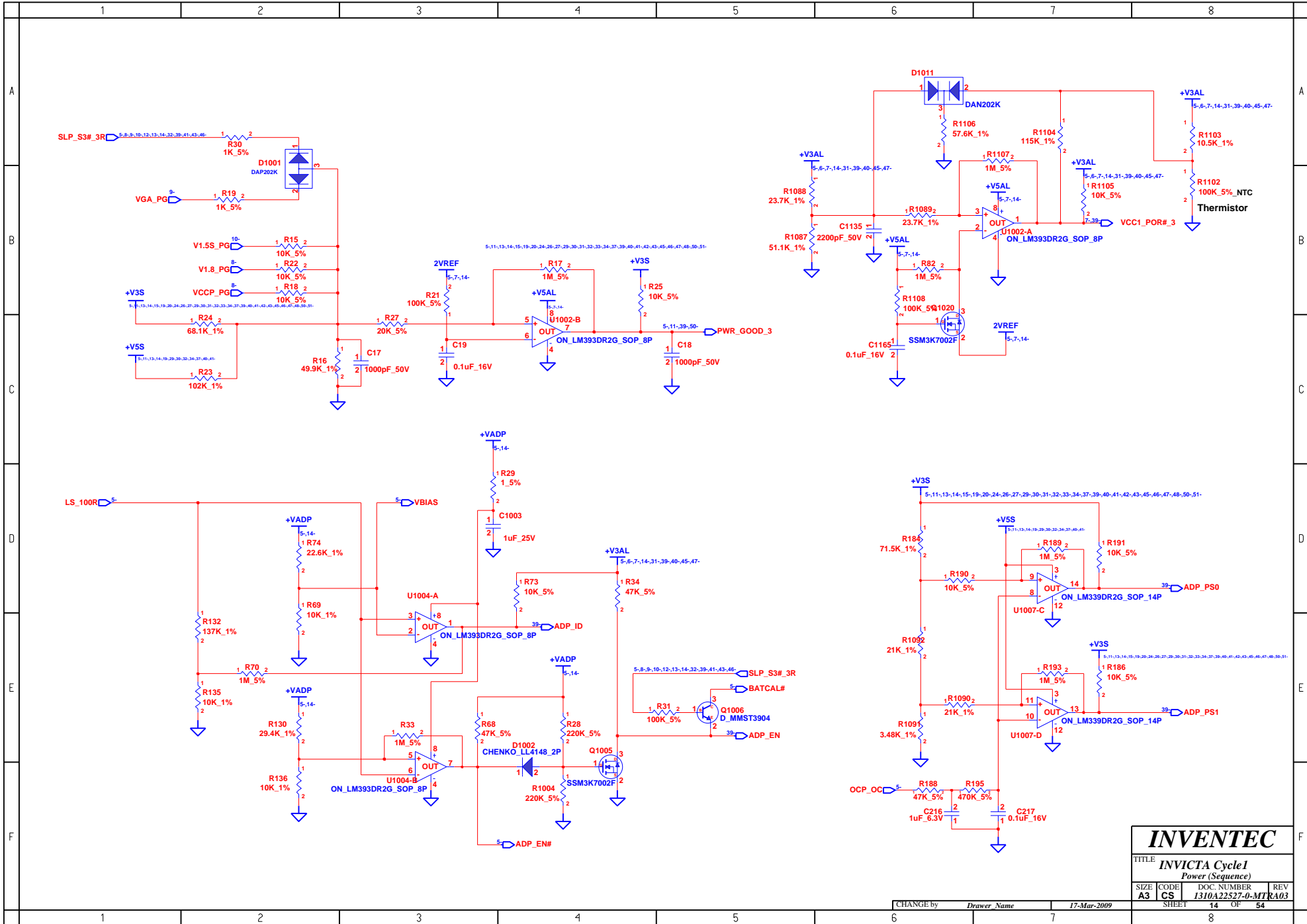
TITLE **INVICTA Cycle1**
DDR Termination Voltage (+V0.9S)

SIZE A3	CODE CS	DOC. NUMBER I310A22527-0-MTR	REV A03
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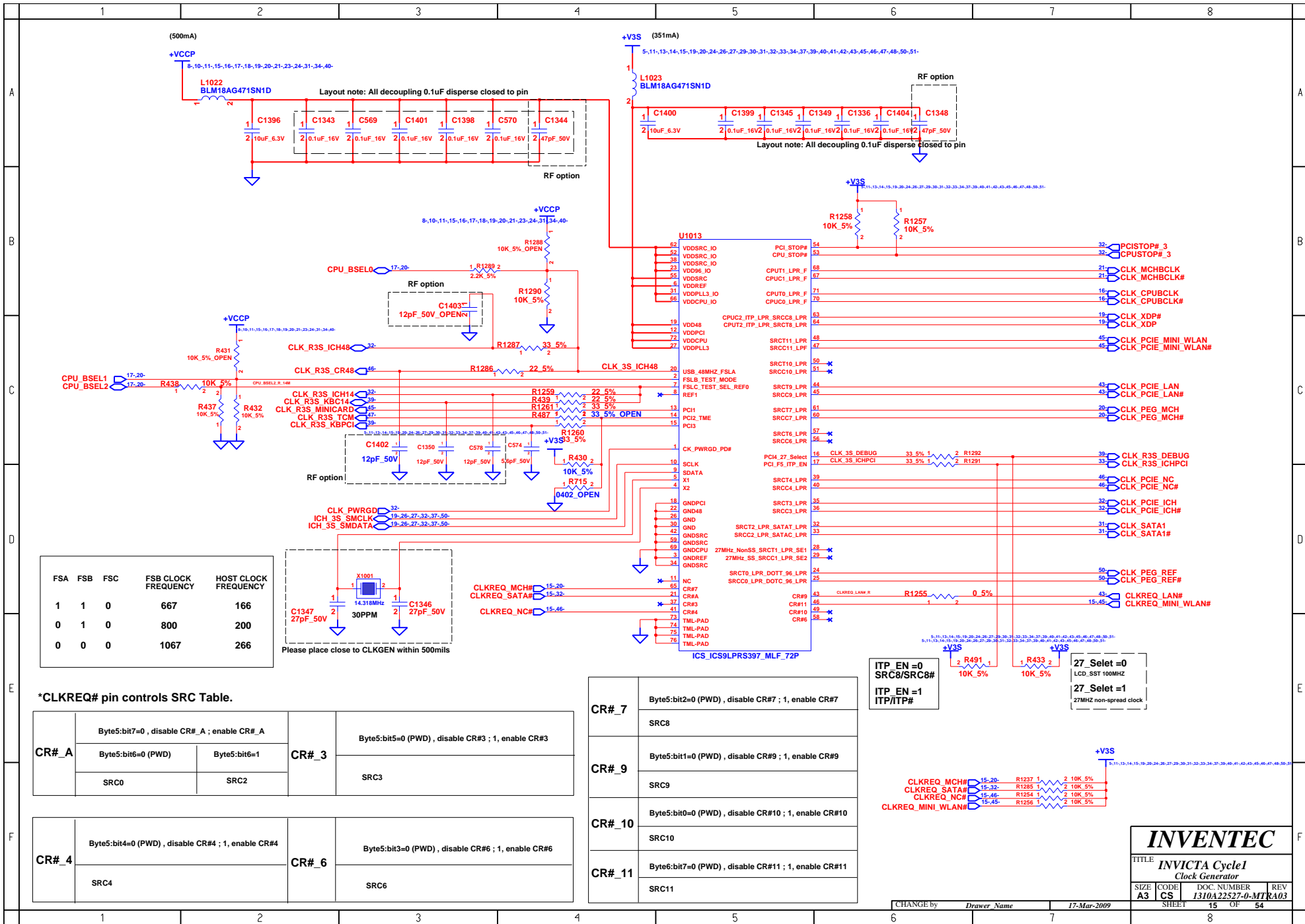


INVENTEC

TITLE			
INVICTA Cycle 1			
Power (Sleep: +VSS/+V3S/+V1.8S)			
SIZE	CODE	DOC NUMBER	REV
A3	CS	I310A22527-0-MT	R403



INVENTEC			
TITLE INVICTA Cycle1 Power (Sequence)			
SIZE A3	CODE CS	DOC NUMBER 1310A22527-0-MTR	REV A03
CHANGE by Drawer Name		17-Mar-2009	
SHEET 14		OF 54	



FSA	FSB	FSC	FSB CLOCK FREQUENCY	HOST CLOCK FREQUENCY
1	1	0	667	166
0	1	0	800	200
0	0	0	1067	266

*CLKREQ# pin controls SRC Table.

CR#_A	Byte5:bit7=0 (PWD), disable CR#_A; enable CR#_A	Byte5:bit6=0 (PWD)	Byte5:bit6=1	CR#_3	Byte5:bit5=0 (PWD), disable CR#3; 1, enable CR#3
	SRC0				SRC3

CR#_4	Byte5:bit4=0 (PWD), disable CR#4; 1, enable CR#4	CR#_6	Byte5:bit3=0 (PWD), disable CR#6; 1, enable CR#6
	SRC4		SRC6

CR#_7	Byte5:bit2=0 (PWD), disable CR#7; 1, enable CR#7
	SRC8
CR#_9	Byte5:bit1=0 (PWD), disable CR#9; 1, enable CR#9
	SRC9
CR#_10	Byte5:bit0=0 (PWD), disable CR#10; 1, enable CR#10
	SRC10
CR#_11	Byte6:bit7=0 (PWD), disable CR#11; 1, enable CR#11
	SRC11

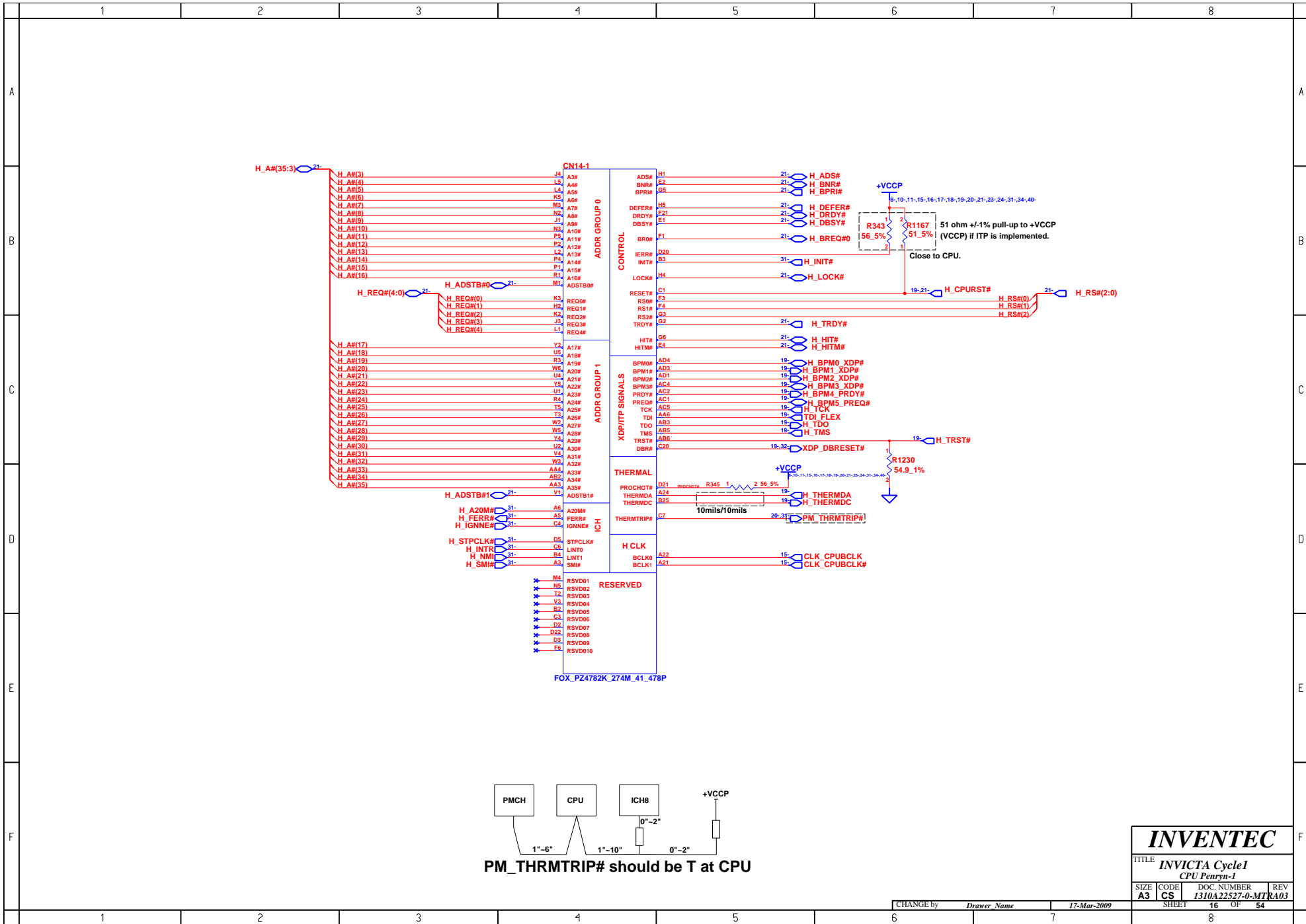
ITP_EN=0
SRC8/SRC8#
ITP_EN=1
ITP/ITP#

27_Selet=0
LCD_SST 100MHz
27_Selet=1
27MHz non-spread clock

INVENTEC

TITLE
INVICTA Cycle1
Clock Generator

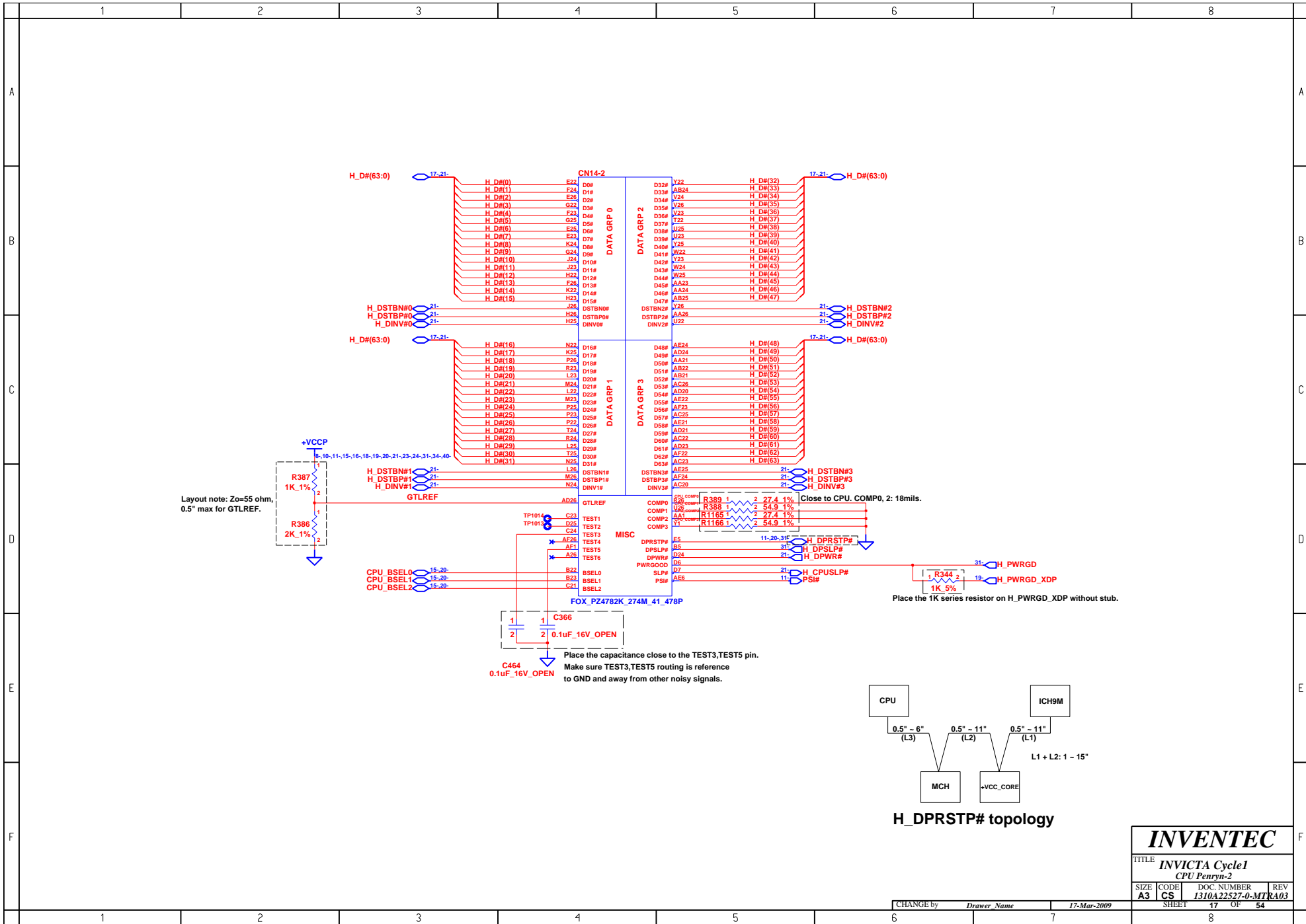
SIZE CODE DOC NUMBER REV
A3 CS 1310A22527-0-MTR A03



INVENTEC

TITLE: **INVICTA Cycle1 CPU Penryn-1**

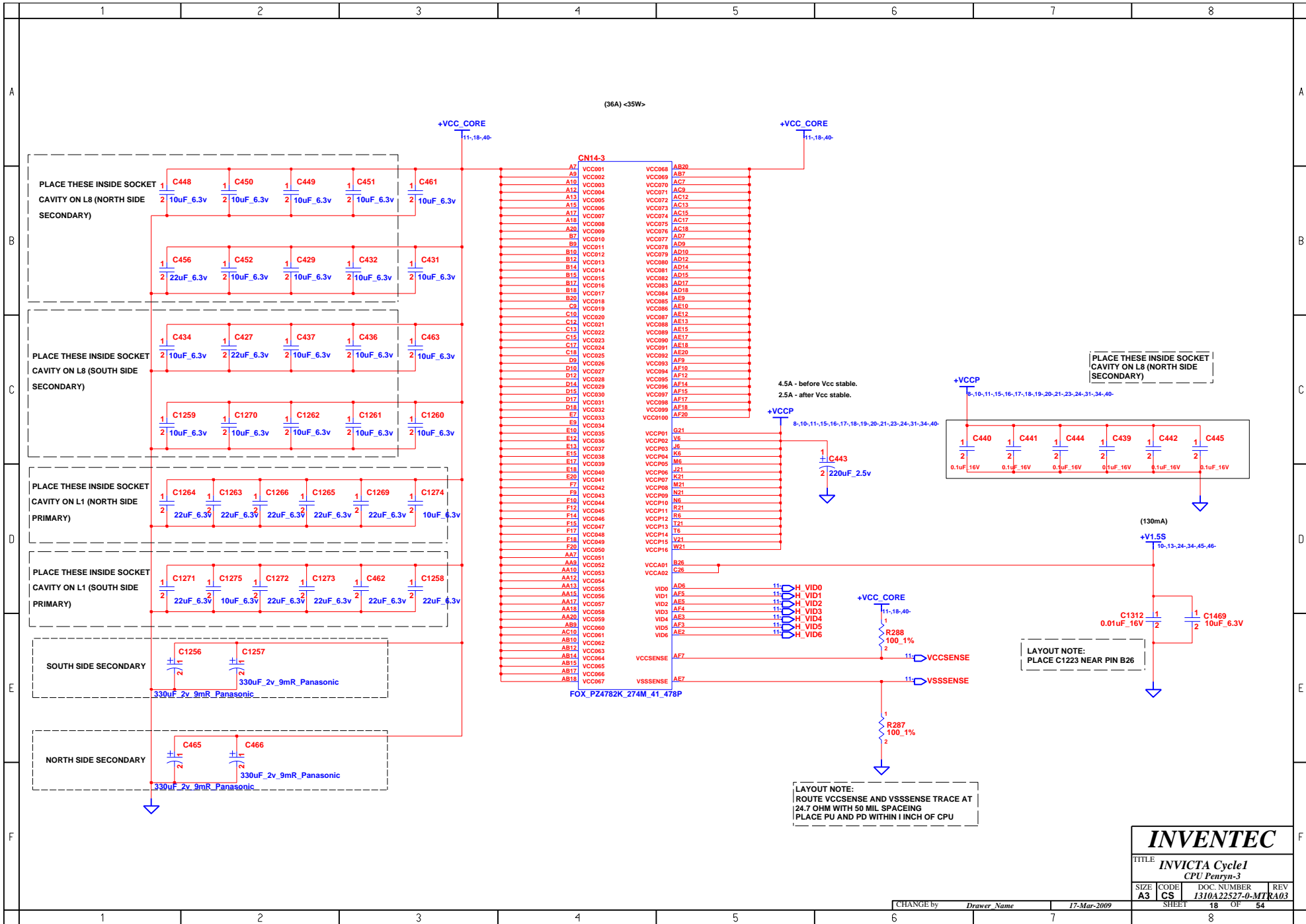
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CHANGE by: <i>Drawer Name</i>		17-Mar-2009	
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INVENTEC

TITLE *INVICTA Cycle1*
CPU Penryn-2

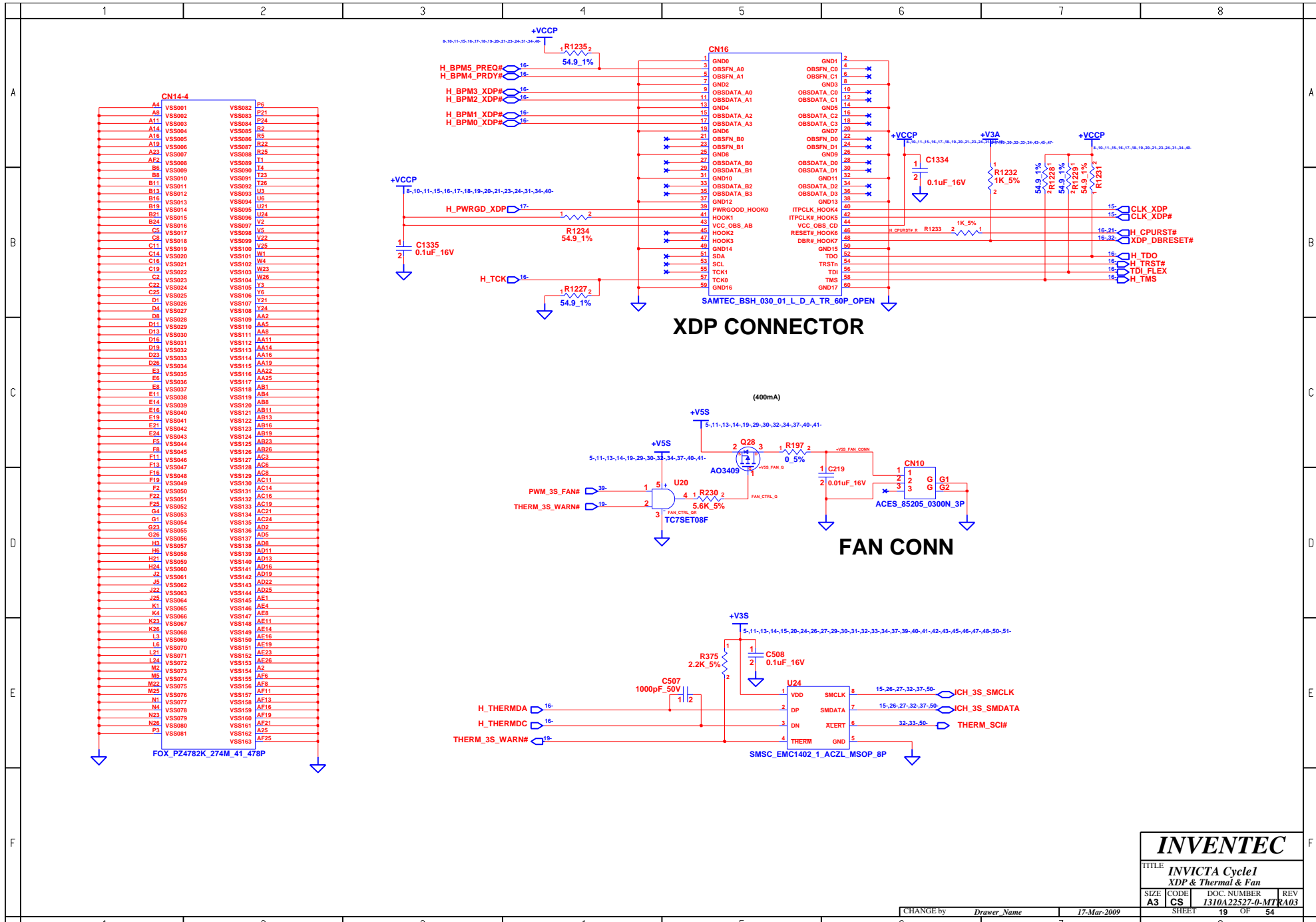
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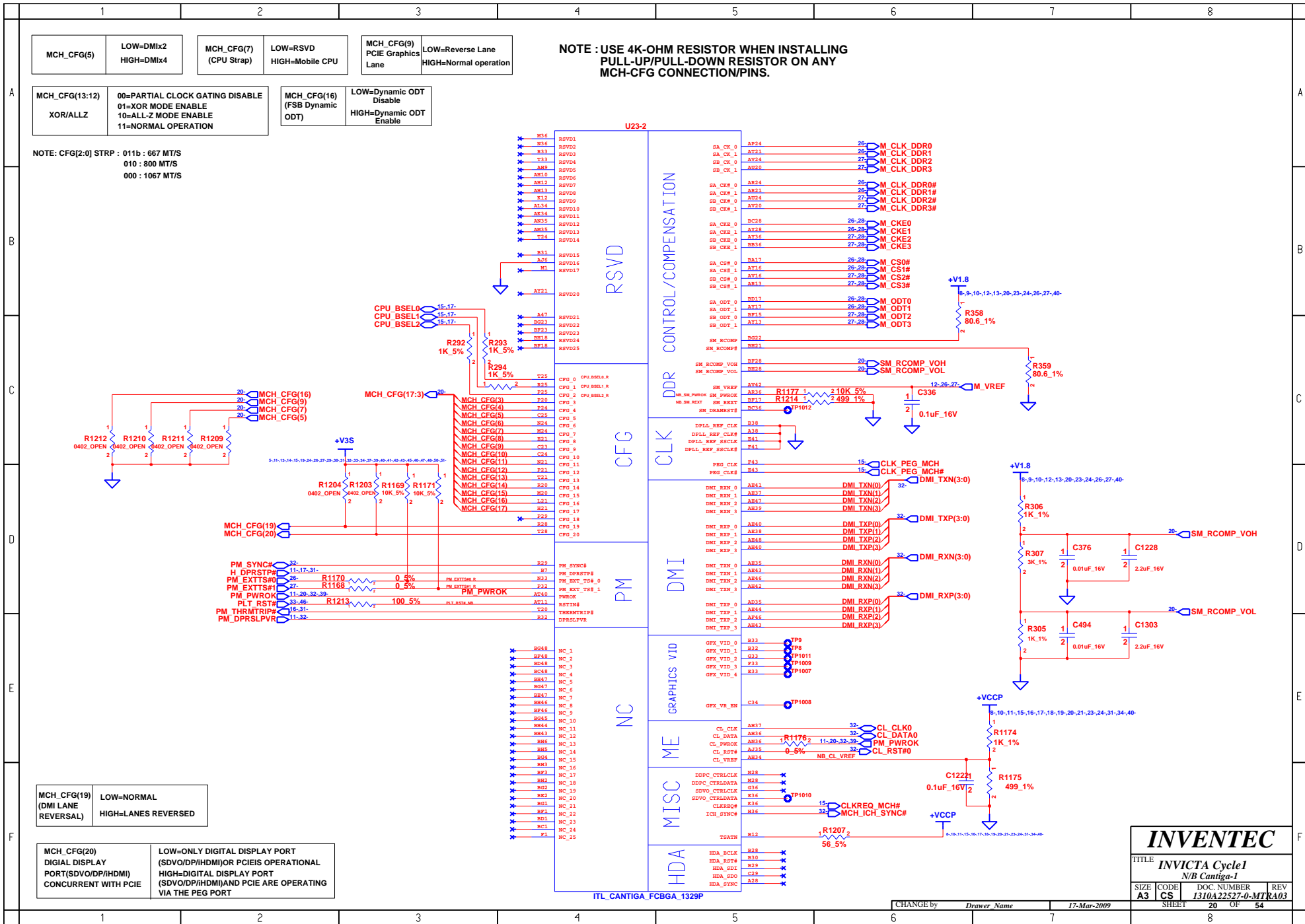
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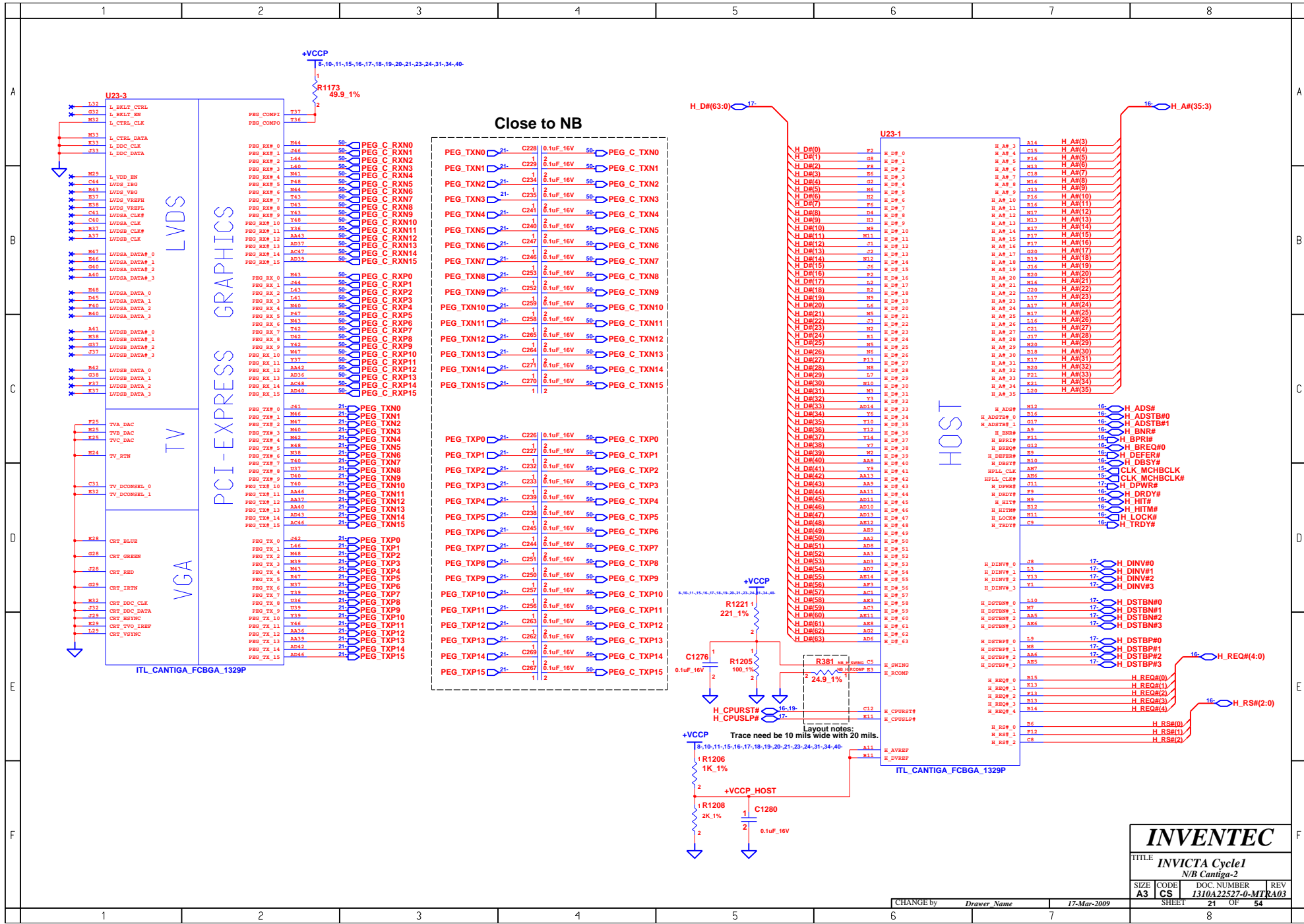
TITLE
INVICTA Cycle1
CPU Penryn-3

SIZE	CODE	DOC. NUMBER	REV
A3	CS	I310A22527-0-MTR	A03



INVENTEC			
TITLE INVICTA Cycle1 XDP & Thermal & Fan			
SIZE A3	CODE CS	DOC. NUMBER I310A22527-0-MTR	REV A03
CHANGE by <i>Drawer Name</i>		17-Mar-2009	
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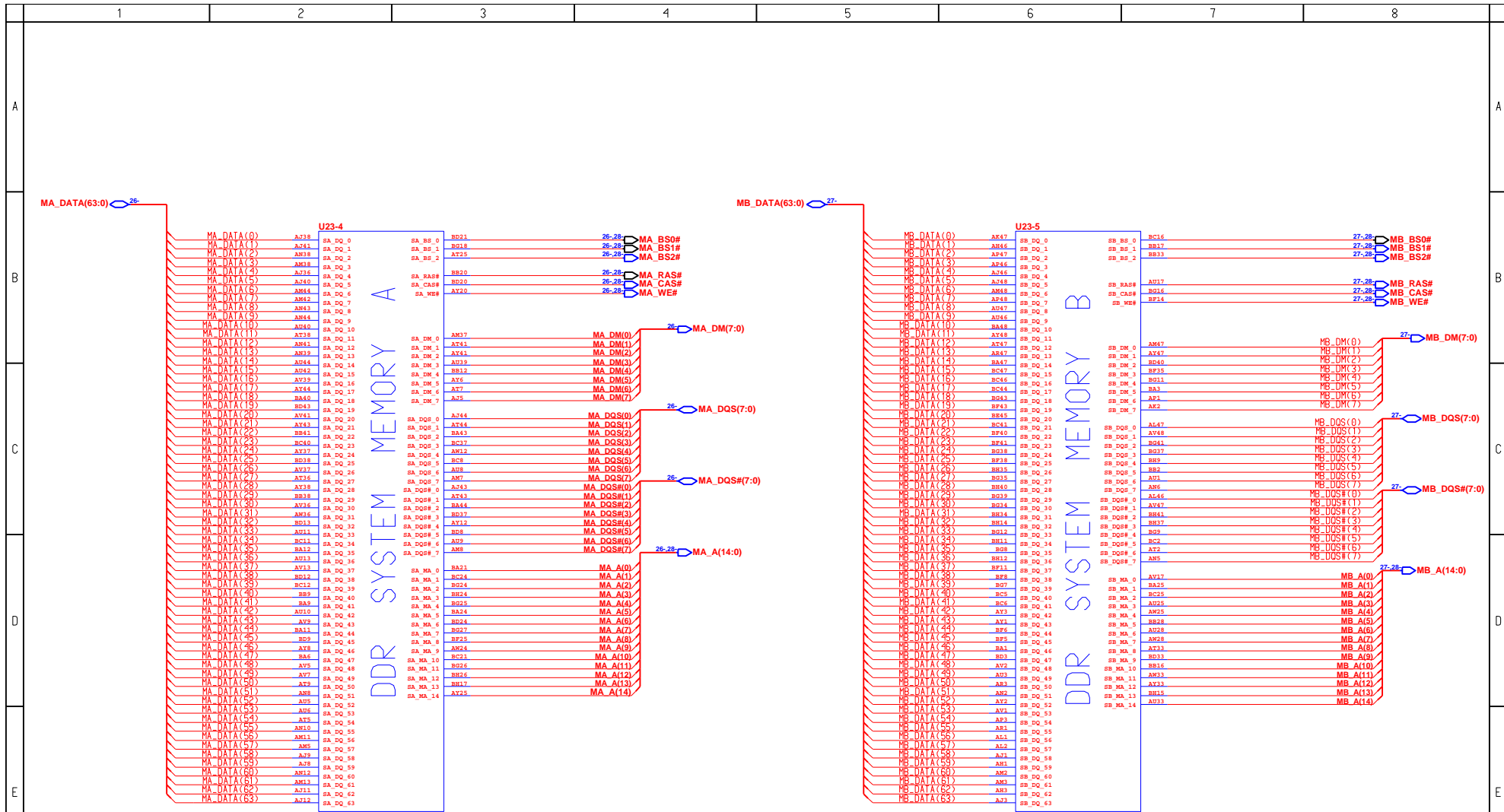
INVENTEC

TITLE: **INVICTA Cycle1**
N/B Cantiga-2

SIZE	CODE	DOC. NUMBER	REV
A3	CS	1310A22527-0-MTR	A03

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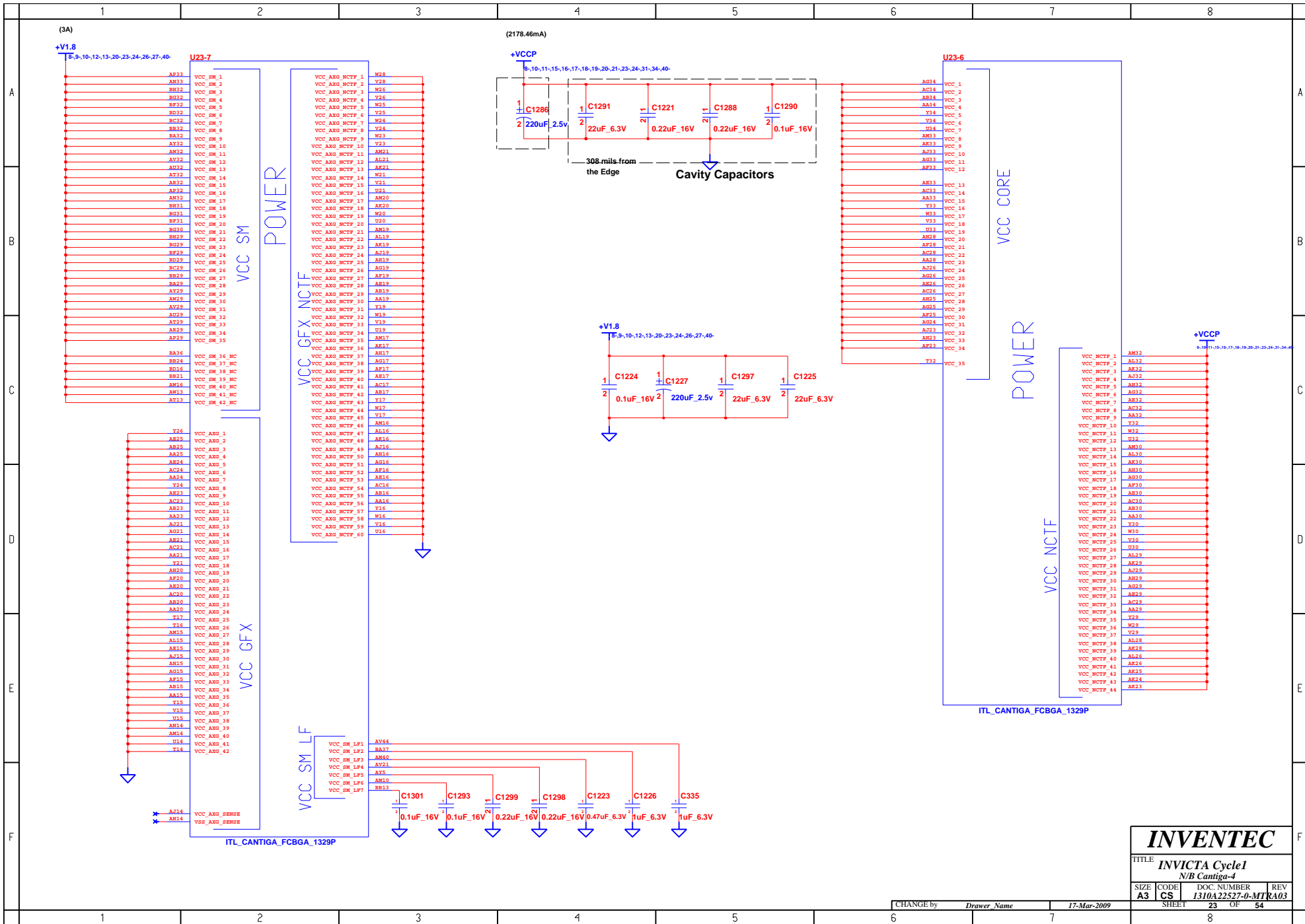
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TITLE: INVICTA Cycle1
N/B Cantiga-3

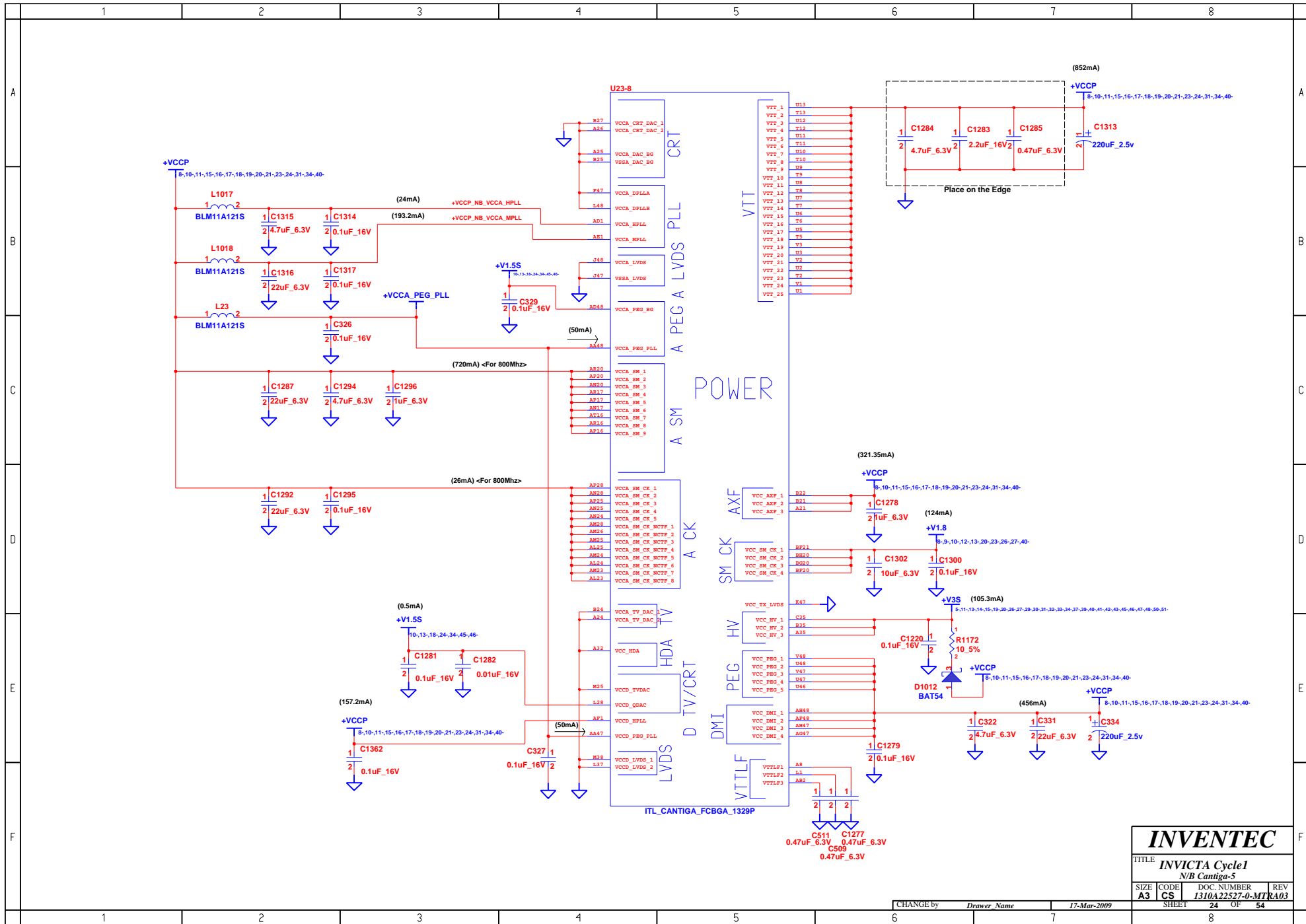
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A3	CS	1310A22527-0-MTR	A03

CHANGE by: Drawer Name 17-Mar-2009

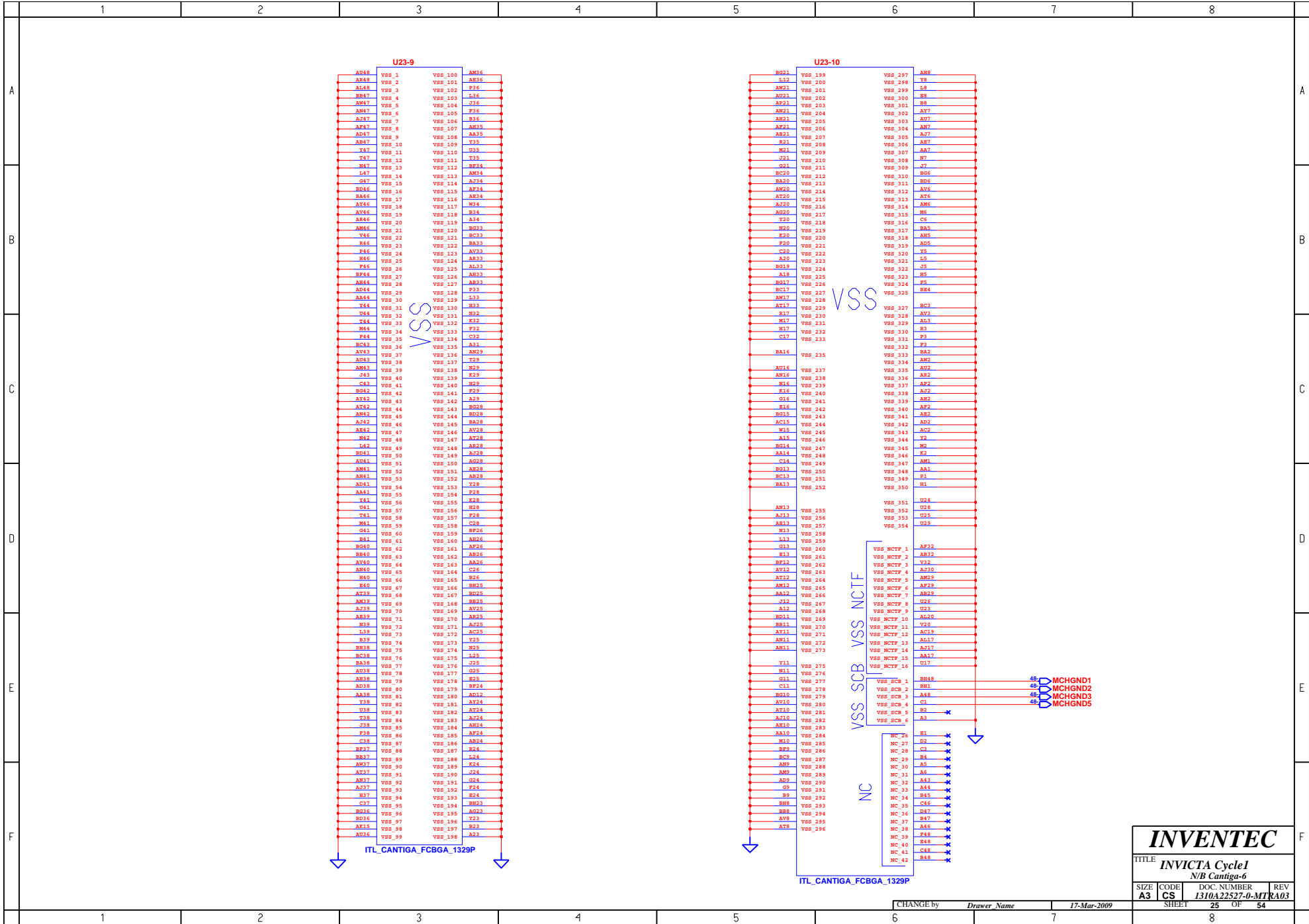
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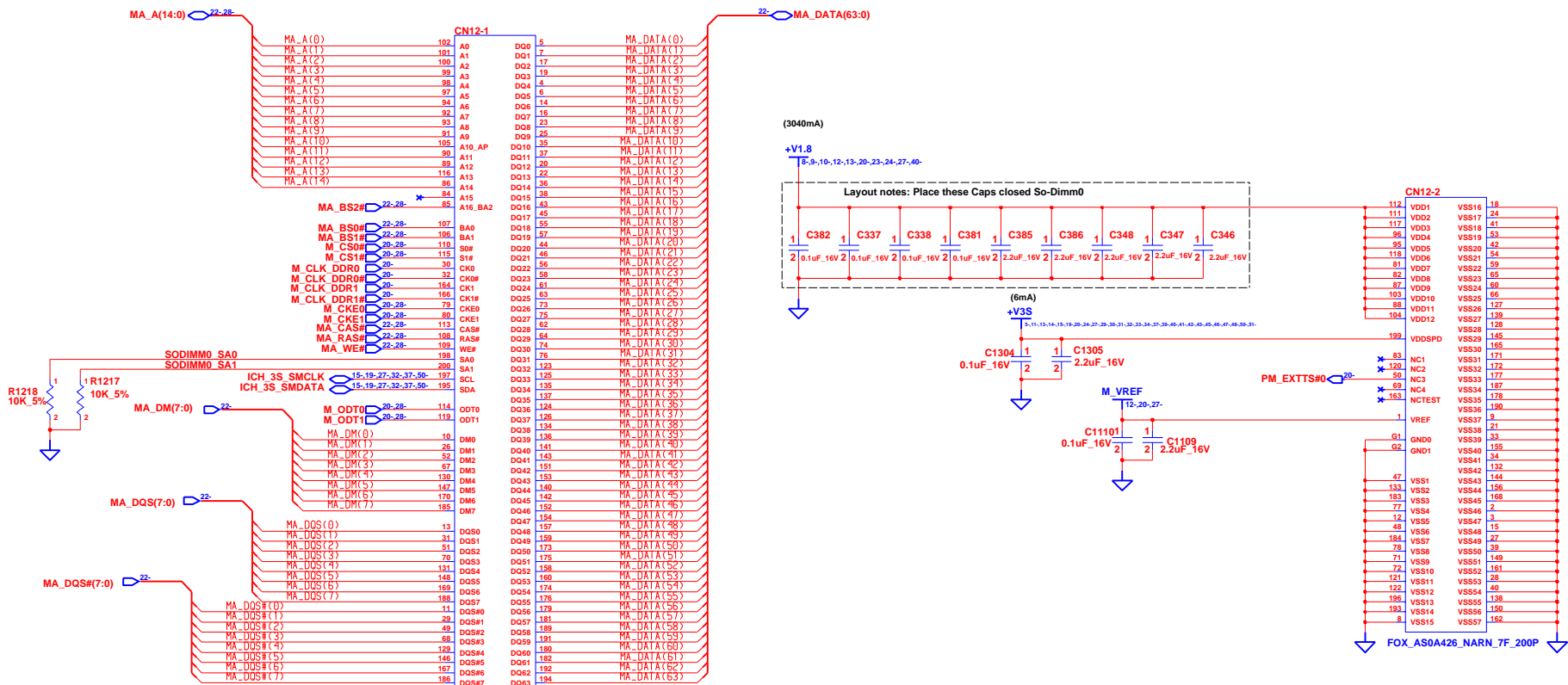
INVENTEC			
TITLE: INVICTA Cycle1 N/B Cantiga-4			
SIZE: A3	CODE: CS	DOC NUMBER: I310A22527-0-MTR	REV: A03
CHANGE by: Drawer Name		17-Mar-2009	SHEET 23 OF 54



INVENTEC			
TITLE INVICTA Cycle1 N/B Cantiga-5			
SIZE A3	CODE CS	DOC NUMBER 1310A22527-0-MTR	REV A03
CHANGE by <i>Drawer Name</i>		17-Mar-2009	
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INVENTEC			
TITLE INVICTA Cycle1 N/B Cantiga-6			
SIZE A3	CODE CS	DOC. NUMBER 1310A22527-0-MTR	REV A03
CHANGE by Drawer Name		17-Mar-2009	
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SO DIMM0_9.2mm

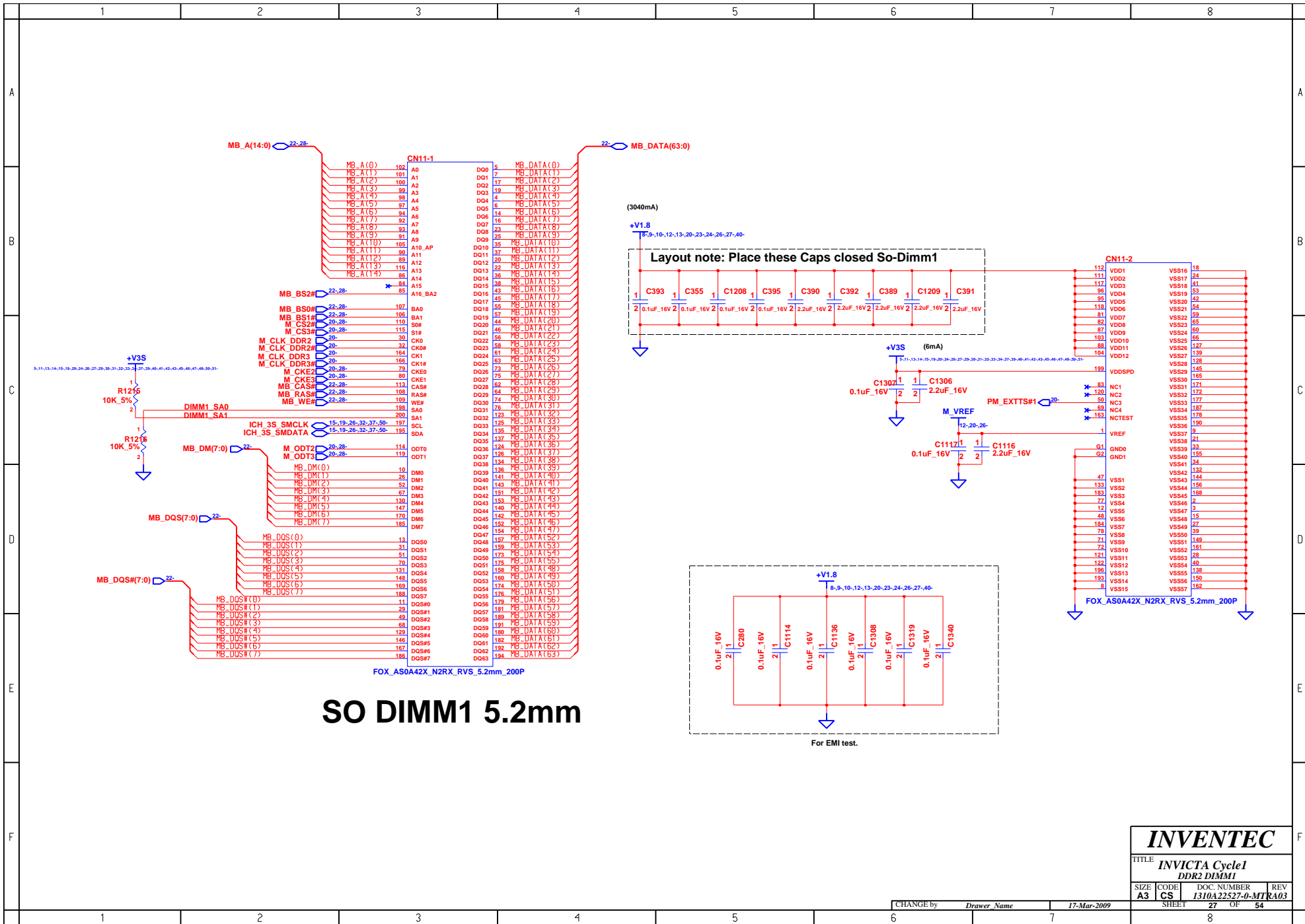
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TITLE: INVICTA Cycle1
DDR2 DIMM0

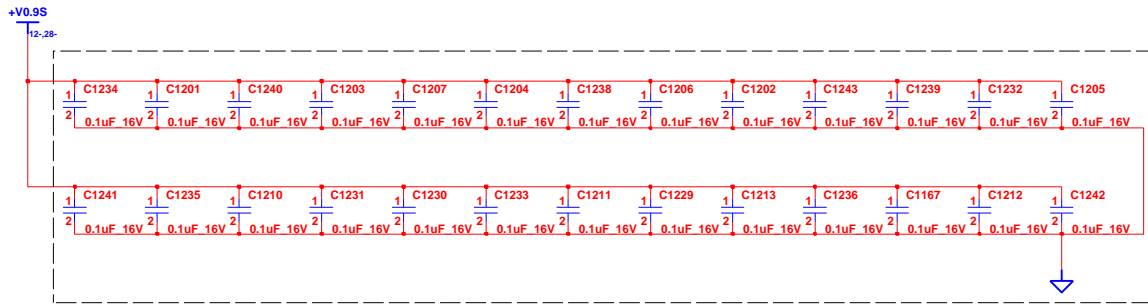
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A3	CS	1310A22527-0-MIT	A03

CHANGE by: Drawer Name 17-Mar-2009

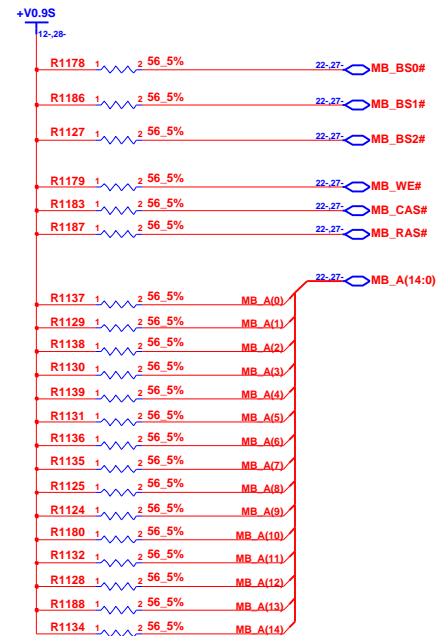
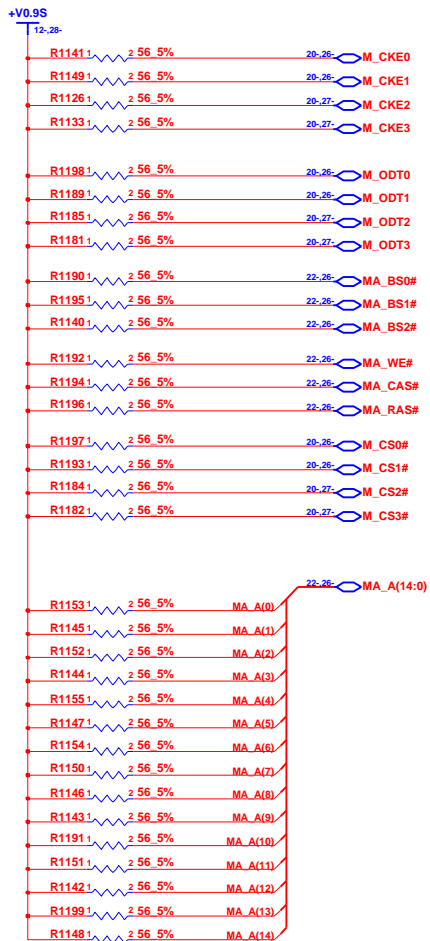
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INVENTEC			
TITLE: INVICTA Cycle1 DDR2 DIMM1			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	1310A22527-0-MT	A03
CHANGE by		Drawer Name	17-Mar-2009
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Layout notes : Place one Cap close to every 2 pull up resistor terminated to +V0.9S.

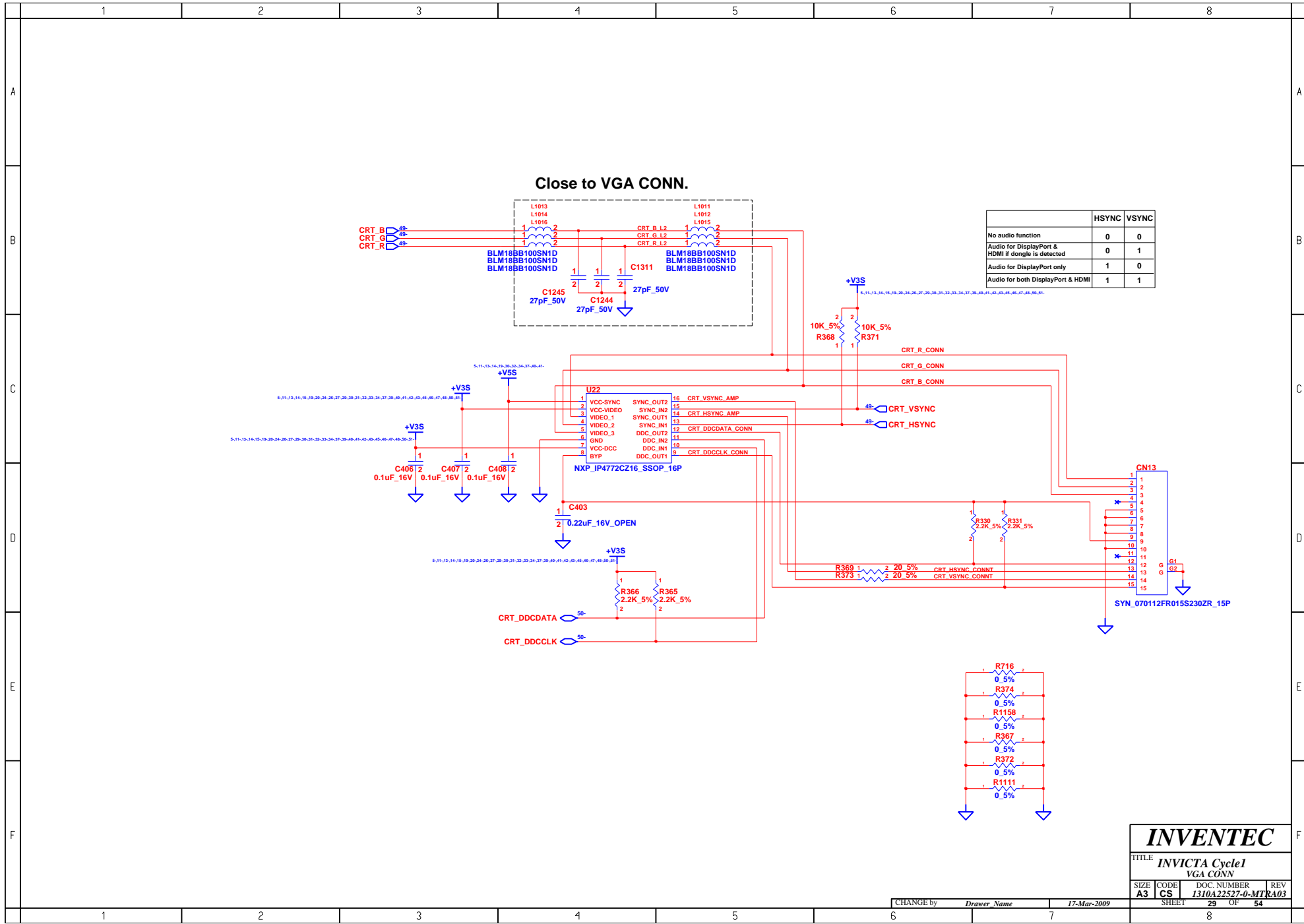


INVENTEC

TITLE **INVICTA Cycle1**
DDR2 termination

SIZE	CODE	DOC. NUMBER	REV
A3	CS	I310A22527-0-MTR	A03
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CHANGE by *Drawer Name* 27-Sep-2003



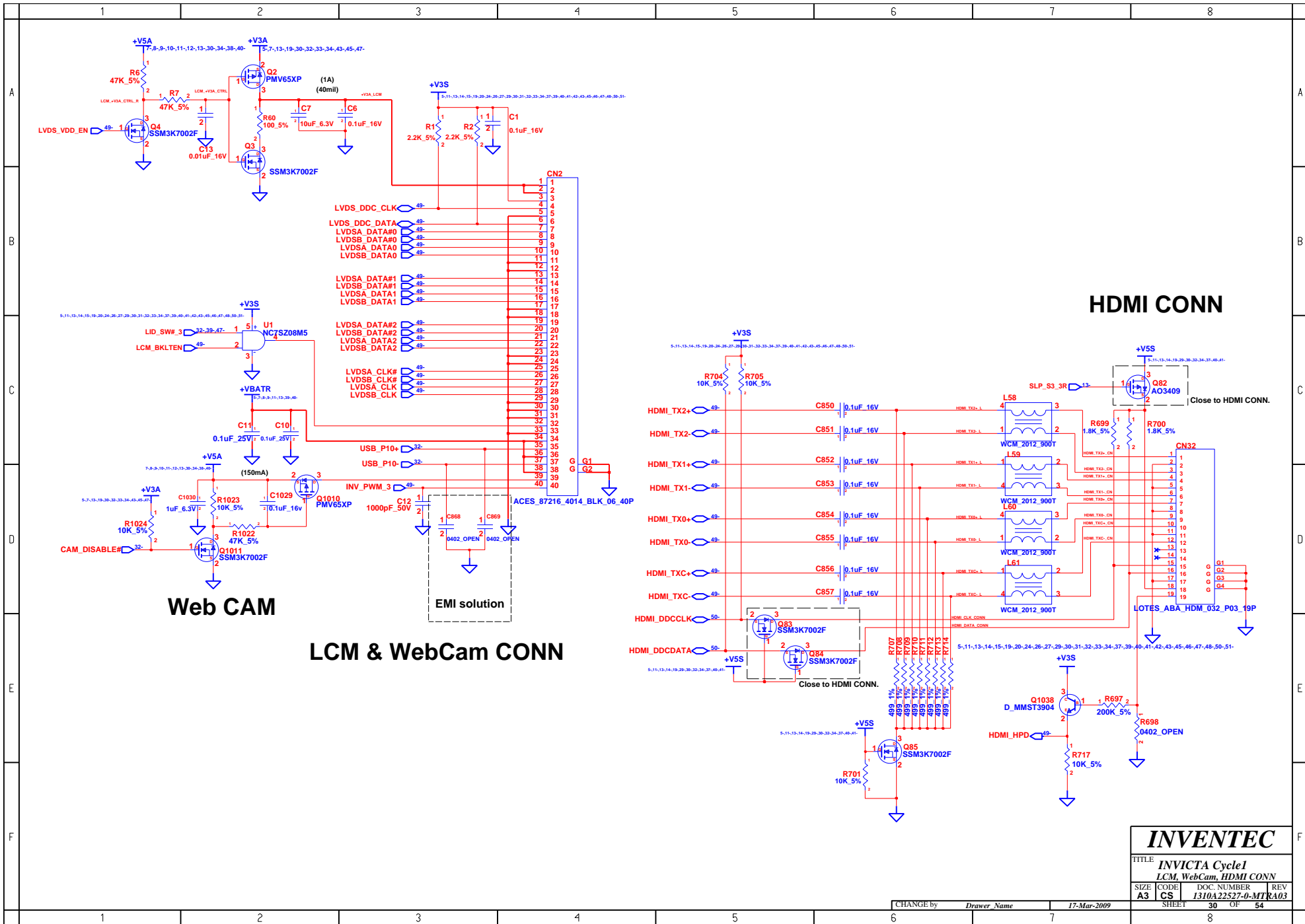
	HSYNC	VSYNC
No audio function	0	0
Audio for DisplayPort & HDMI if dongle is detected	0	1
Audio for DisplayPort only	1	0
Audio for both DisplayPort & HDMI	1	1

INVENTEC

TITLE: **INVICTA Cycle1
VGA CONN**

SIZE	CODE	DOC NUMBER	REV
A3	CS	1310A22527-0-MTR	A03

CHANGE by: *Drawer Name* 17-Mar-2009 SHEET 29 OF 54

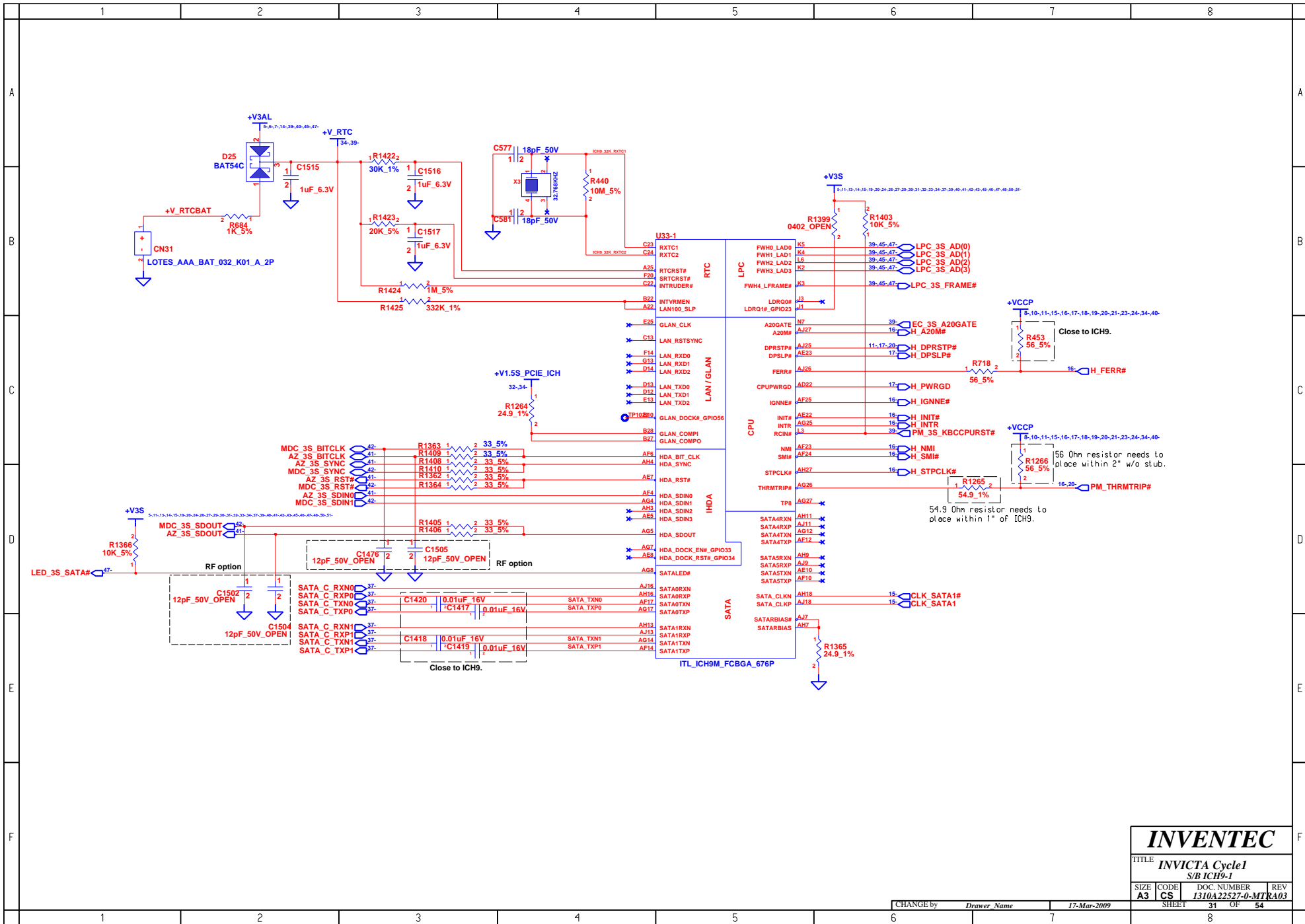


HDMI CONN

Web CAM

LCM & WebCam CONN

INVENTEC			
TITLE <i>INVICTA Cycle1</i>			
LCM, WebCam, HDMI CONN			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	I310A22527-0-MTR	A03
CHANGE by		Drawer Name	17-Mar-2009
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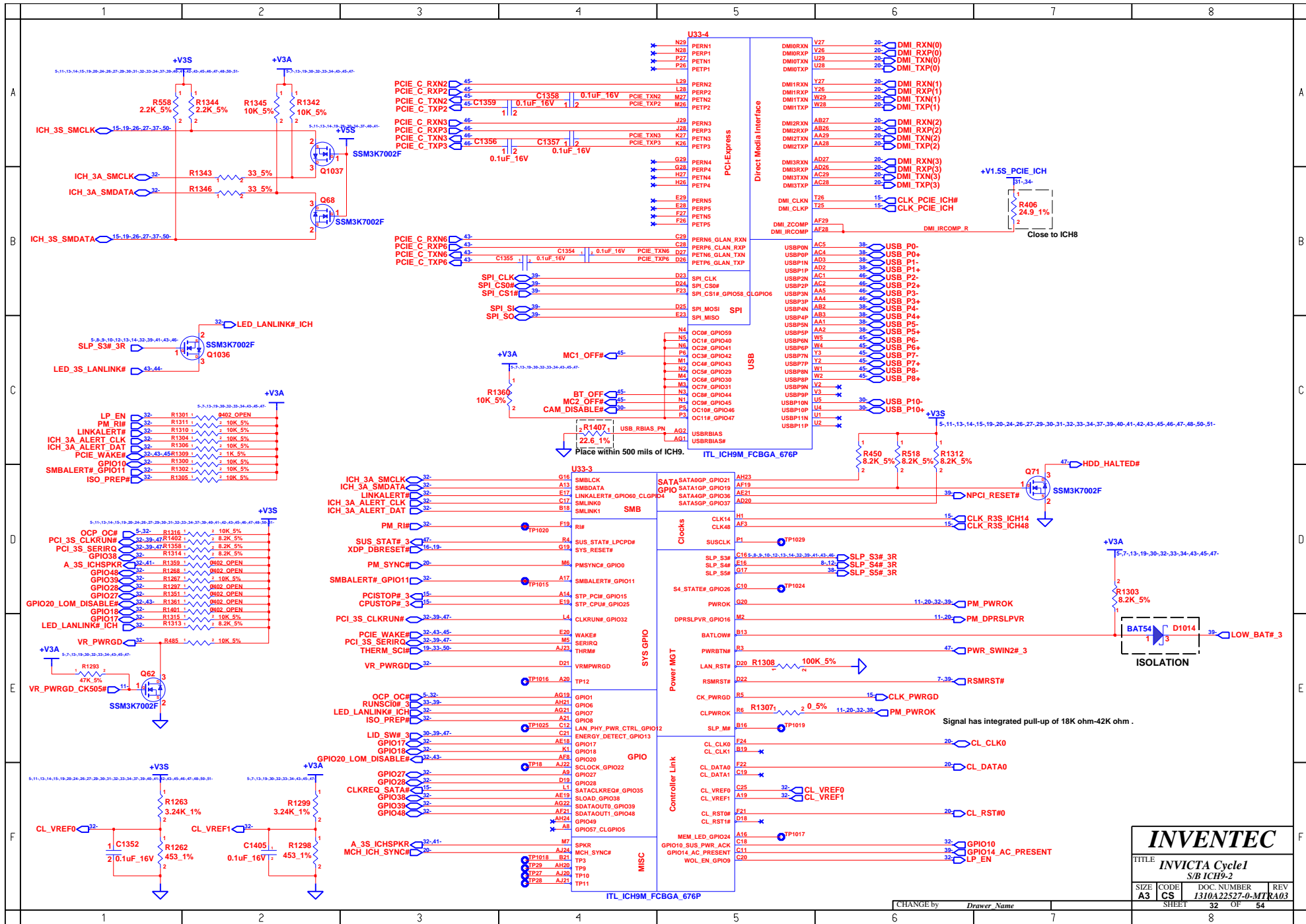
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TITLE **INVICTA Cycle1**
S/B ICH9-1

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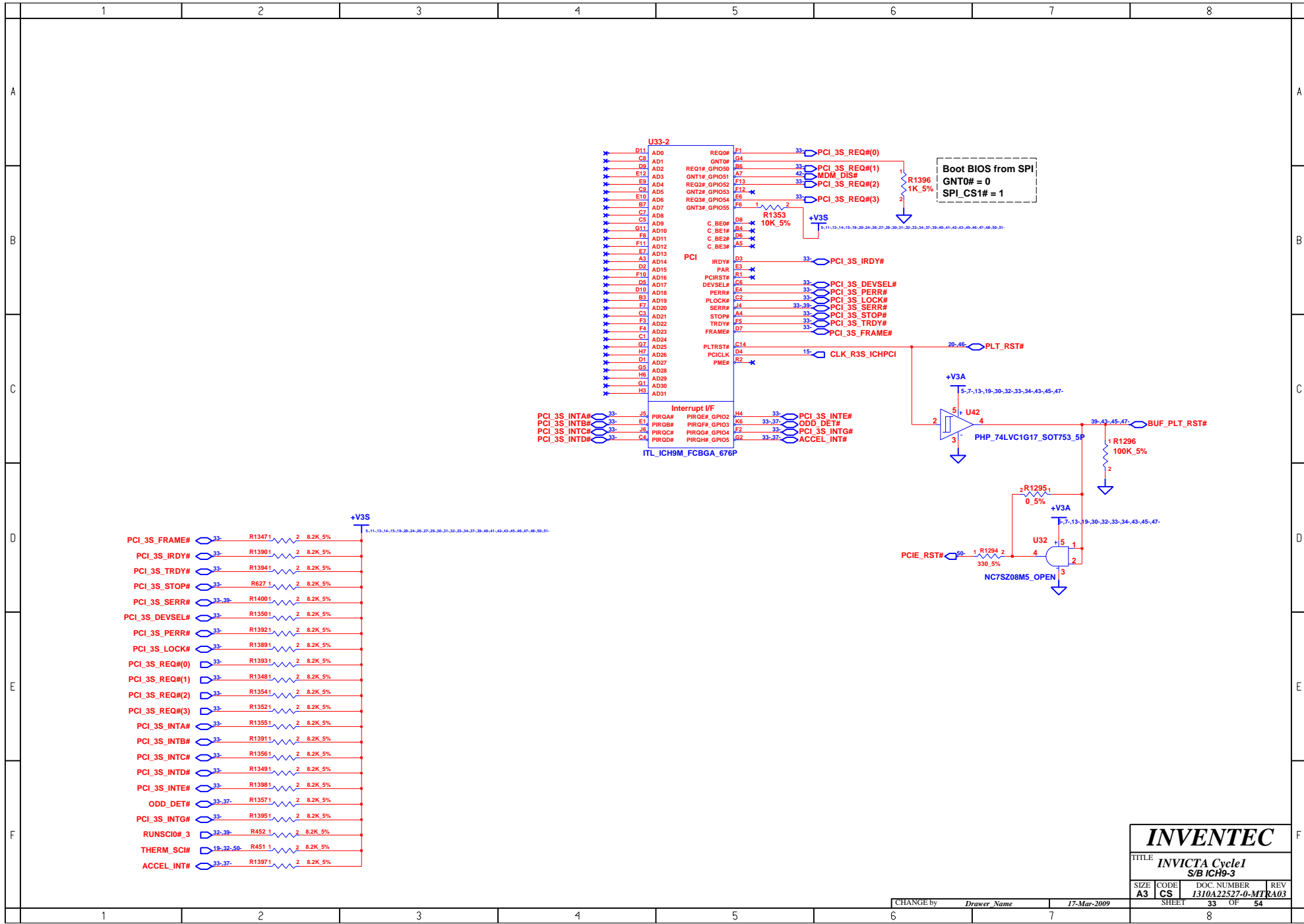
CHANGE by *Drawer Name* 17-Mar-2009

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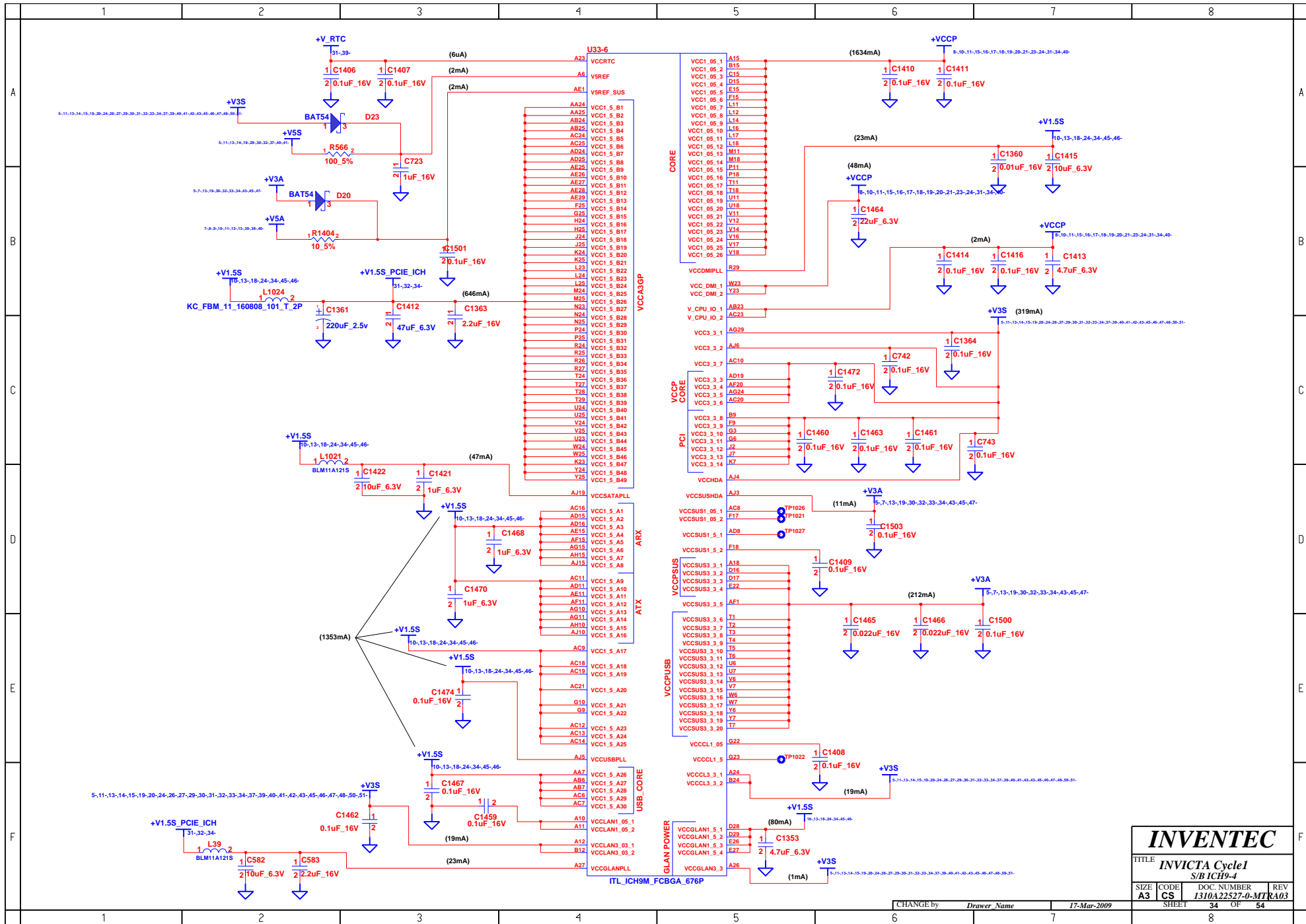


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TITLE: INVICTA Cycle1			
S/B ICH9-2			
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SHEET		32	OF 54

CHANGE by *Drawer Name*



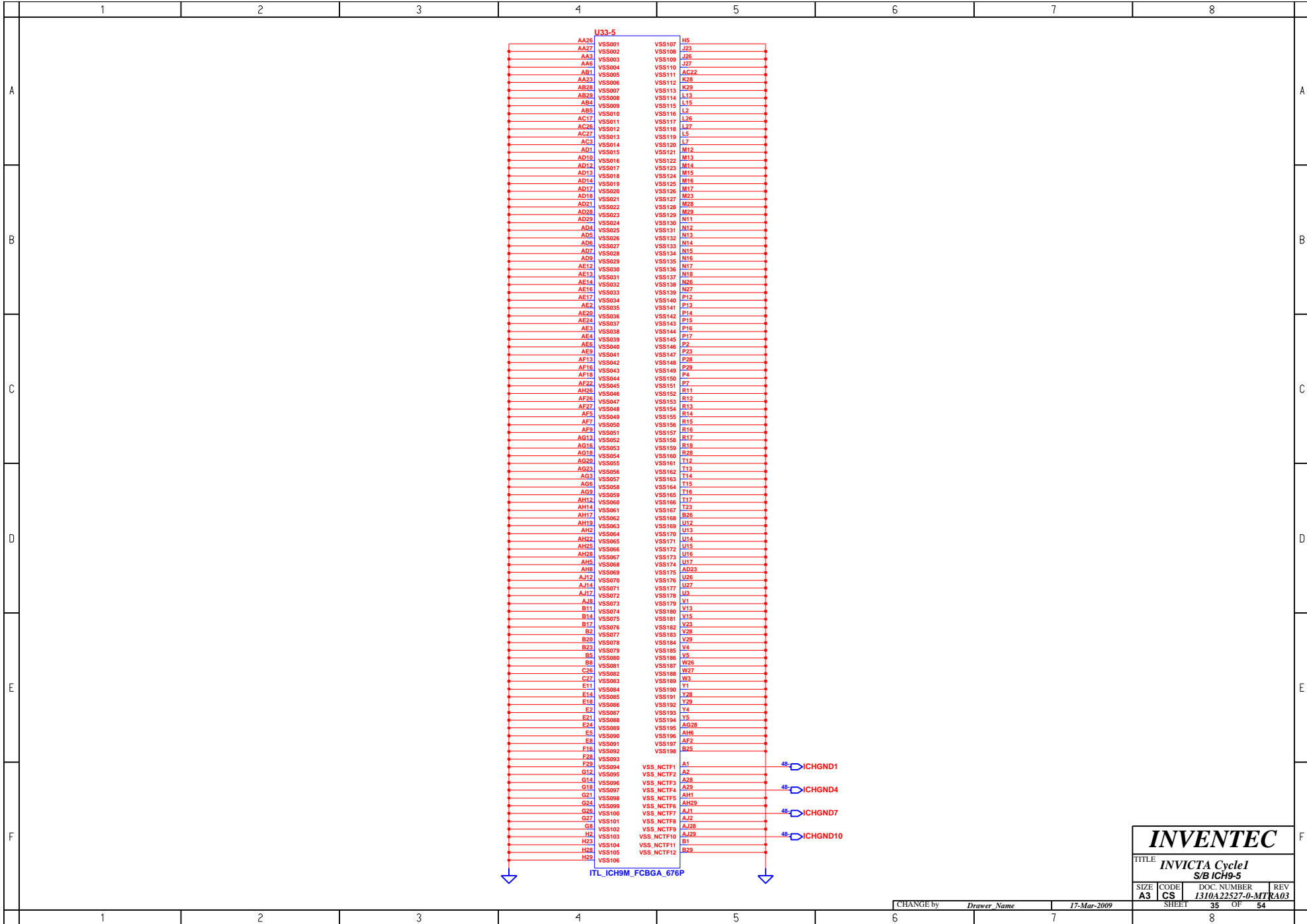
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TITLE INVICTA Cycle1 S/B ICH9-3			
SIZE A3	CODE CS	DOC NUMBER 1310A22527-0-MTR	REV RA03
CHANGE by Drawer Name		17-Mar-2009	SHEET 33 OF 54



INVENTEC

TITLE
INVICTA Cycle1
S/B ICH9-4

SIZE A3	CODE CS	DOC. NUMBER 1310A22527-0-MTR	REV A03
CHANGE by Drawer Name		17-Mar-2009	
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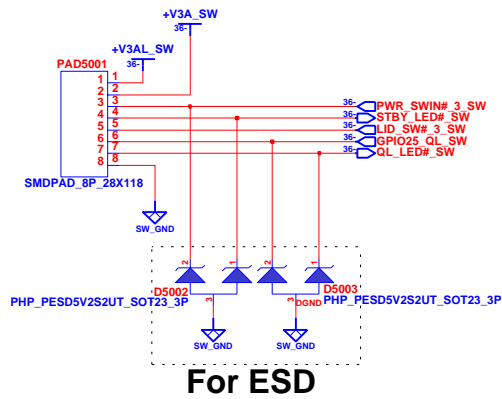
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TITLE **INVICTA Cycle 1**
S/B ICH9-5

SIZE	CODE	DOC. NUMBER	REV
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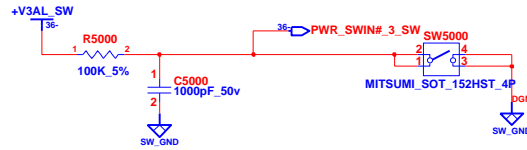
CHANGE by *Drawer Name* 17-Mar-2009 SHEET 35 OF 54

PWR SW B/B CONN

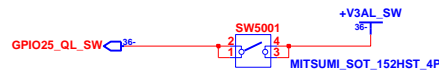


For ESD

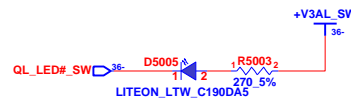
Power Button



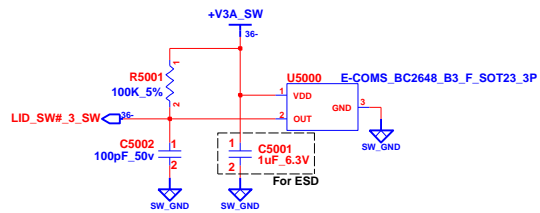
Quick Look Button



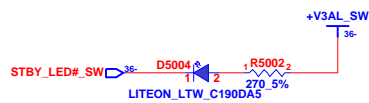
Quick Look LED



LID Switch



Power / Standby LED



- FIX5000
- FIX_MASK
- FIX5001
- FIX_MASK
- FIX5002
- FIX_MASK
- FIX5003
- FIX_MASK
- FIX5004
- FIX_MASK
- FIX5005
- FIX_MASK

Power & LID Switch Board

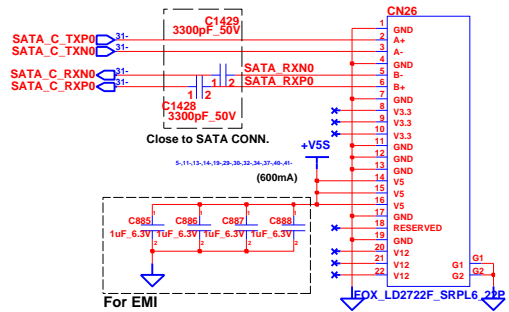
INVENTEC

TITLE *INVICTA Cycle1*
PWR, LID, APP SW/Bs

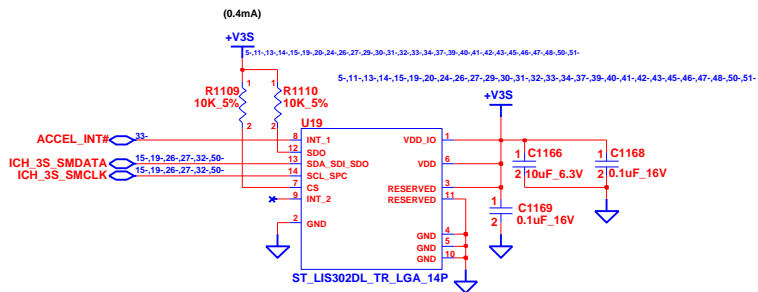
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CHANGE by *Drawer Name* 17-Mar-2009

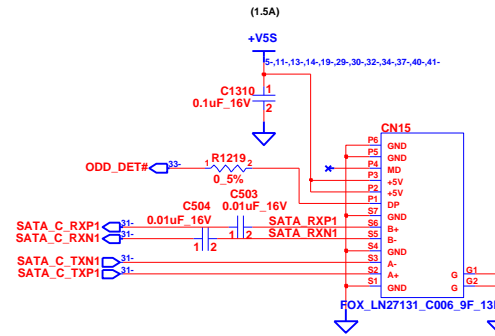
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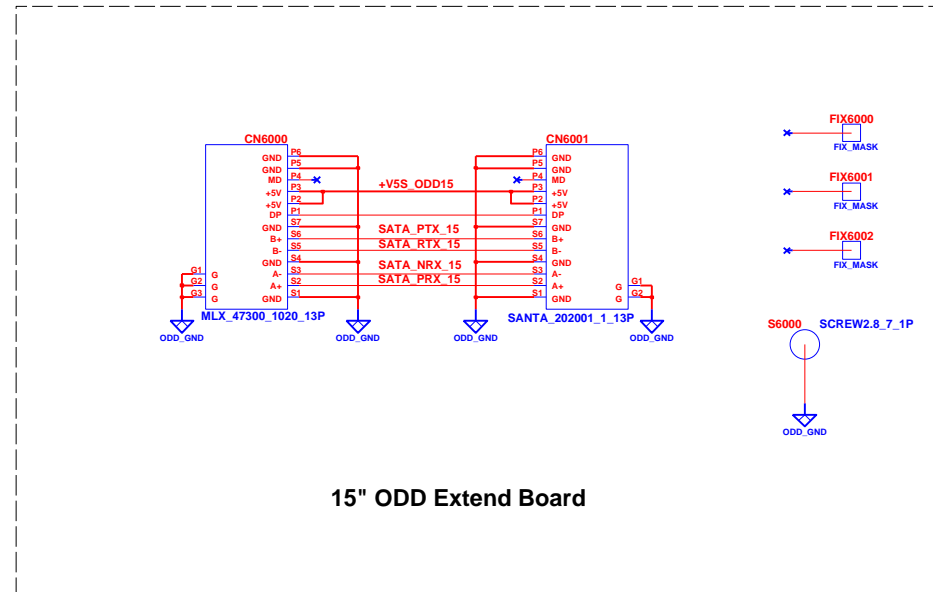
SATA HDD



Accelerometer



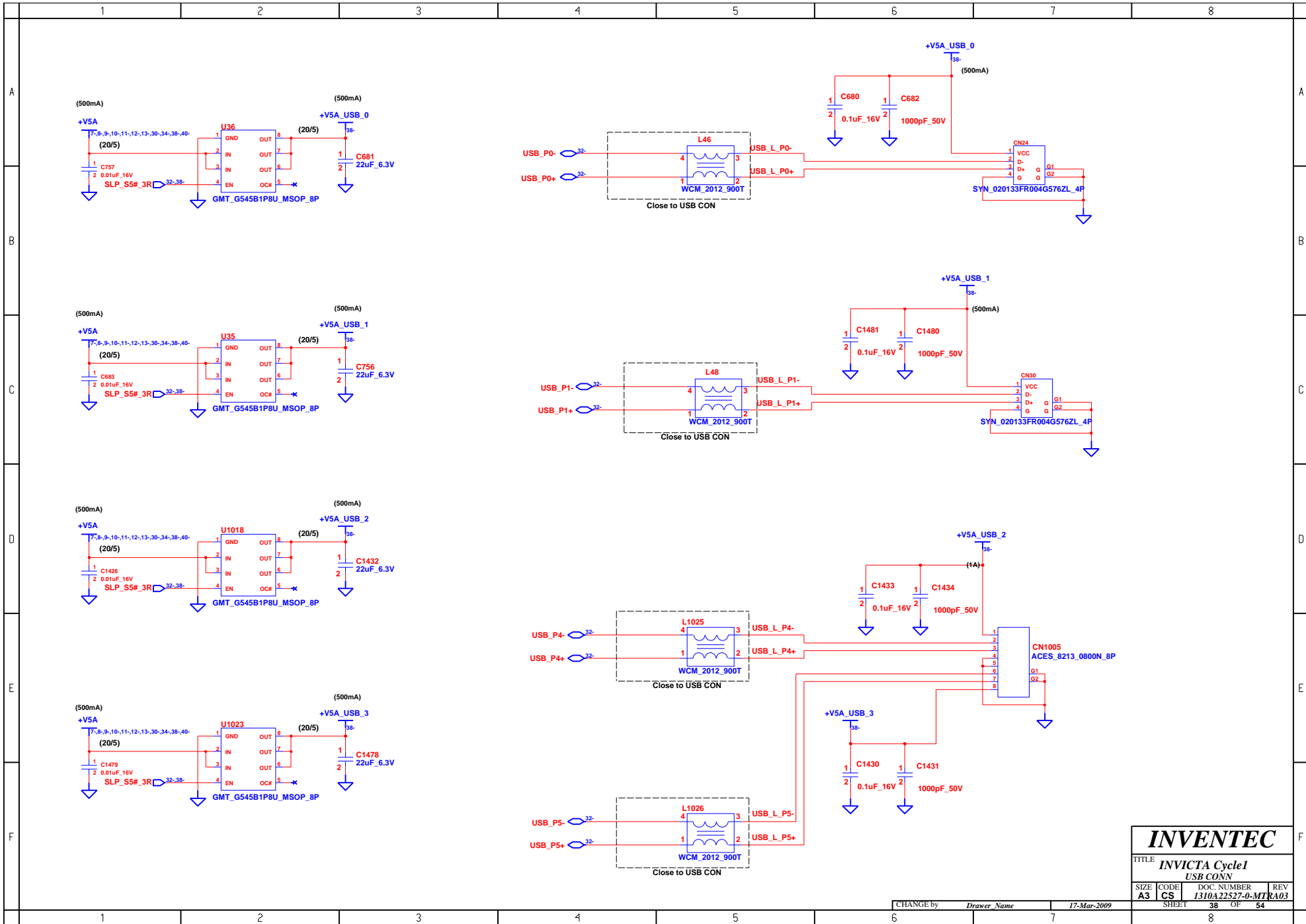
SATA ODD



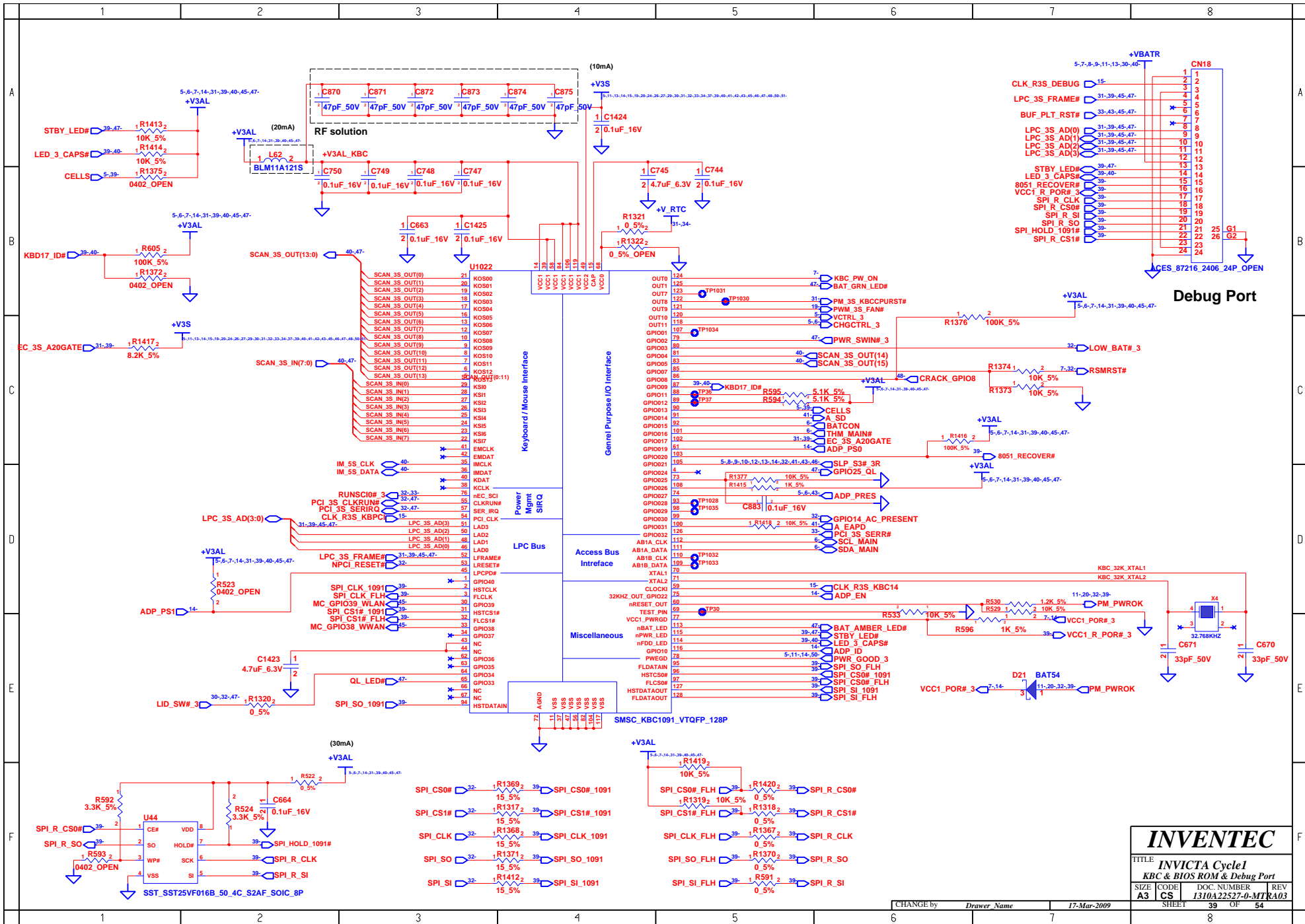
15" ODD Extend Board

INVENTEC

TITLE			
INVICTA Cycle1			
HDD & ODD CONN & Accelerometer & 15" ODD EXT B			
SIZE	CODE	DOC NUMBER	REV
A3	CS	I310A22527-0-MTR	A03
CHANGE by		Drawer Name	17-Mar-2009
SHEET		37	OF 54

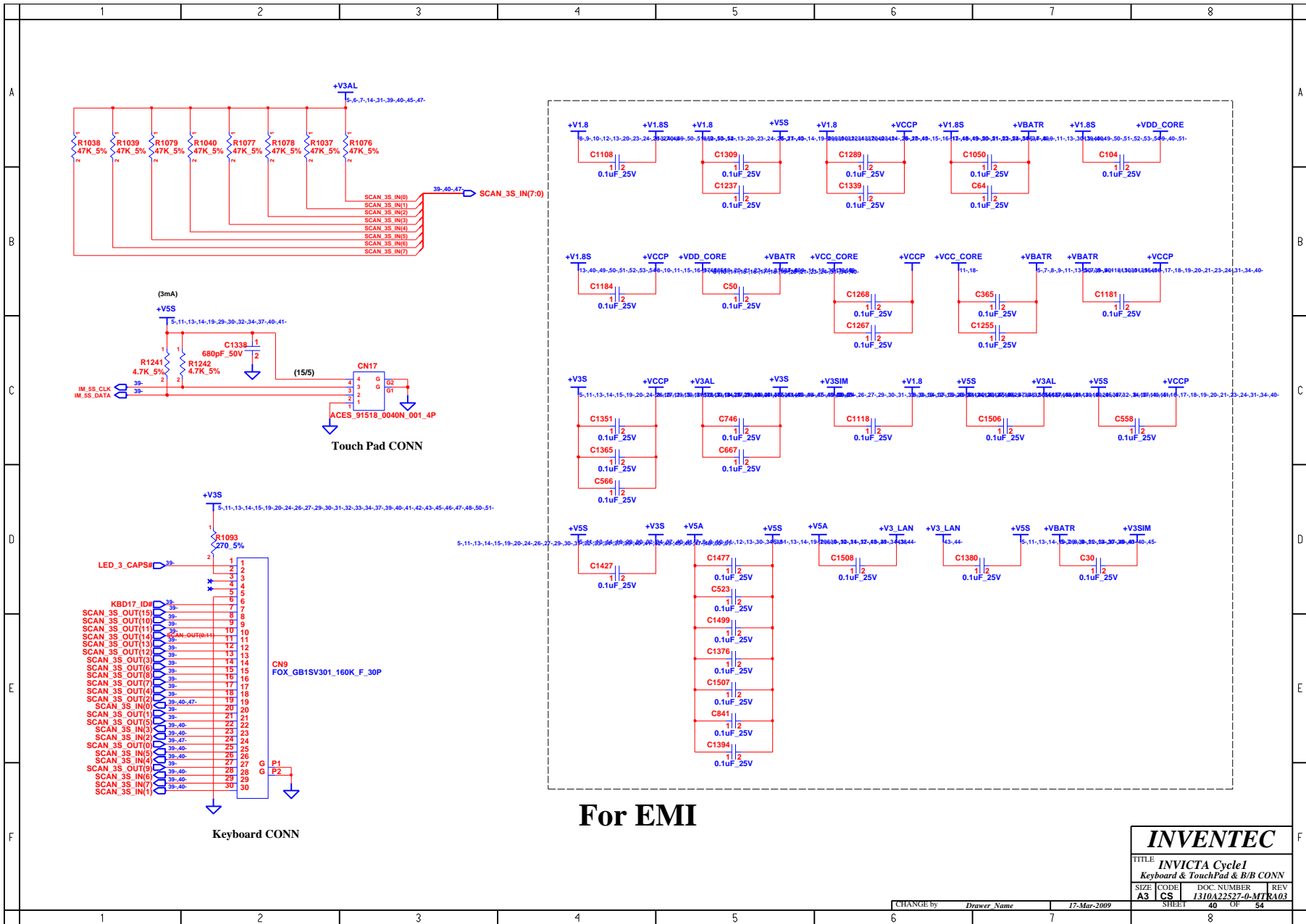


INVENTEC			
TITLE <i>INVICTA Cycle1</i> USB CONN			
SIZE A3	CODE CS	DOC NUMBER <i>1310A22527-0-MTR</i>	REV A03
CHANGE by <i>Drawer Name</i>		17-Mar-2009	
SHEET 38		OF 54	



INVENTEC			
TITLE INVICTA Cycle1			
KBC & BIOS ROM & Debug Port			
SIZE	CODE	DOC NUMBER	REV
A3	CS	1310A22527-0-MTR	A03
SHEET		OF	
39		54	

CHANGE by *Drawer Name* 17-Mar-2009



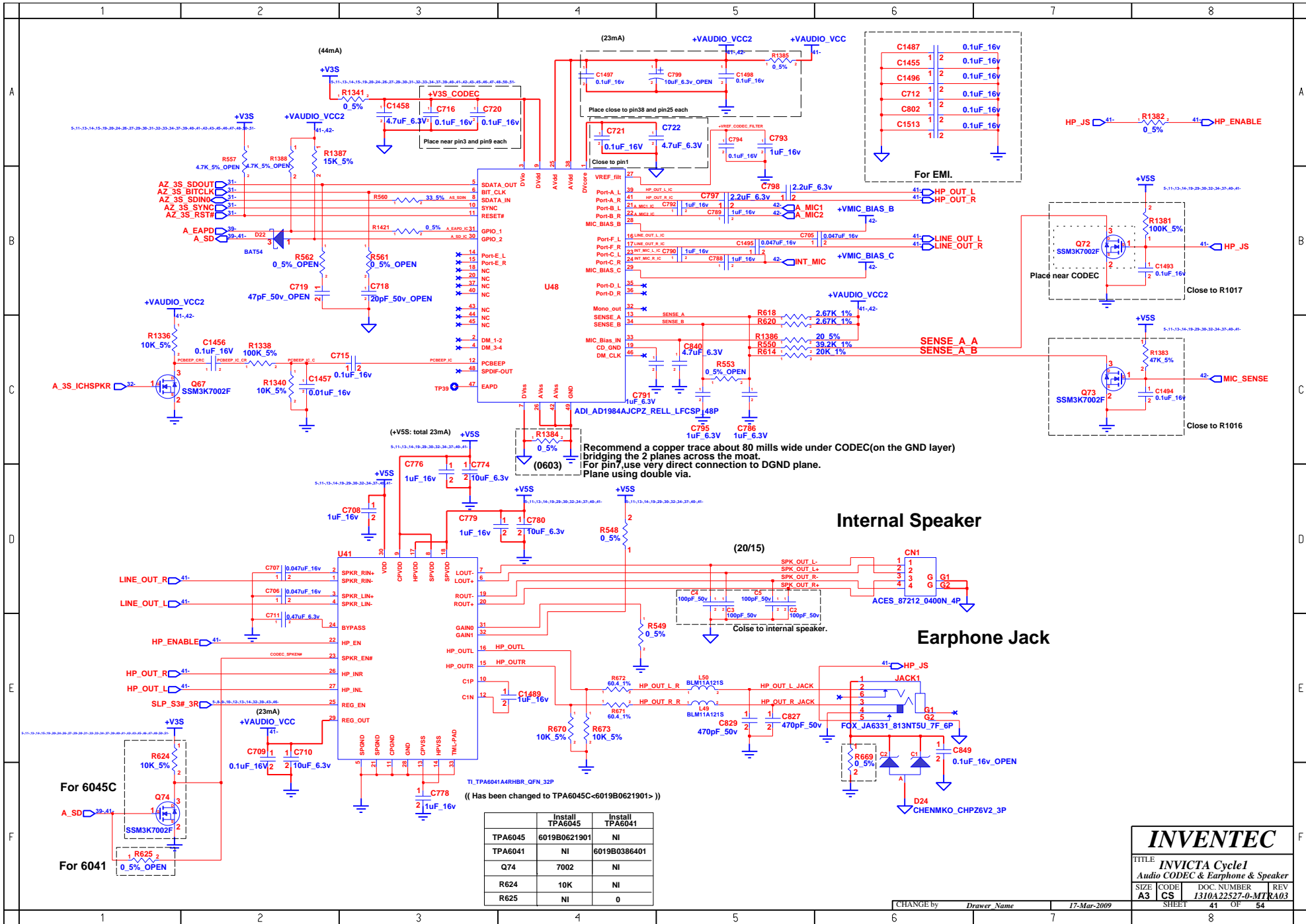
For EMI

INVENTEC

TITLE: **INVICTA Cycle1**
Keyboard & TouchPad & B/B CONN

SIZE	CODE	DOC NUMBER	REV
A3	CS	I310A22527-0-MTKA03	

CHANGE by: *Drawer Name* 17-Mar-2009 SHEET 40 OF 54



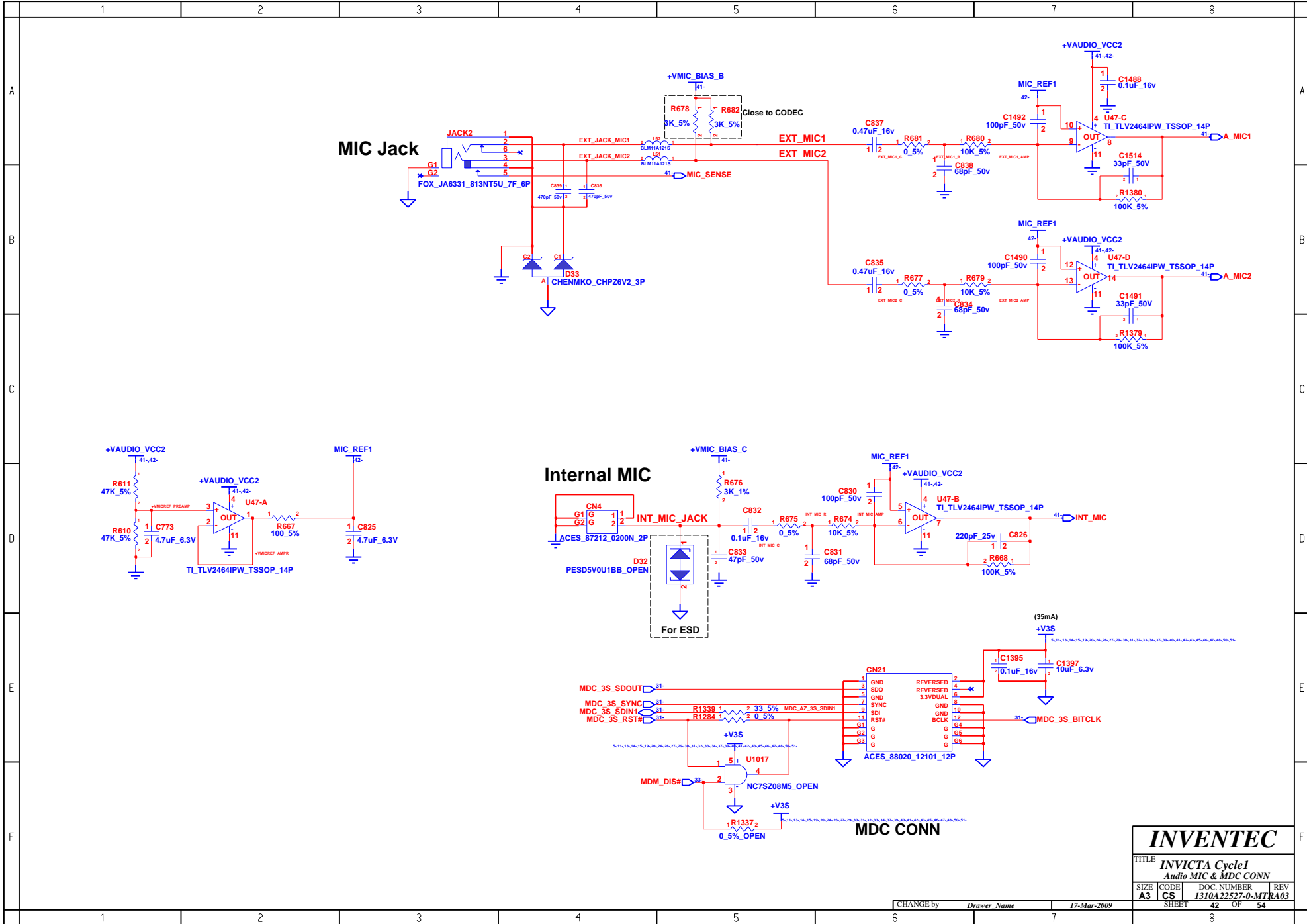
	Install TPA6045	Install TPA6041
TPA6045	6019B0621901	NI
TPA6041	NI	6019B0386401
Q74	7002	NI
R624	10K	NI
R625	NI	0

INVENTEC

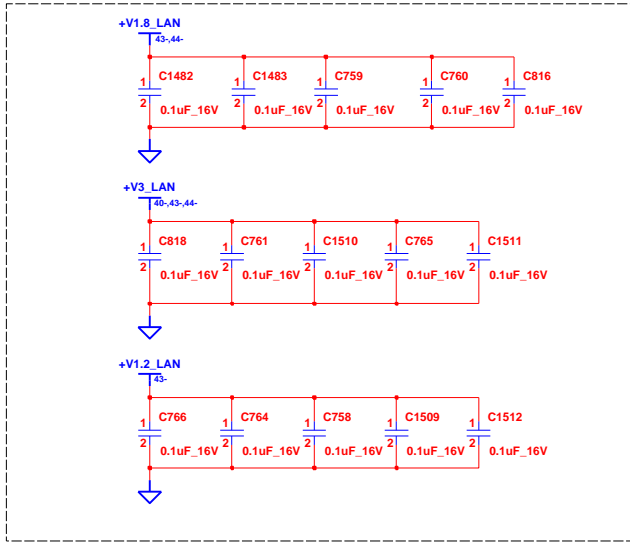
TITLE: **INVICTA Cycle1**
Audio CODEC & Earphone & Speaker

SIZE	CODE	DOC NUMBER	REV
A3	CS	1310A22527-0-MTR	A03

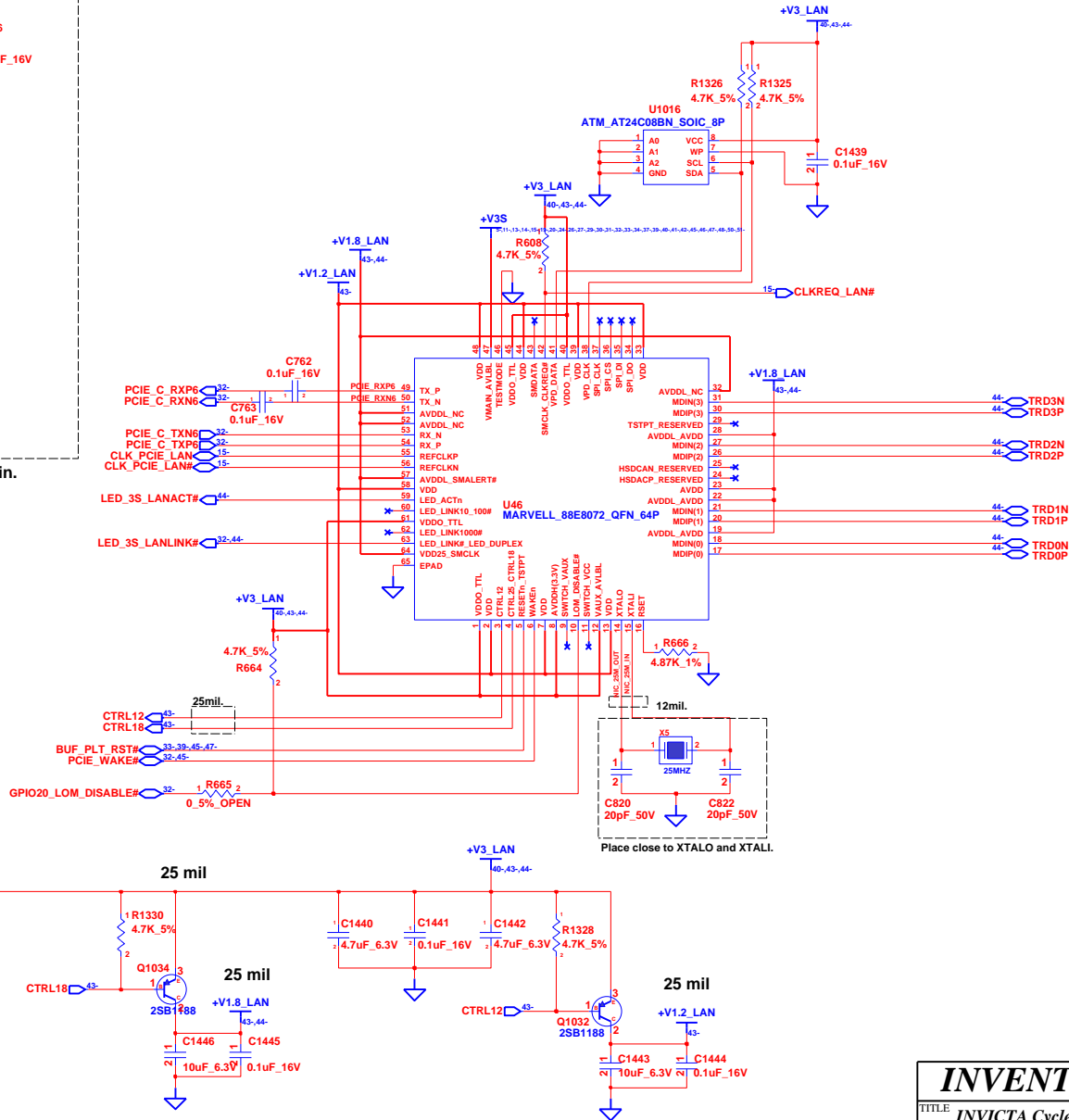
CHANGE by: *Drawer Name* 17-Mar-2009 SHEET 41 OF 54



INVENTEC			
TITLE: INVICTA Cycle1			
Audio MIC & MDC CONN			
SIZE: A3	CODE: CS	DOC. NUMBER: 1310A22527-0-MTR	REV: A03
CHANGE by: <i>Drawer Name</i>		17-Mar-2009	
SHEET: 42		OF: 54	

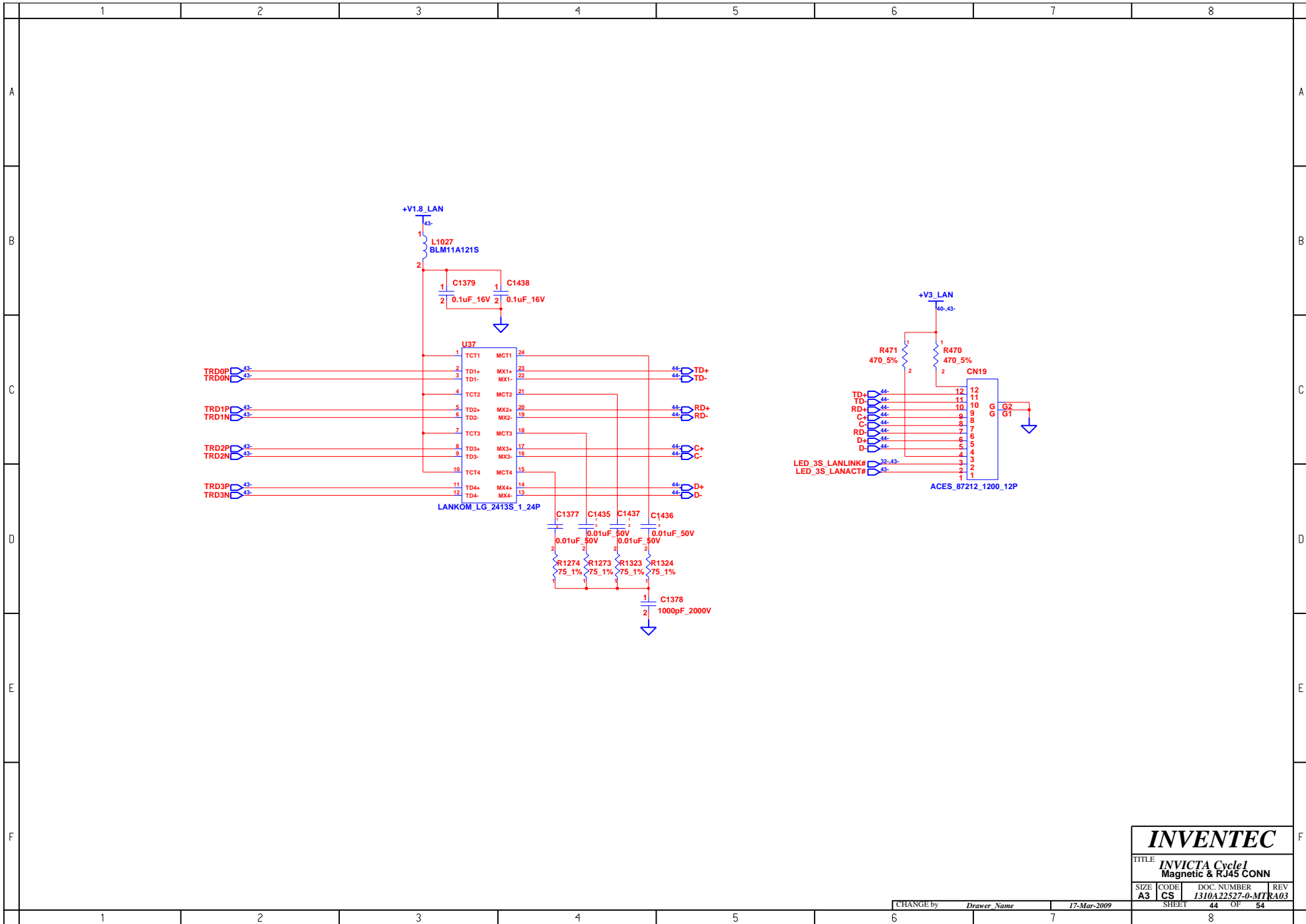


Place bypass cap as close as possible with every power pin.



Place close to XTAL0 and XTAL1.

INVENTEC			
TITLE: INVICTA Cycle1			
Giga LAN Controller			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	1310A22527-0-MT	R403
CHANGE by		Drawer Name	17-Mar-2009
SHEET		43	OF 54



INVENTEC

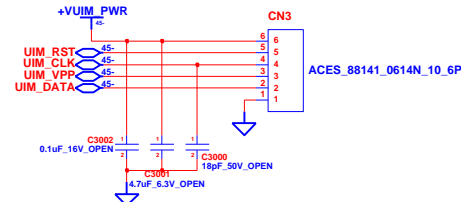
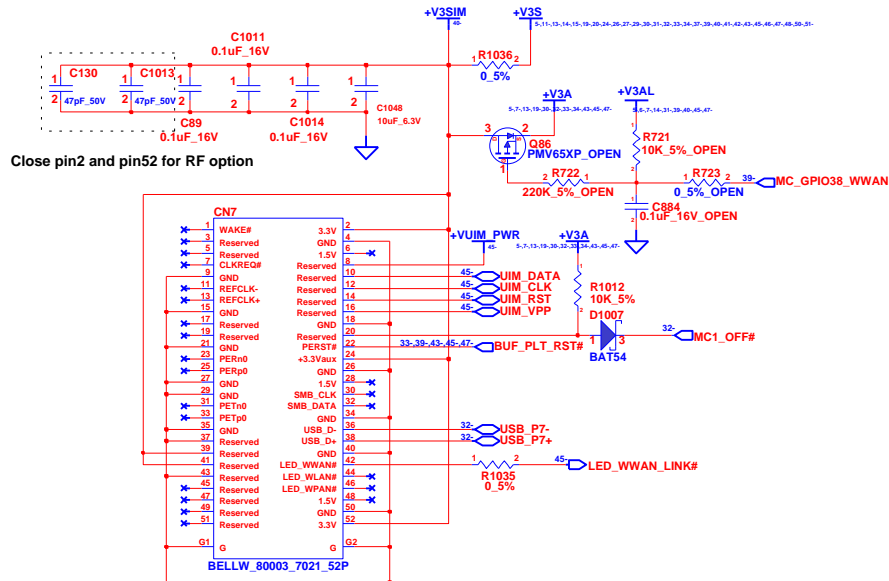
TITLE **INVICTA Cycle1
Magnetic & RJ45 CONN**

SIZE A3	CODE CS	DOC. NUMBER 1310A22527-0-MTR	REV RA03
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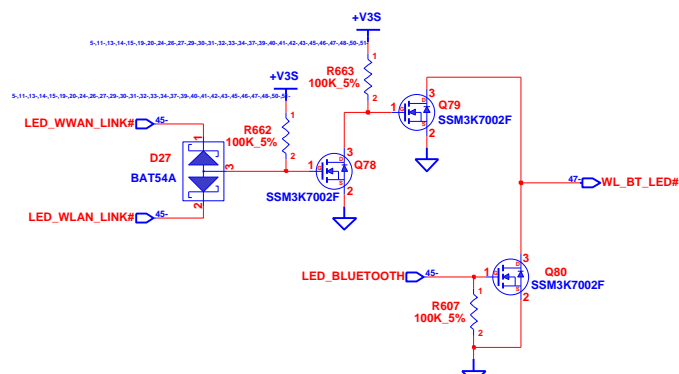
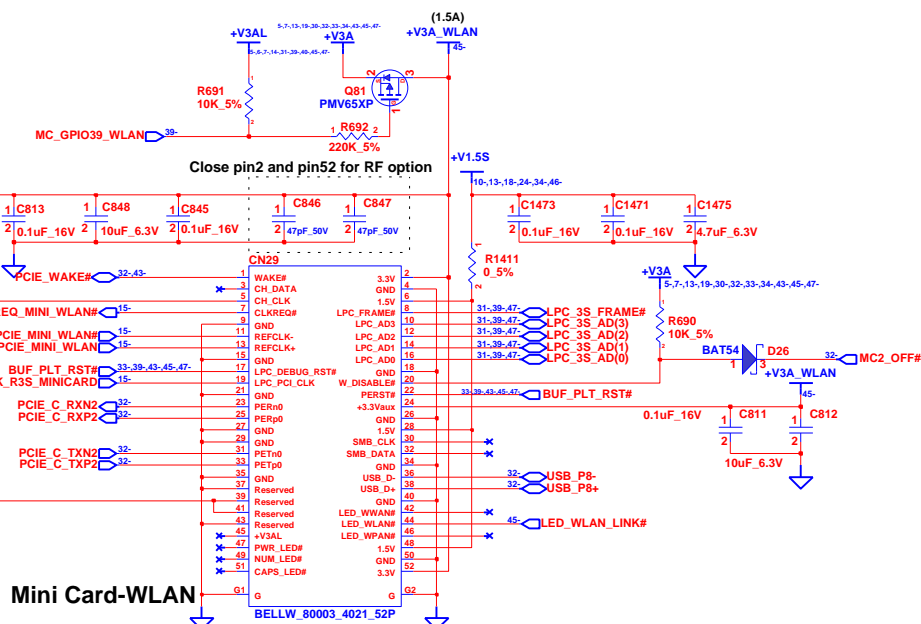
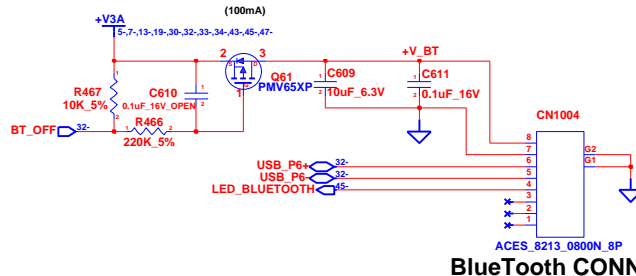
CHANGE by *Drawer Name* 17-Mar-2009

SHEET 44 OF 54

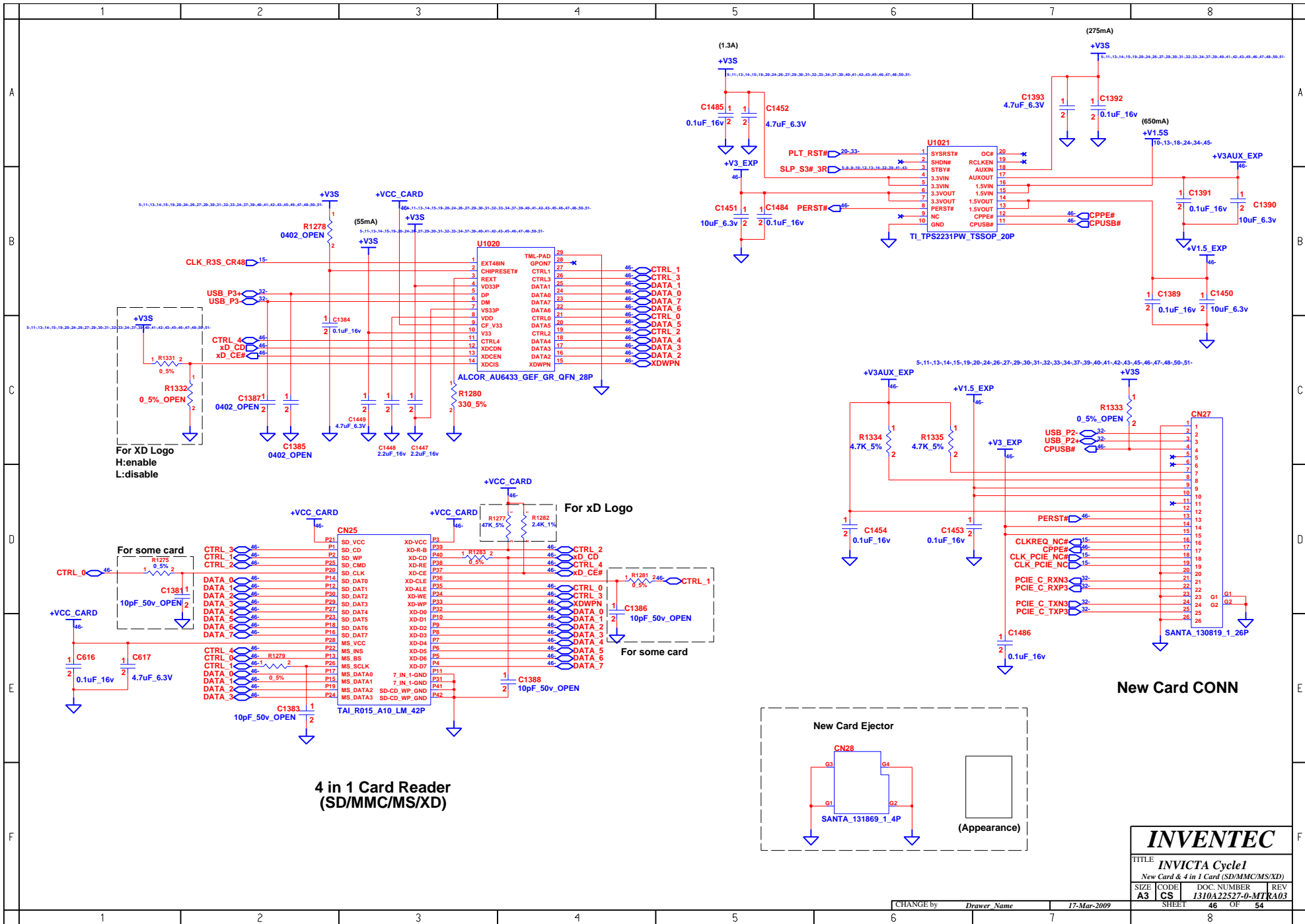
MINI Card-WWAN

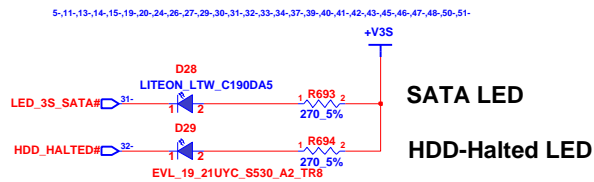
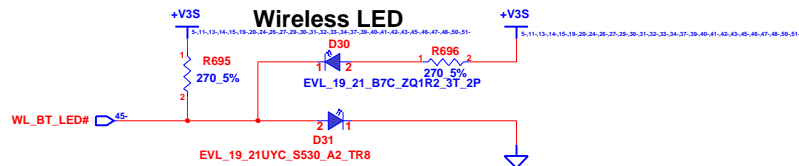
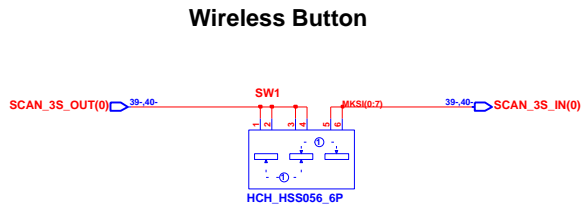


SIM Card B2B MB side CONN

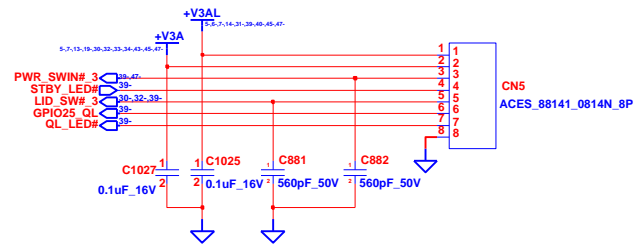
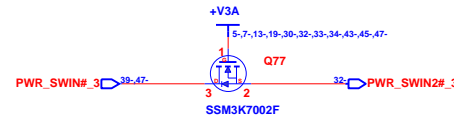
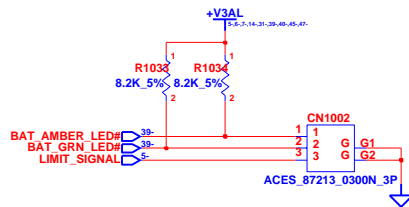


INVENTEC			
TITLE: INVICTA Cycle1			
Mini Card (WLAN/WWAN) / BT			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	I310A22527-0-MTR	A03
CHANGE by		Drawer Name	17-Mar-2009
SHEET		45	OF 54

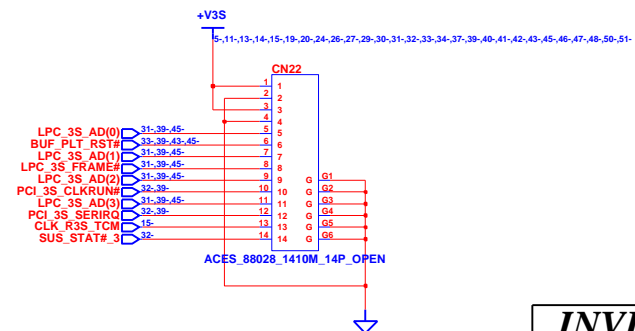




Battery Charge LED CONN



TCM CONN



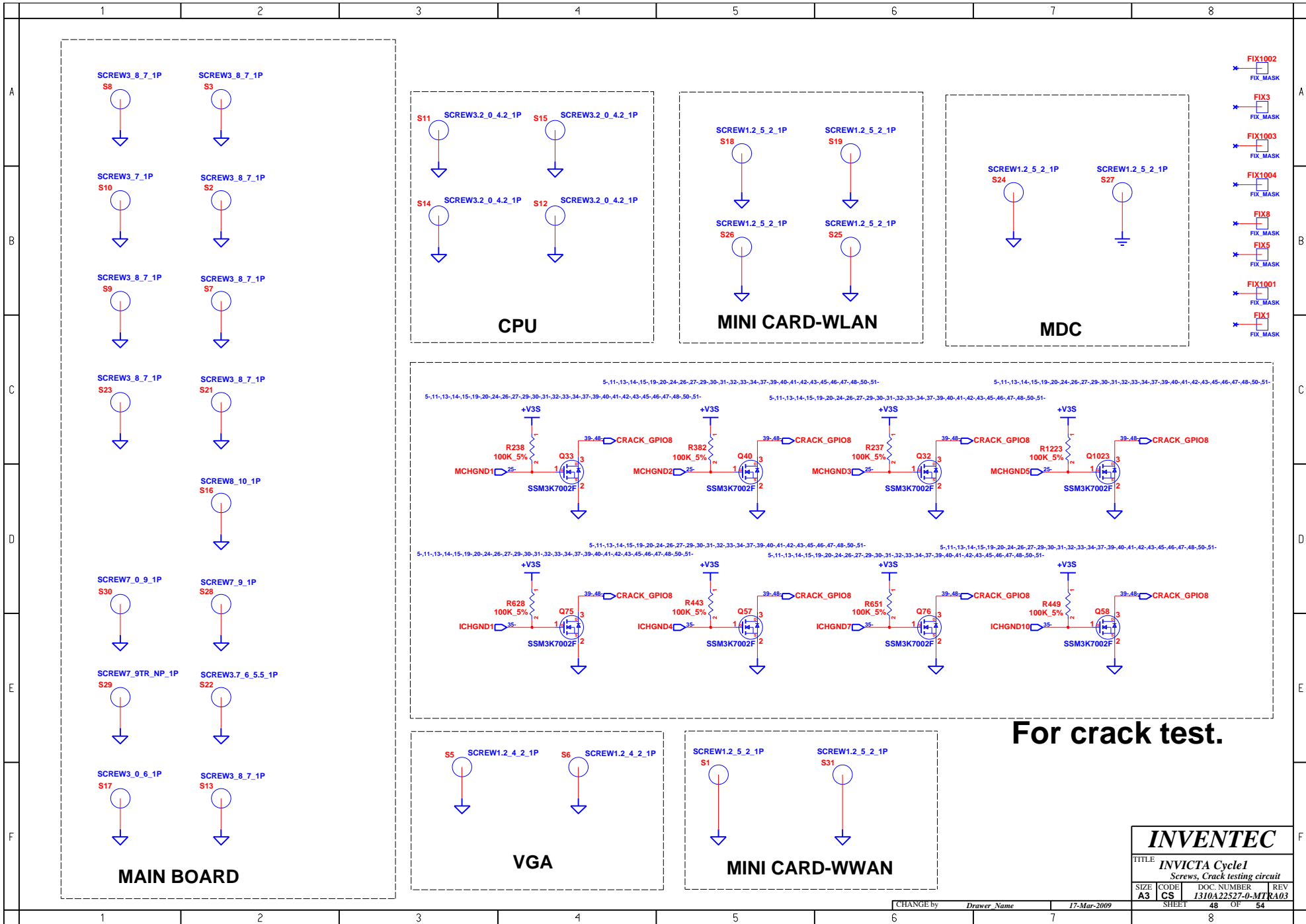
INVENTEC

TITLE: **INVICTA Cycle1**
LEDs & TCM CONN

SIZE	CODE	DOC NUMBER	REV
A3	CS	1310A22527-0-MTR	A03

CHANGE by: *Drawer Name* 17-Mar-2009

SHEET 47 OF 54



For crack test.

INVENTEC			
TITLE <i>INVICTA Cycle1</i>			
Screws, Crack testing circuit			
SIZE A3	CODE CS	DOC NUMBER <i>1310A22527-0-MTR</i>	REV A03
CHANGE by <i>Drawer Name</i>		17-Mar-2009	
SHEET 48		OF 54	

STRAPS	PIN	Description of default settings	
TX_PWRS_ENB	GPIO0	PCIe full TX output swing.	1
TX_DEEMPH_EN	GPIO1	PCIe transmitter de-emphasis enabled.	1
BIF_DEBUG_ACCESS	GPIO4	Debug signals muxed out.	0
ROMIDCFG(0:3)	GPIO[11:13,9]	Memory aperture type	X X X X

X = DESIGN DEPENDANT
0 = DO NOT INSTALL RESISTOR
1 = INSTALL 10K RESISTOR

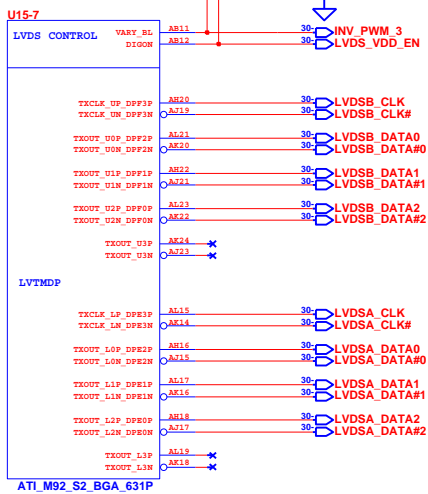
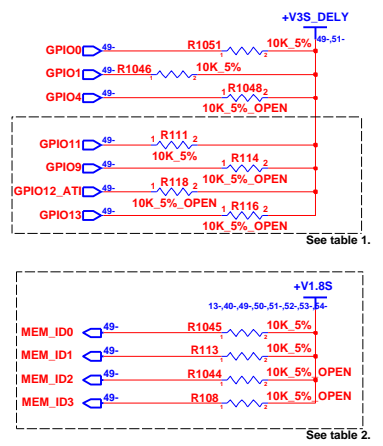
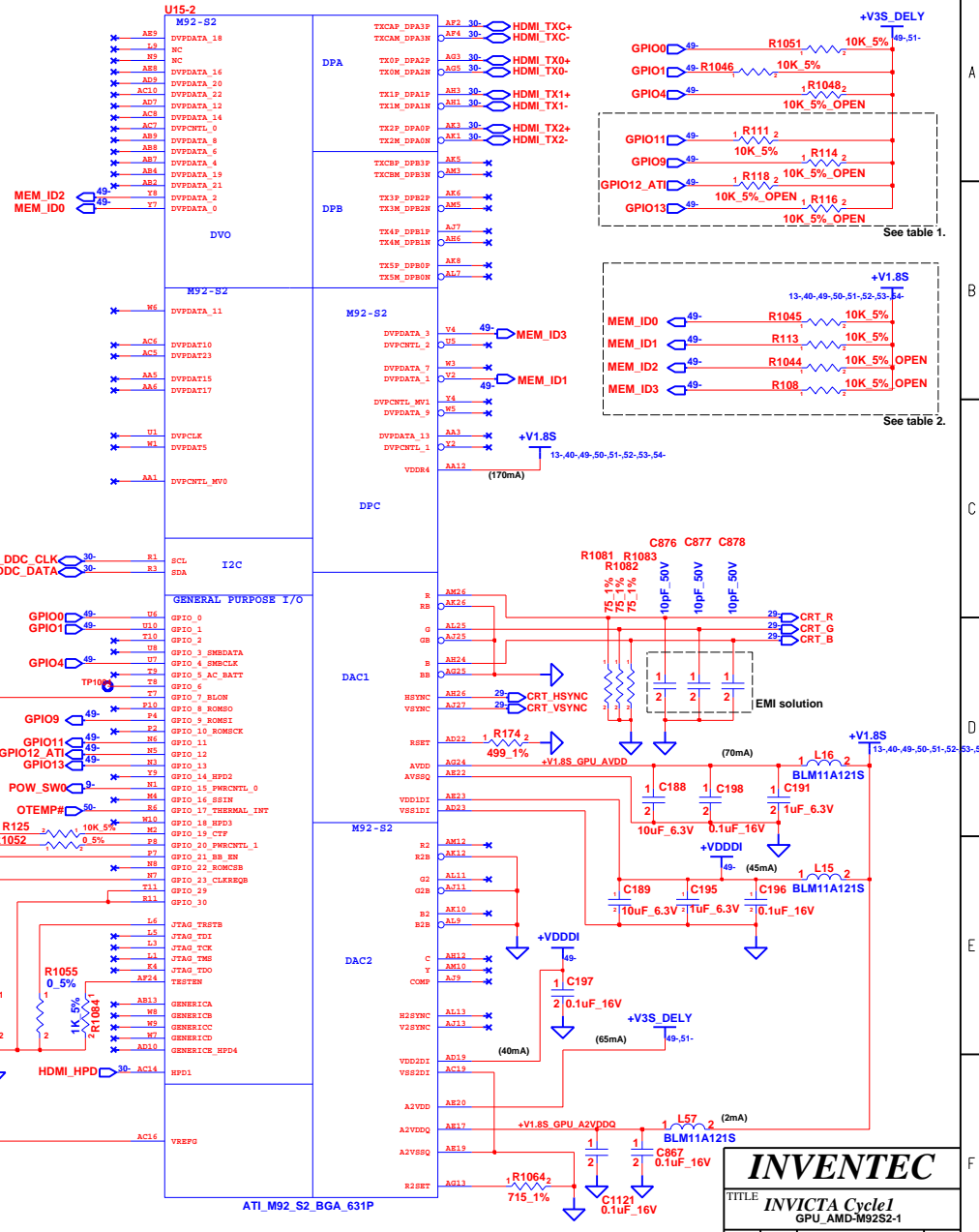
Table 1

GPIO_13	GPIO_12	GPIO_11	For DIS-GDDR2
0	0	1	512MB/256MB memory aperture (Default)
1	1	0	reserved

POW_SW1	POW_SW0	+VDD_CORE
0	0	1.0V
0	1	0.95V
1	0	0.9V

Table 2

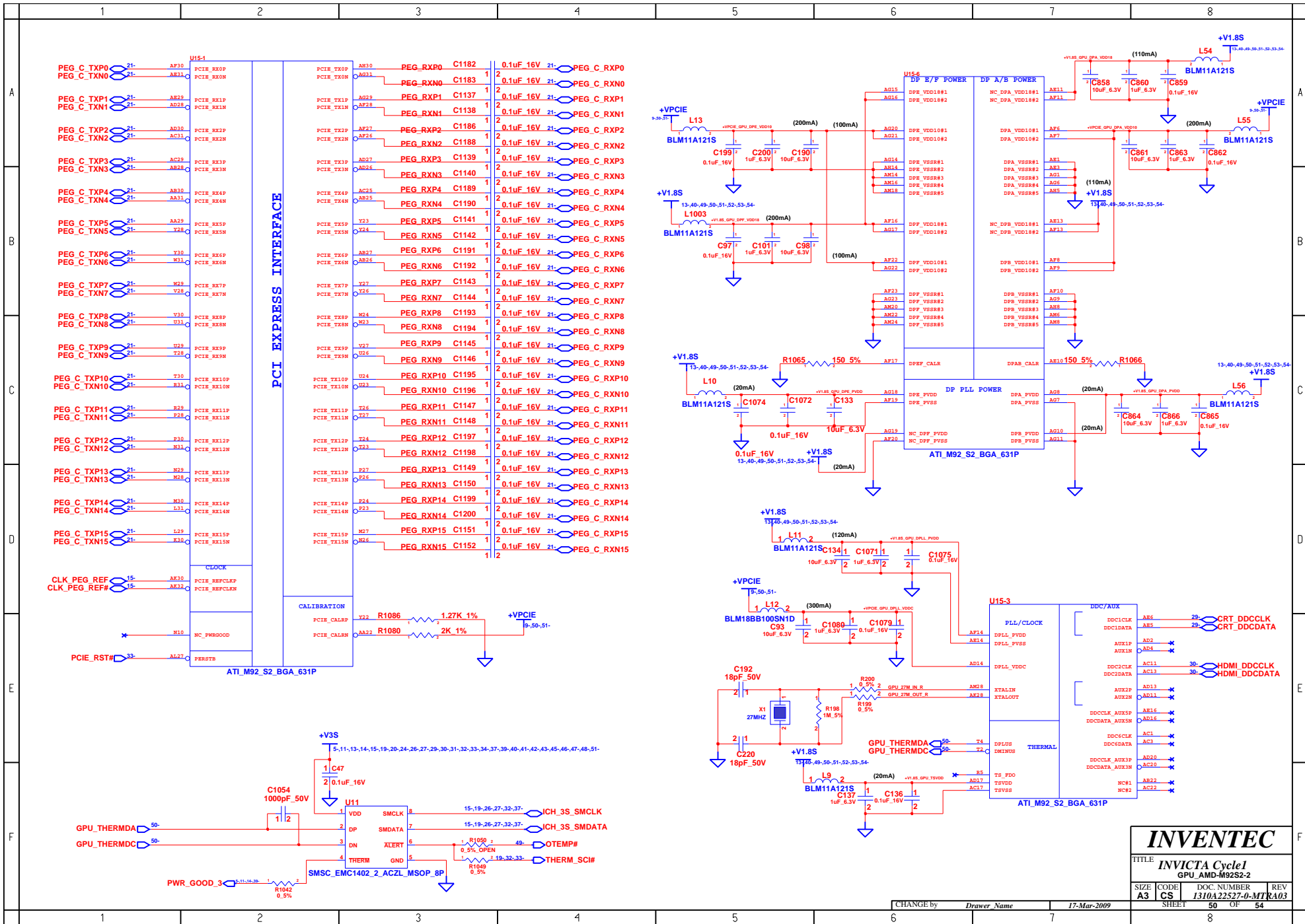
For DIS-VRAM DDR2				
MEM_ID3	MEM_ID2	MEM_ID1	MEM_ID0	vendor
0	0	0	1	Samsung (512MB)
0	0	1	0	Qimonda (512MB)
0	0	1	1	Hynix (512MB) (Default)

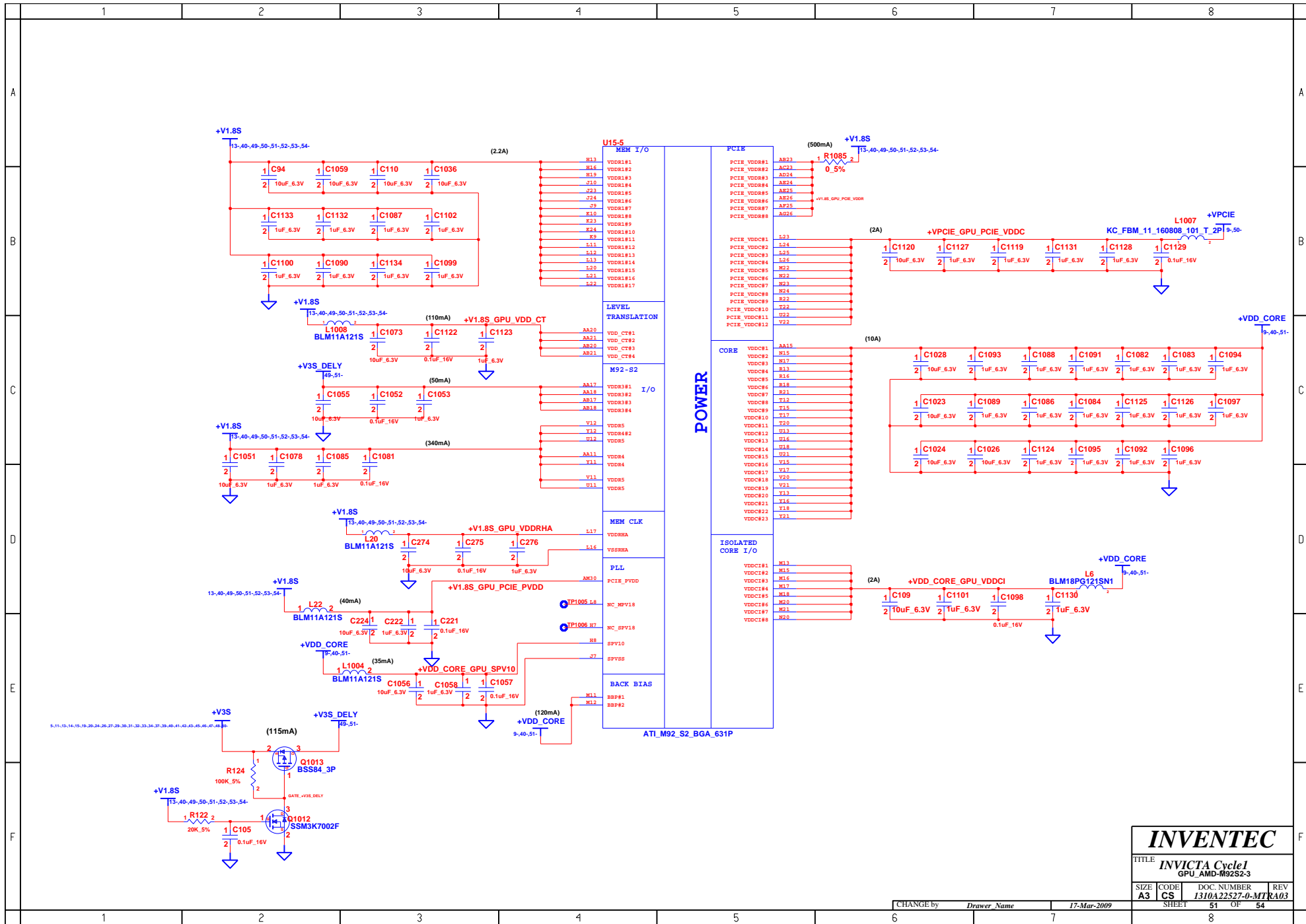


INVENTEC

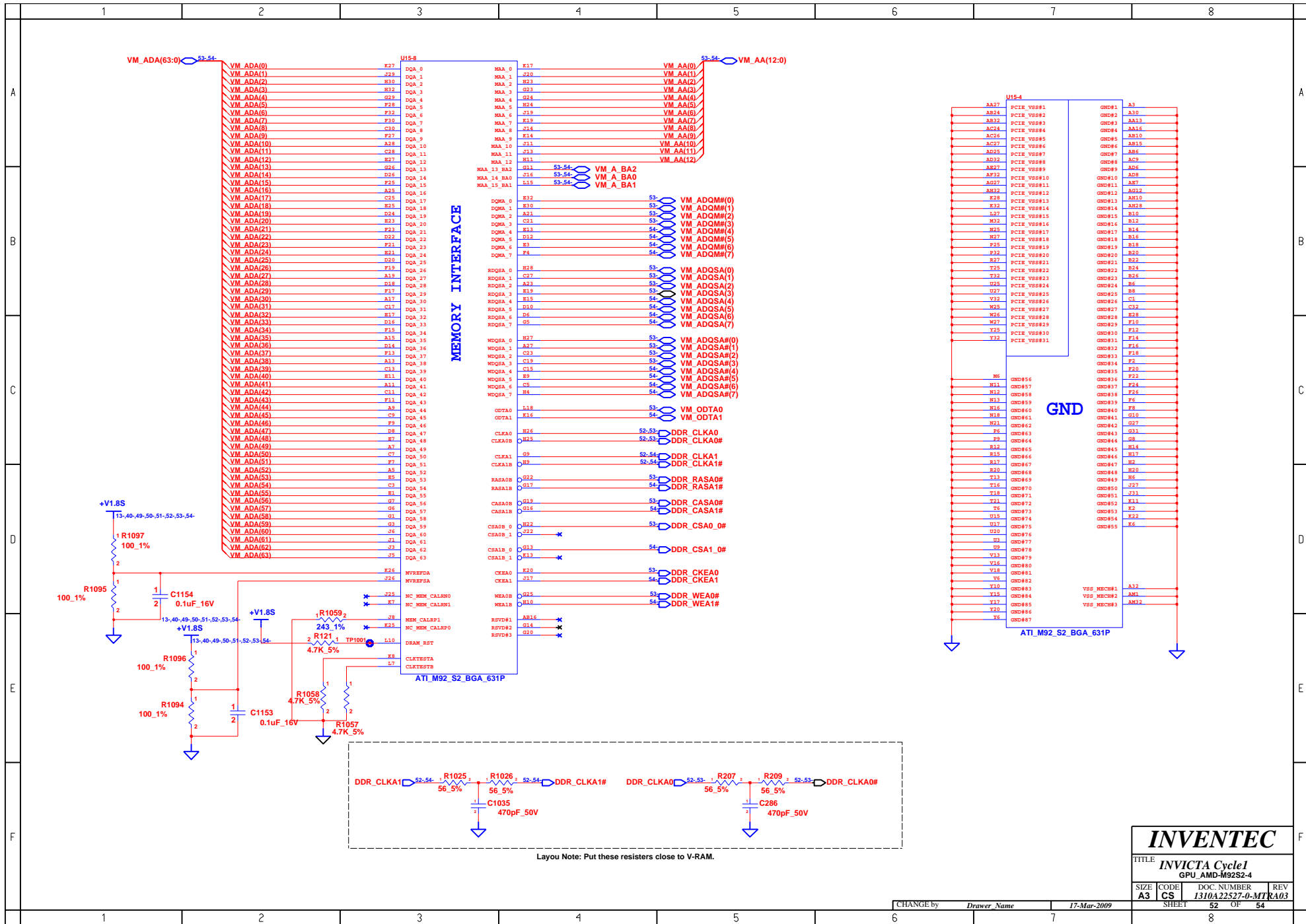
TITLE: INVICTA Cycle1 GPU_AMD-M92S2-1

SIZE A3 CODE CS DOC NUMBER 1310A22527-0-MTR A03 REV SHEET 49 OF 54





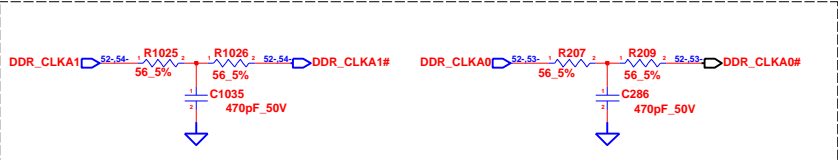
INVENTEC			
TITLE: INVICTA Cycle1 GPU_AMD-M92S2-3			
SIZE: A3	CODE: CS	DOC. NUMBER: I310A22527-0-MTR	REV: A03
CHANGE by: Drawer Name		17-Mar-2009	
SHEET: 51		OF: 54	



MEMORY INTERFACE

GND

ATI_M92_S2_BGA_631P



Layout Note: Put these resistors close to V-RAM.

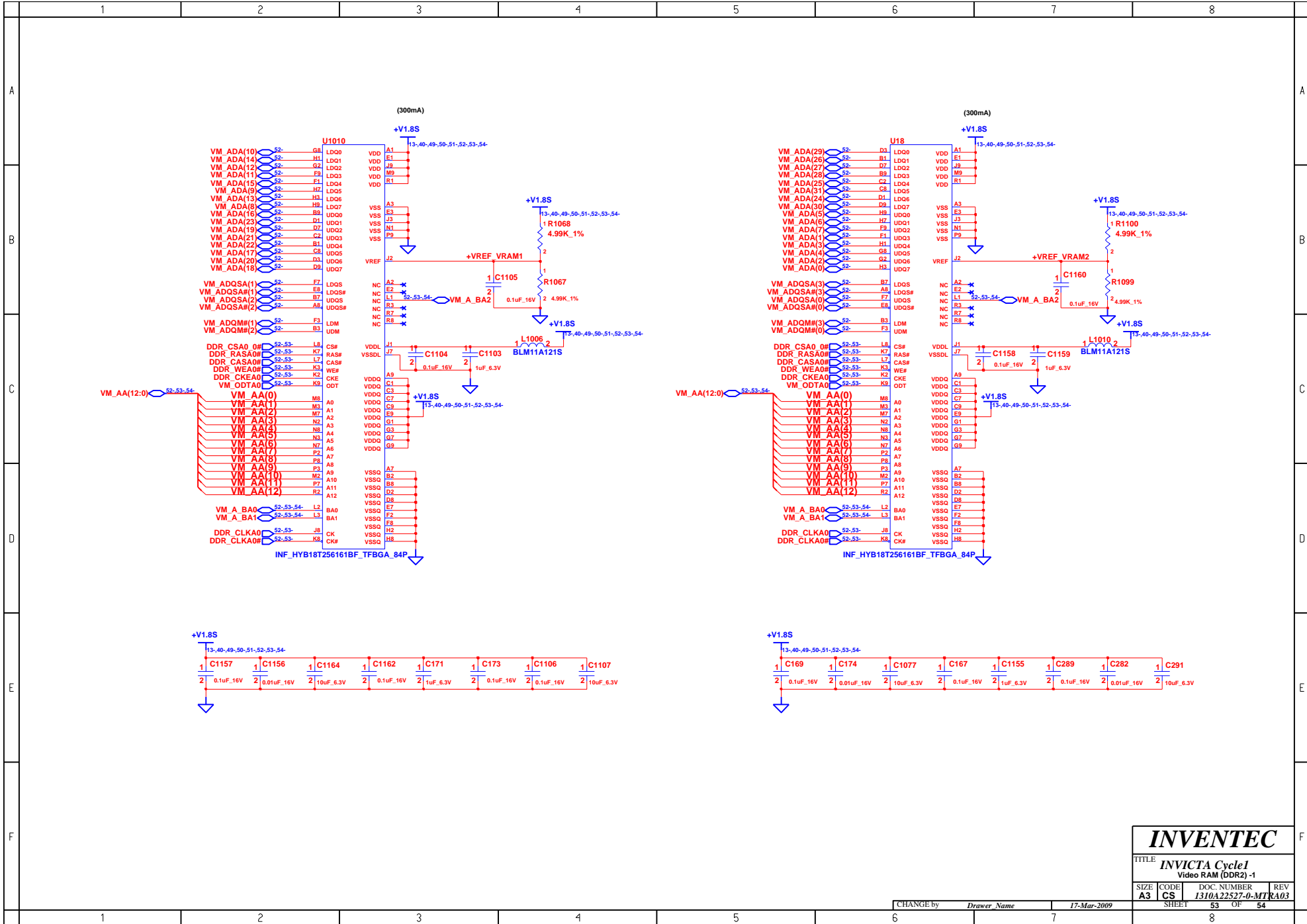
INVENTEC

TITLE: **INVICTA Cycle1**
GPU_AMD-M92S2-4

SIZE	CODE	DOC. NUMBER	REV
A3	CS	1310A22527-0-MTR	A03

SHEET 52 OF 54

CHANGE by *Drawer Name* 17-Mar-2009

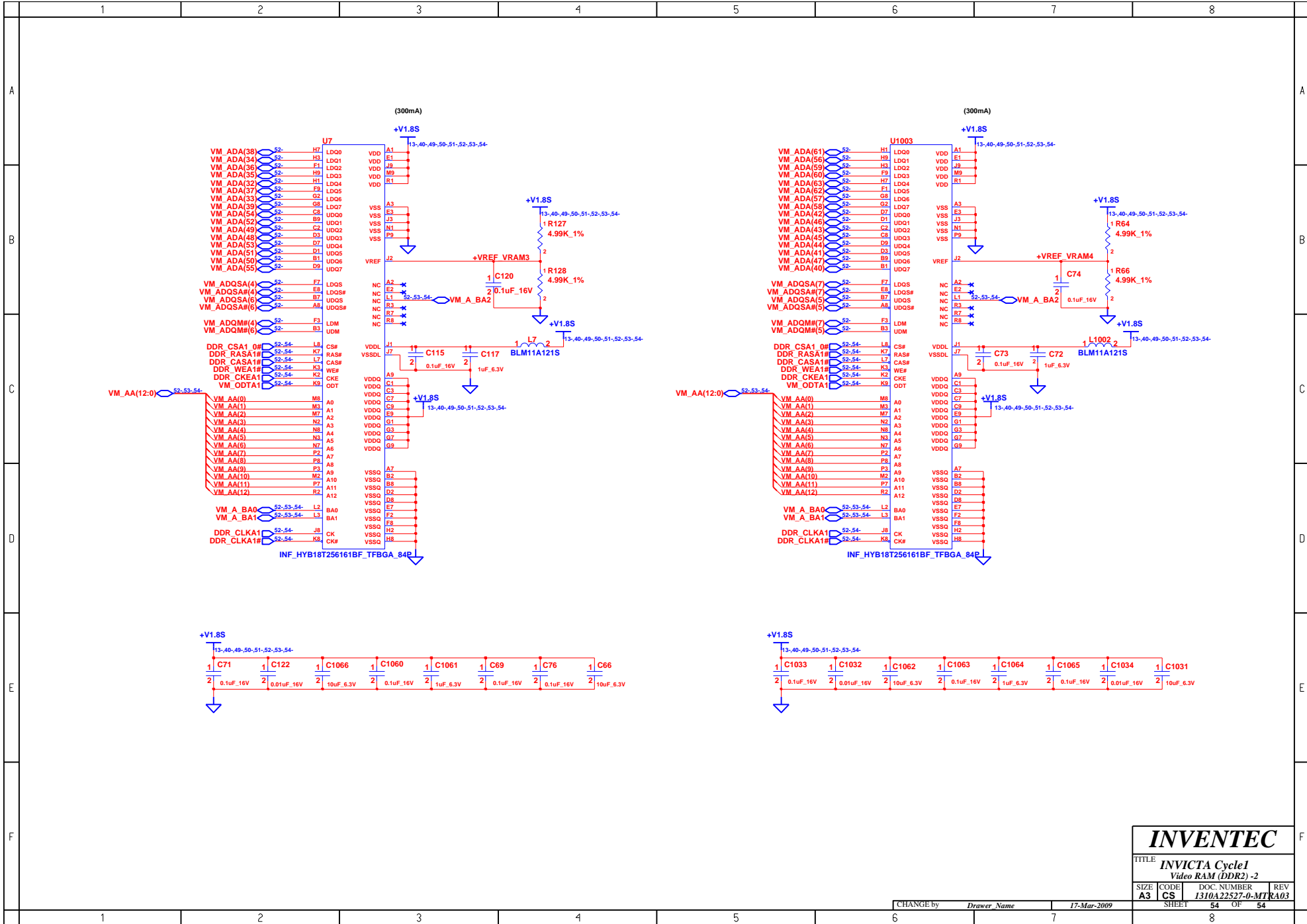


INVENTEC

TITLE **INVICTA Cycle1**
Video RAM (DDR2) -1

SIZE	CODE	DOC. NUMBER	REV
A3	CS	1310A22527-0-MTR	A03

CHANGE by *Drawer Name* 17-Mar-2009 SHEET 53 OF 54



INVENTEC			
TITLE INVICTA Cycle1 Video RAM (DDR2) -2			
SIZE A3	CODE CS	DOC. NUMBER I310A22527-0-MTR	REV A03
CHANGE by <i>Drawer Name</i>		17-Mar-2009	
SHEET 54		OF 54	