

	1	2	3	4	5	6	7	8																																																																													
A																																																																																					
B																																																																																					
C	Manaus 10 CS BUILD																																																																																				
D	2010.03.18																																																																																				
E																																																																																					
F	<table><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td>DATE</td><td>CHANGE NO.</td><td>REV</td></tr></table>																									DATE	CHANGE NO.	REV			<table><tr><td>DRAWER</td><td>EE</td><td>DATE</td><td>POWER</td><td>DATE</td></tr><tr><td>DESIGN</td><td></td><td></td><td></td><td></td></tr><tr><td>CHECK</td><td></td><td></td><td></td><td></td></tr><tr><td>RESPONSIBLE</td><td></td><td></td><td></td><td></td></tr><tr><td colspan="2">SIZE = 3</td><td colspan="3">VER :</td></tr><tr><td colspan="5">FILE NAME : XXXX-XXXXXX-XX</td></tr><tr><td>P/N</td><td colspan="4">XXXXXXXXXXXX</td></tr></table>	DRAWER	EE	DATE	POWER	DATE	DESIGN					CHECK					RESPONSIBLE					SIZE = 3		VER :			FILE NAME : XXXX-XXXXXX-XX					P/N	XXXXXXXXXXXX						<table><tr><td colspan="4">INVENTEC</td></tr><tr><td colspan="4">TITLE Berlin 10</td></tr><tr><td>SIZE A3</td><td>CODE CS</td><td>DOC. NUMBER ES</td><td>REV AX1</td></tr><tr><td colspan="2">SHEET 1</td><td colspan="2">OF 61</td></tr></table>	INVENTEC				TITLE Berlin 10				SIZE A3	CODE CS	DOC. NUMBER ES	REV AX1	SHEET 1		OF 61	
DATE	CHANGE NO.	REV																																																																																			
DRAWER	EE	DATE	POWER	DATE																																																																																	
DESIGN																																																																																					
CHECK																																																																																					
RESPONSIBLE																																																																																					
SIZE = 3		VER :																																																																																			
FILE NAME : XXXX-XXXXXX-XX																																																																																					
P/N	XXXXXXXXXXXX																																																																																				
INVENTEC																																																																																					
TITLE Berlin 10																																																																																					
SIZE A3	CODE CS	DOC. NUMBER ES	REV AX1																																																																																		
SHEET 1		OF 61																																																																																			
	1	2	3	4	5	6	7	8																																																																													

	1	2	3	4	5	6	7	8																																																																											
A										A																																																																									
B										B																																																																									
C	Manaus 10 CS BUILD 2010.03.18									C																																																																									
D										D																																																																									
E										E																																																																									
F	<table><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td>DATE</td><td>CHANGE NO.</td><td>REV</td></tr></table>																									DATE	CHANGE NO.	REV				<table><tr><td>DRAWER</td><td>EE</td><td>DATE</td><td>POWER</td><td>DATE</td></tr><tr><td>DESIGN</td><td></td><td></td><td></td><td></td></tr><tr><td>CHECK</td><td></td><td></td><td></td><td></td></tr><tr><td>RESPONSIBLE</td><td></td><td></td><td></td><td></td></tr><tr><td colspan="2">SIZE = 3</td><td colspan="3">VER :</td></tr><tr><td colspan="5">FILE NAME : XXXX-XXXXXX-XX</td></tr><tr><td>P/N</td><td colspan="4">XXXXXXXXXXXX</td></tr></table>	DRAWER	EE	DATE	POWER	DATE	DESIGN					CHECK					RESPONSIBLE					SIZE = 3		VER :			FILE NAME : XXXX-XXXXXX-XX					P/N	XXXXXXXXXXXX						<table><tr><td colspan="2">INVENTEC</td></tr><tr><td>TITLE</td><td>Berlin 10</td></tr><tr><td>SIZE A3</td><td>CODE CS</td><td>DOC. NUMBER ES</td><td>REV AX1</td></tr><tr><td colspan="2">SHEET 1</td><td colspan="2">OF 61</td></tr></table>	INVENTEC		TITLE	Berlin 10	SIZE A3	CODE CS	DOC. NUMBER ES	REV AX1	SHEET 1		OF 61		F
DATE	CHANGE NO.	REV																																																																																	
DRAWER	EE	DATE	POWER	DATE																																																																															
DESIGN																																																																																			
CHECK																																																																																			
RESPONSIBLE																																																																																			
SIZE = 3		VER :																																																																																	
FILE NAME : XXXX-XXXXXX-XX																																																																																			
P/N	XXXXXXXXXXXX																																																																																		
INVENTEC																																																																																			
TITLE	Berlin 10																																																																																		
SIZE A3	CODE CS	DOC. NUMBER ES	REV AX1																																																																																
SHEET 1		OF 61																																																																																	

	1	2	3	4	5	6	7	8																																																																														
A										A																																																																												
B										B																																																																												
C	Manaus 10 CS BUILD 2010.03.18									C																																																																												
D										D																																																																												
E										E																																																																												
F	<table><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td>DATE</td><td>CHANGE NO.</td><td>REV</td></tr></table>																									DATE	CHANGE NO.	REV			<table><tr><td>DRAWER</td><td>EE</td><td>DATE</td><td>POWER</td><td>DATE</td></tr><tr><td>DESIGN</td><td></td><td></td><td></td><td></td></tr><tr><td>CHECK</td><td></td><td></td><td></td><td></td></tr><tr><td>RESPONSIBLE</td><td></td><td></td><td></td><td></td></tr><tr><td colspan="2">SIZE = 3</td><td colspan="3">VER :</td></tr><tr><td colspan="5">FILE NAME : XXXX-XXXXXX-XX</td></tr><tr><td>P/N</td><td colspan="4">XXXXXXXXXXXX</td></tr></table>	DRAWER	EE	DATE	POWER	DATE	DESIGN					CHECK					RESPONSIBLE					SIZE = 3		VER :			FILE NAME : XXXX-XXXXXX-XX					P/N	XXXXXXXXXXXX						<table><tr><td colspan="4">INVENTEC</td></tr><tr><td colspan="4">TITLE Berlin 10</td></tr><tr><td>SIZE A3</td><td>CODE CS</td><td>DOC. NUMBER ES</td><td>REV AX1</td></tr><tr><td colspan="4">SHEET 1 OF 61</td></tr></table>	INVENTEC				TITLE Berlin 10				SIZE A3	CODE CS	DOC. NUMBER ES	REV AX1	SHEET 1 OF 61				
DATE	CHANGE NO.	REV																																																																																				
DRAWER	EE	DATE	POWER	DATE																																																																																		
DESIGN																																																																																						
CHECK																																																																																						
RESPONSIBLE																																																																																						
SIZE = 3		VER :																																																																																				
FILE NAME : XXXX-XXXXXX-XX																																																																																						
P/N	XXXXXXXXXXXX																																																																																					
INVENTEC																																																																																						
TITLE Berlin 10																																																																																						
SIZE A3	CODE CS	DOC. NUMBER ES	REV AX1																																																																																			
SHEET 1 OF 61																																																																																						
	1	2	3	4	5	6	7	8																																																																														

TABLE OF CONTENTS

PAGE

1. COVER PAGE
2. INDEX
3. BLOCK DIAGRAM
4. POWER SEQUENCE BLOCK
5. PCB
6. SYSTEM POWER
7. SYSTEM POWER
8. SYSTEM POWER
9. SYSTEM POWER
- 10.SYSTEM POWER
- 11.SYSTEM POWER
- 12.SYSTEM POWER
- 13.VGA POWER
- 14.SYSTEM POWER
- 15.SUPER I/O(KBC)
- 16.K/B & TP/B CONN
- 17.FAN & THERMAL CONTROLLER
- 18.LAN
- 19.RJ45 & TRANSFORMER
- 20.AUDIO CODEC
- 21.AUDIO AMP
- 22.BLANK
- 23.LCM CONN
- 24.RGB CONN
- 25.BLANK
26. BLANK
27. BLANK
28. BLANK
29. BLANK
- 30.SATA HDD & ODD

PAGE

31. BLANK
- 32.USB CONN
33. BLANK
- 34.Camera
35. BLANK
- 36.3D SENSOR
- 37.KILL SW
- 38.Hall sensor
- 39.LED
- 40.CLOCK GENERATOR
41. DDR3 DIMM0
42. DDR3 DIMM1
- 43.CPU 1
- 44.CPU 2
- 45.CPU 3
- 46.CPU 4
- 47.CPU 5
- 48.CPU 6
- 49.PCH 1
- 50.PCH 2
- 51.PCH 3
- 52.PCH 4
- 53.PCH 5
- 54.PCH 6
- 55.PCH 7 POWER
- 56.PCH 8 POWER
- 57.PCH 9
- 58.Hotkey board and 0 BUTTON BOARD
- 59.Touch pad board
- 60.EMI

PAGE

- 61.DDR DAMPING

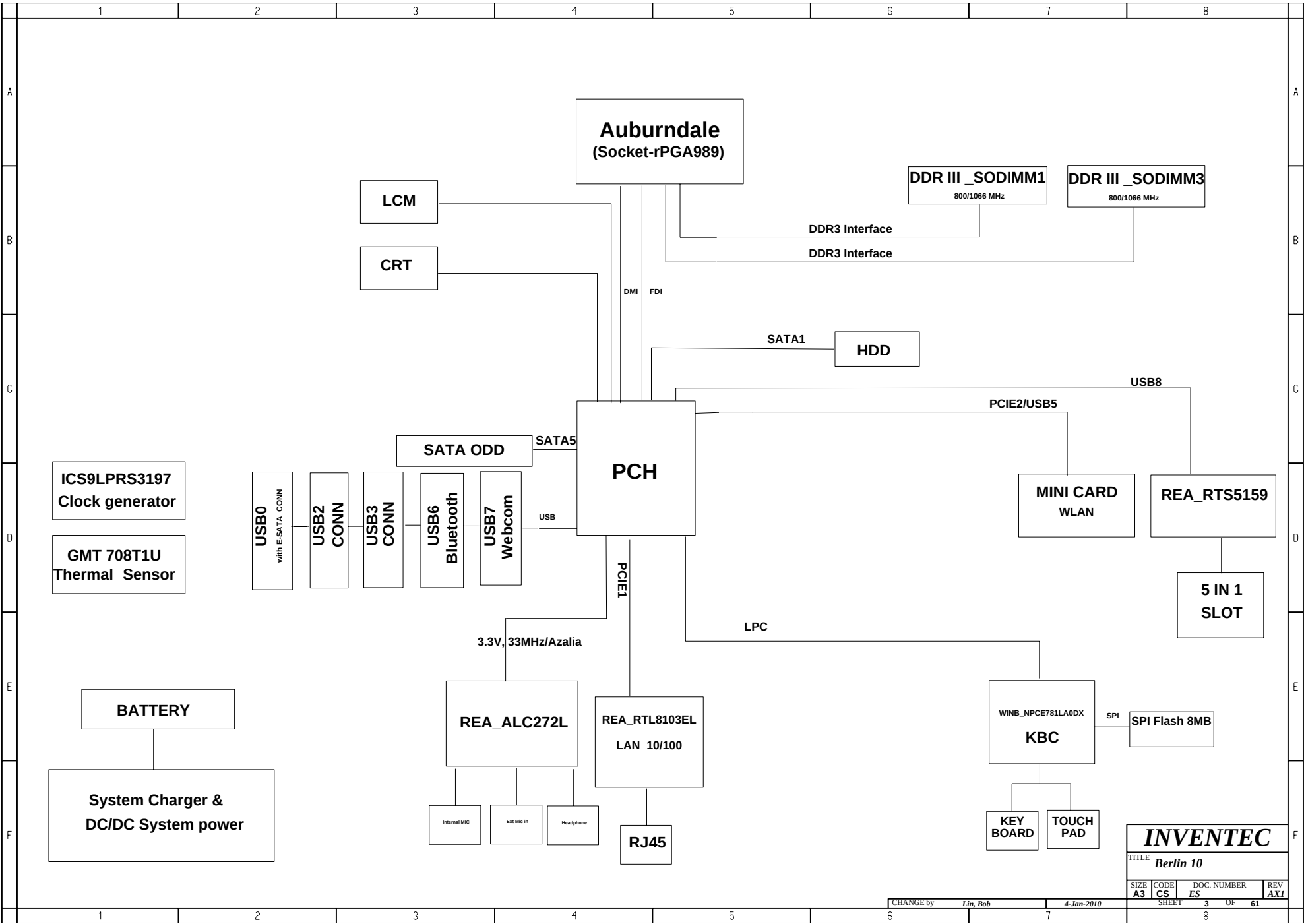
INVENTEC

TITLE **Berlin 10**

SIZE A3	CODE CS	DOC. NUMBER ES	REV AXI
-------------------	-------------------	--------------------------	-------------------

CHANGE by *Lin, Bob* 26-Jan-2010

SHEET 2 OF 61



INVENTEC

TITLE
Berlin 10

SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AX1

SHEET 3 OF 61

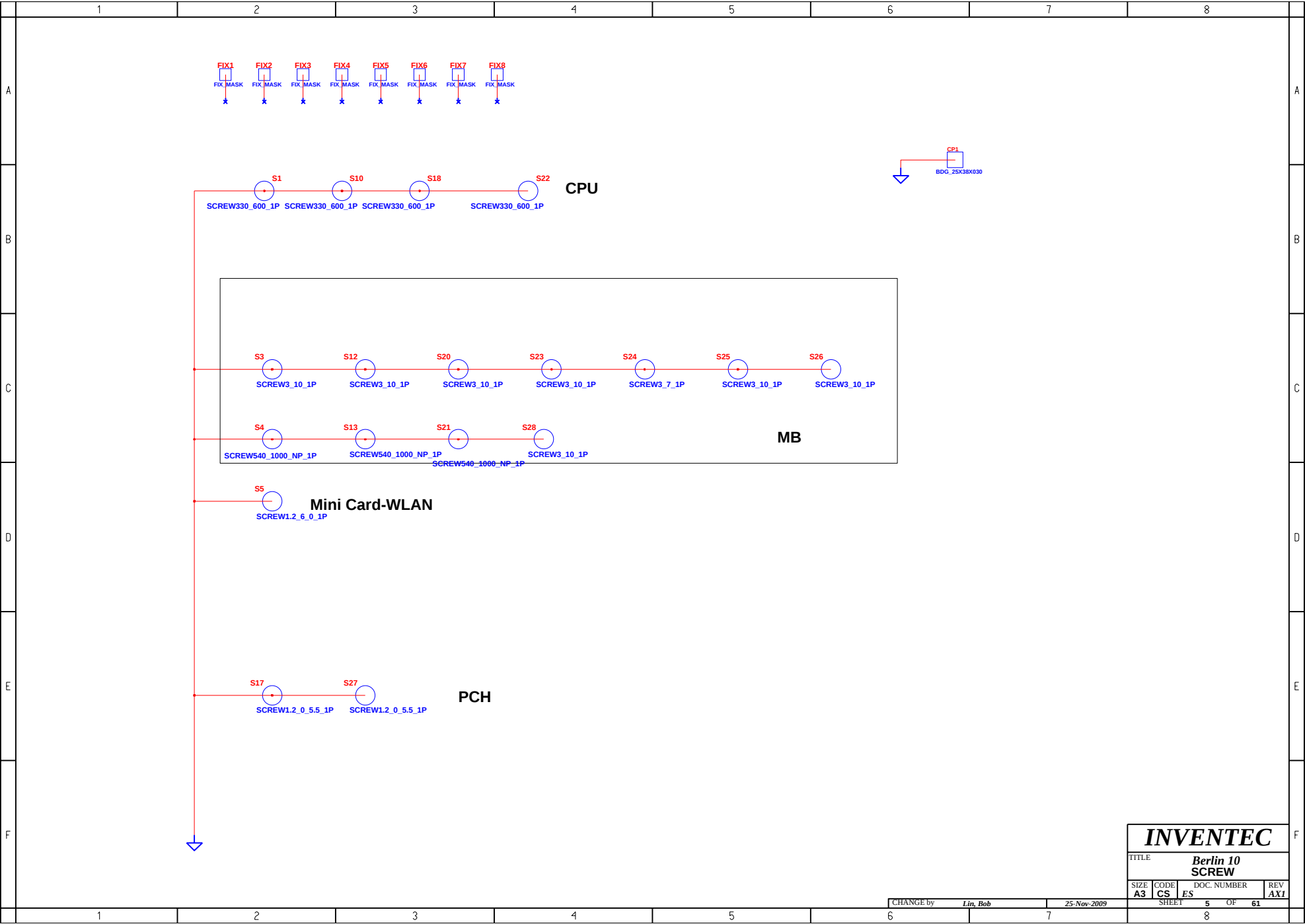
CHANGE by Lin, Bob 4-Jan-2010

	1	2	3	4	5	6	7	8	
A	Add Excel Power map								A
B									B
C									C
D									D
E									E
F									F
	1	2	3	4	5	6	7	8	

INVENTEC			
TITLE Berlin 10			
SIZE A3	CODE CS	DOC. NUMBER ES	REV AXI

CHANGE by Lin, Bob 25-Nov-2009

SHEET 4 OF 61



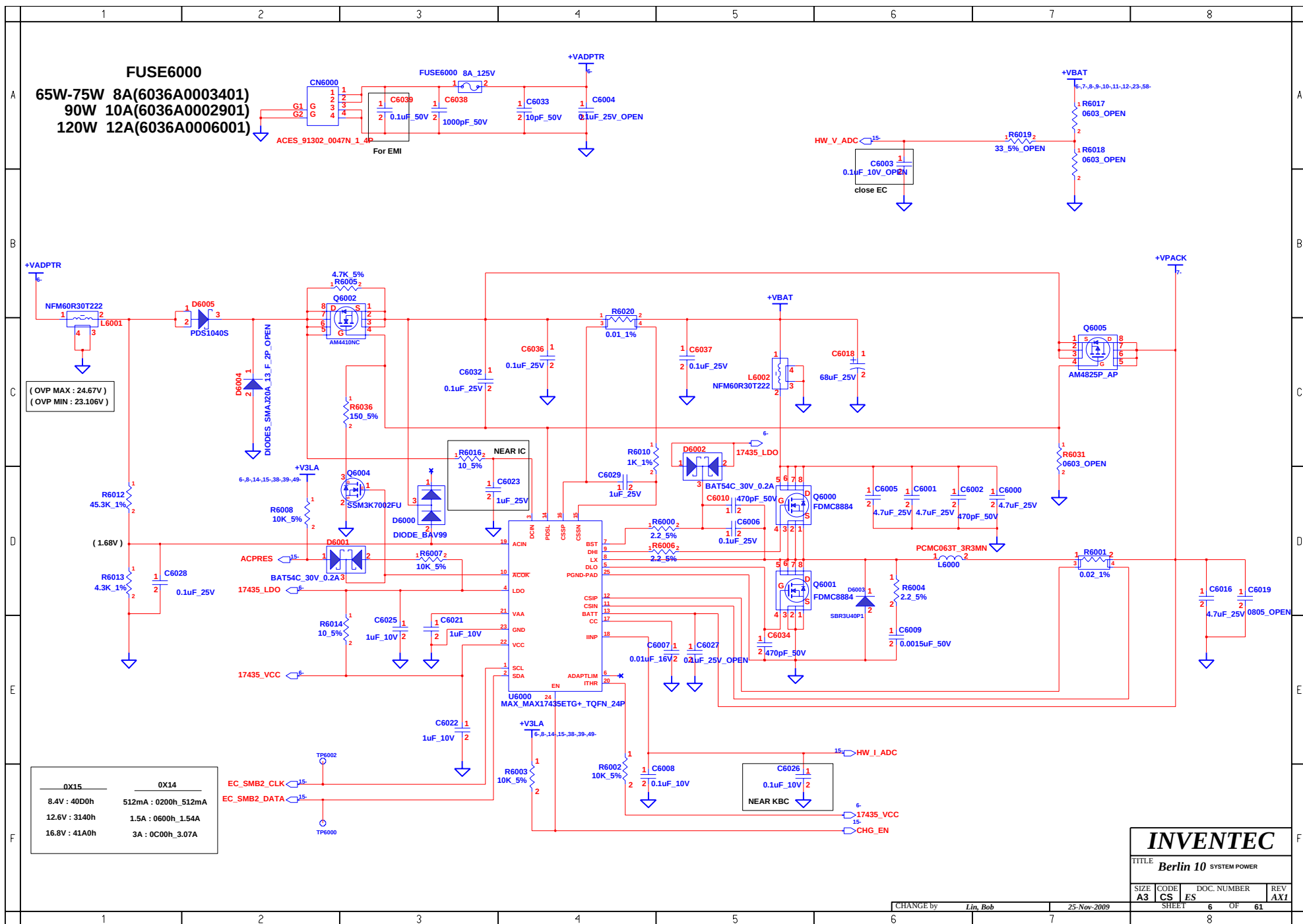
INVENTEC

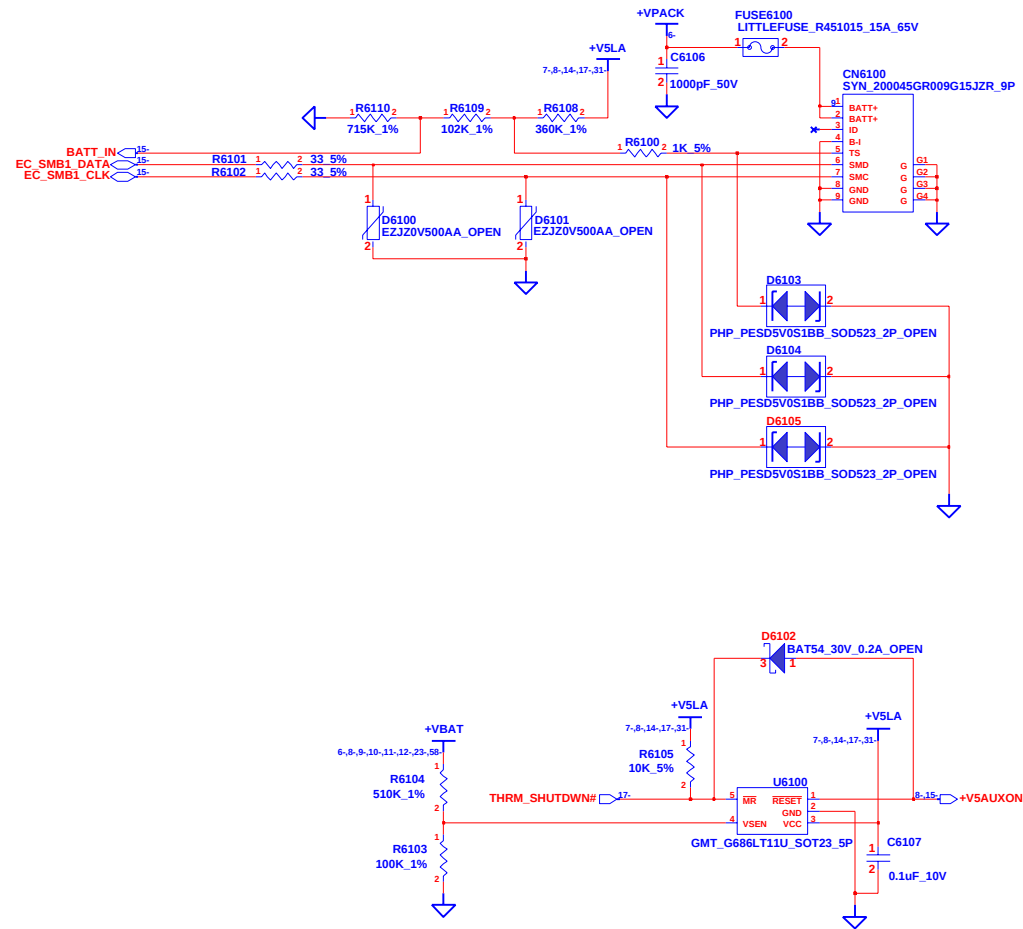
TITLE **Berlin 10
SCREW**

SIZE A3	CODE CS	DOC. NUMBER ES	REV AX1
-------------------	-------------------	--------------------------	-------------------

CHANGE by *Lin, Bob* 25-Nov-2009

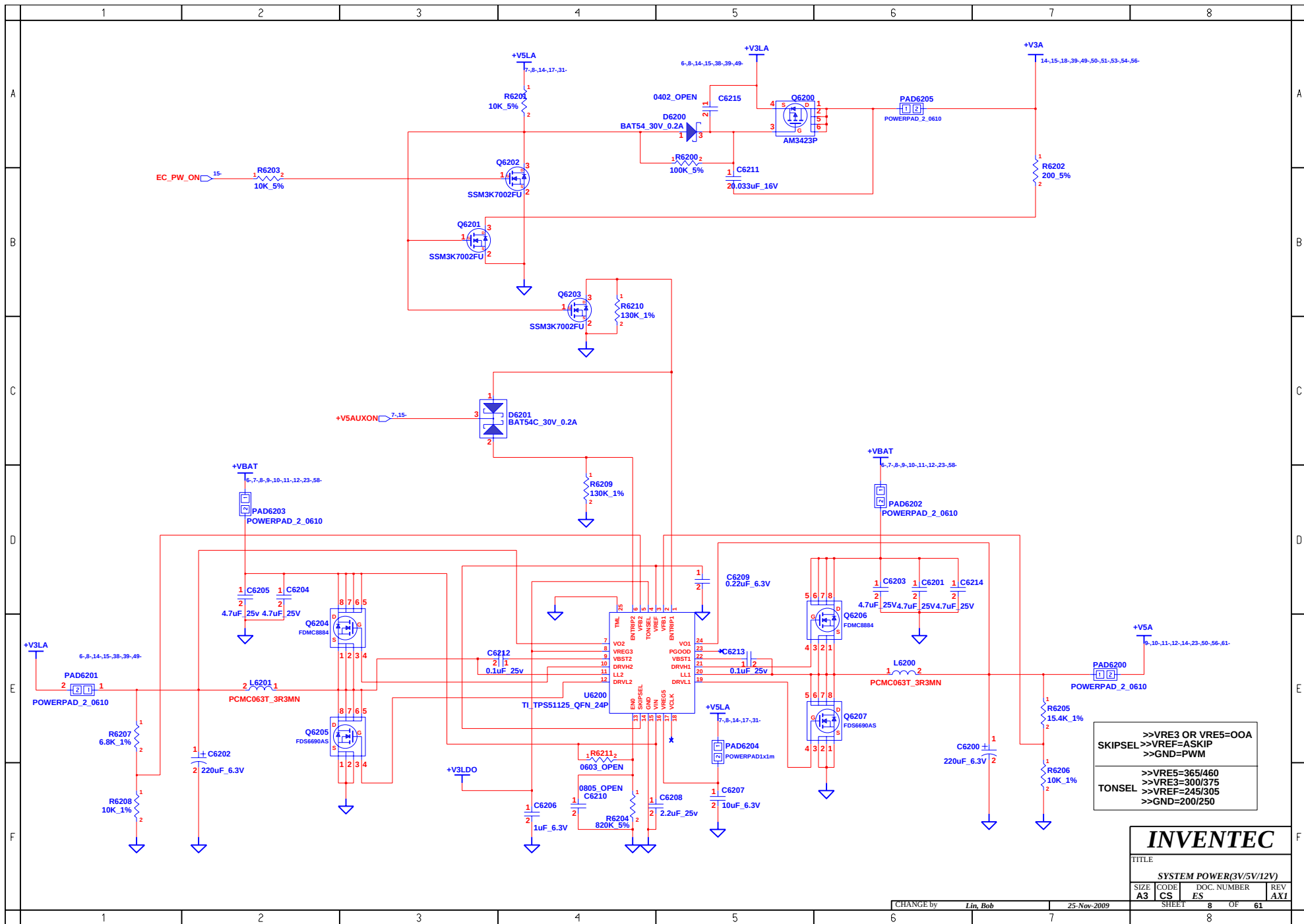
SHEET 5 OF 61





INVENTEC			
TITLE			
Berlin 10			
SELECT & BATTERY CONN			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AXI
SHEET		7 OF	61

CHANGE by Lin, Bob 25-Nov-2009



>>VRE3 OR VRE5=OOA
SKIPSEL>>VREF=ASKIP
>>GND=PWM

>>VRE5=365/460
>>VRE3=300/375
TONSEL >>VREF=245/305
>>GND=200/250

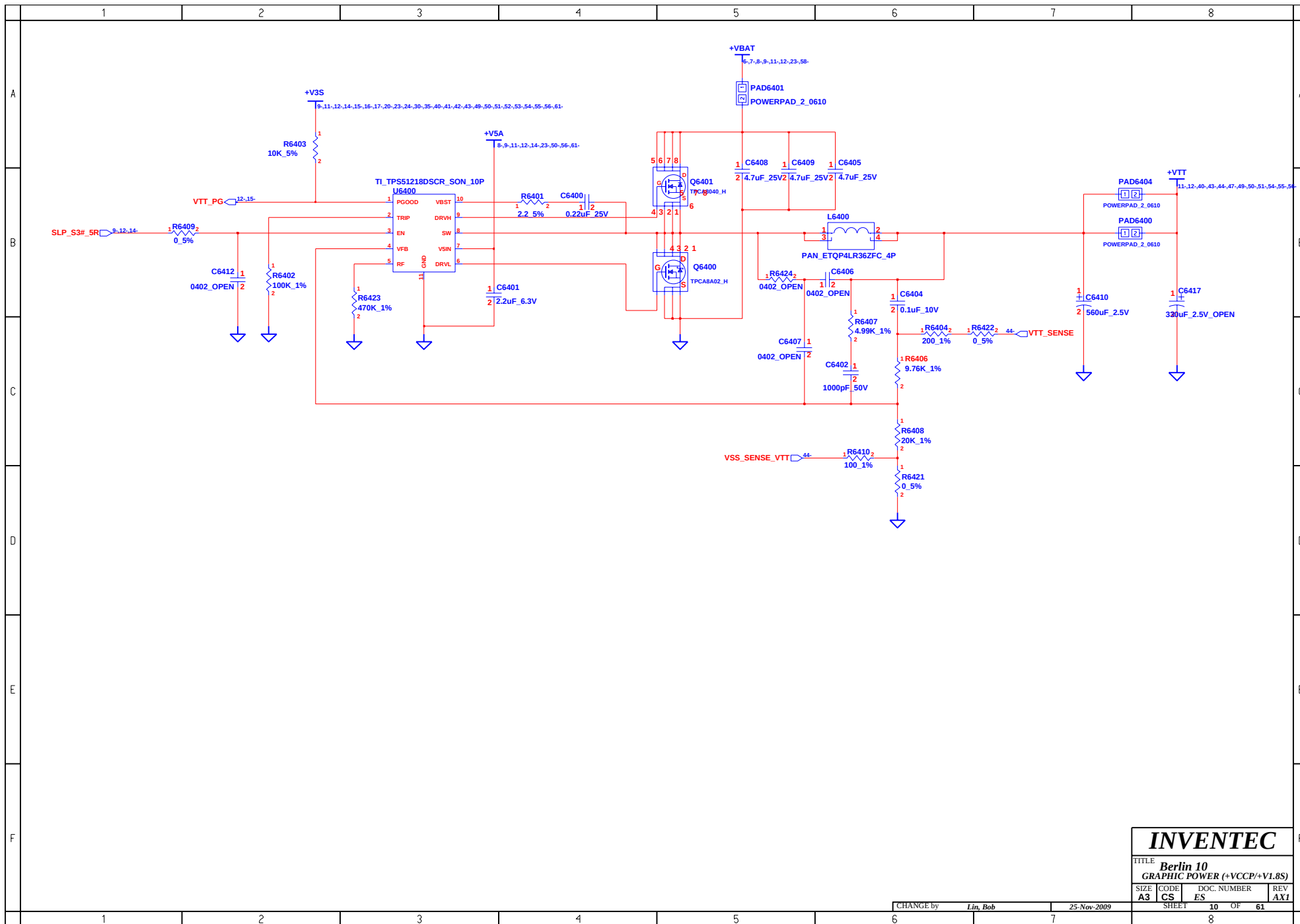
INVENTEC

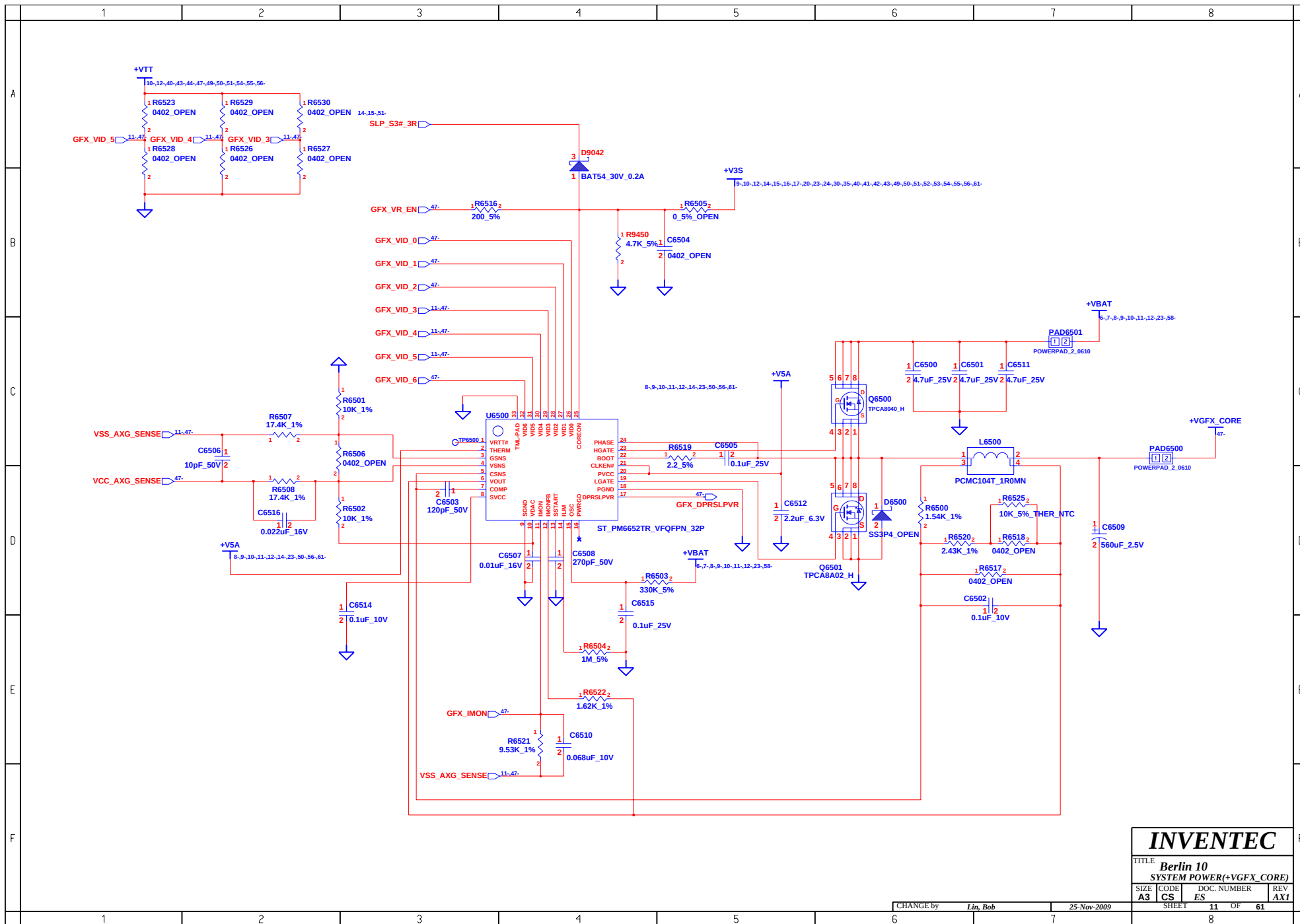
TITLE
SYSTEM POWER(3V/5V/12V)

SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AX1

CHANGE by Lin, Bob 25-Nov-2009

SHEET 8 OF 61



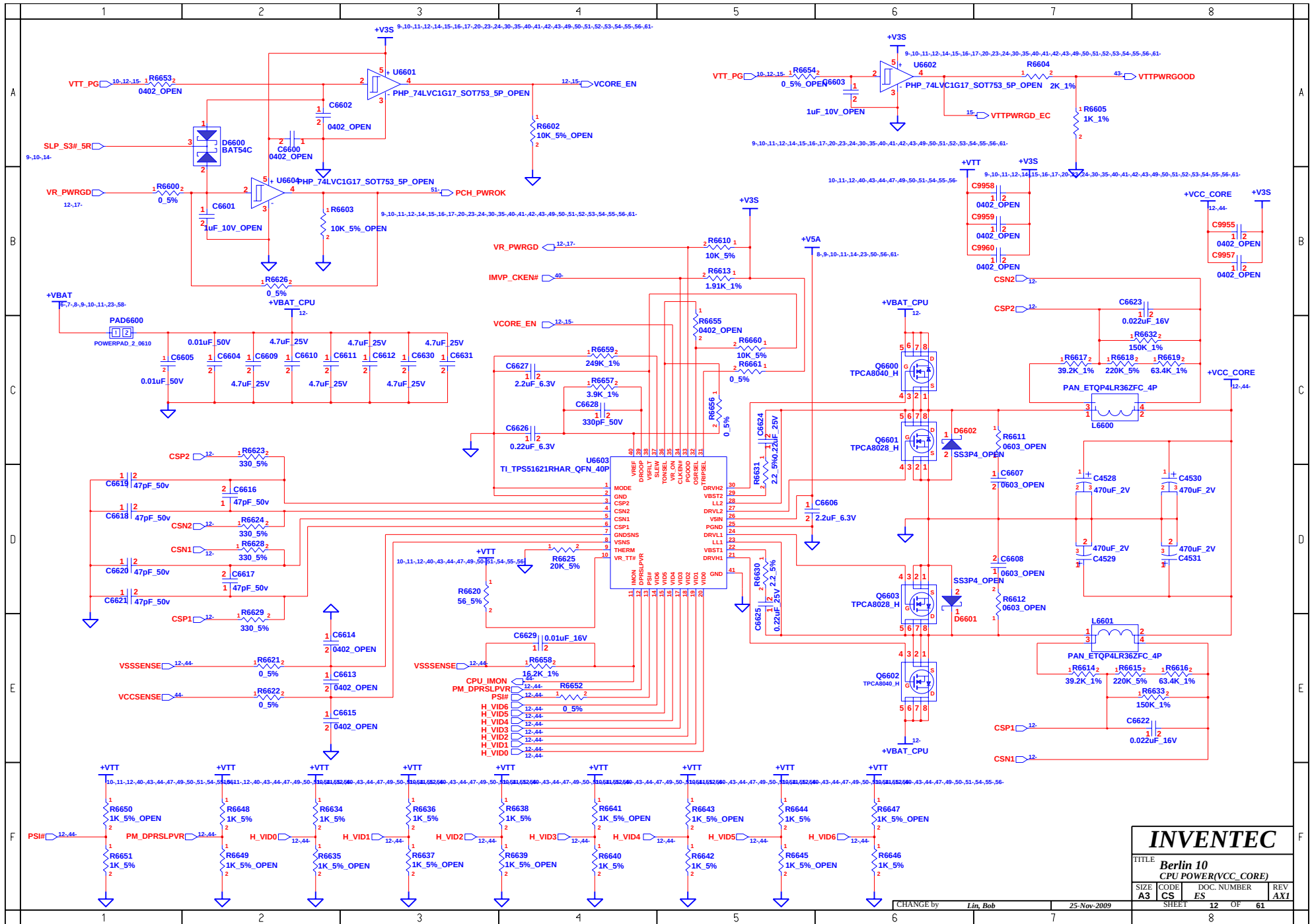


INVENTEC

TITLE			
Berlin 10			
SYSTEM POWER(+VGFX_CORE)			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AXI

CHANGE by Lin, Bob 25-Nov-2009

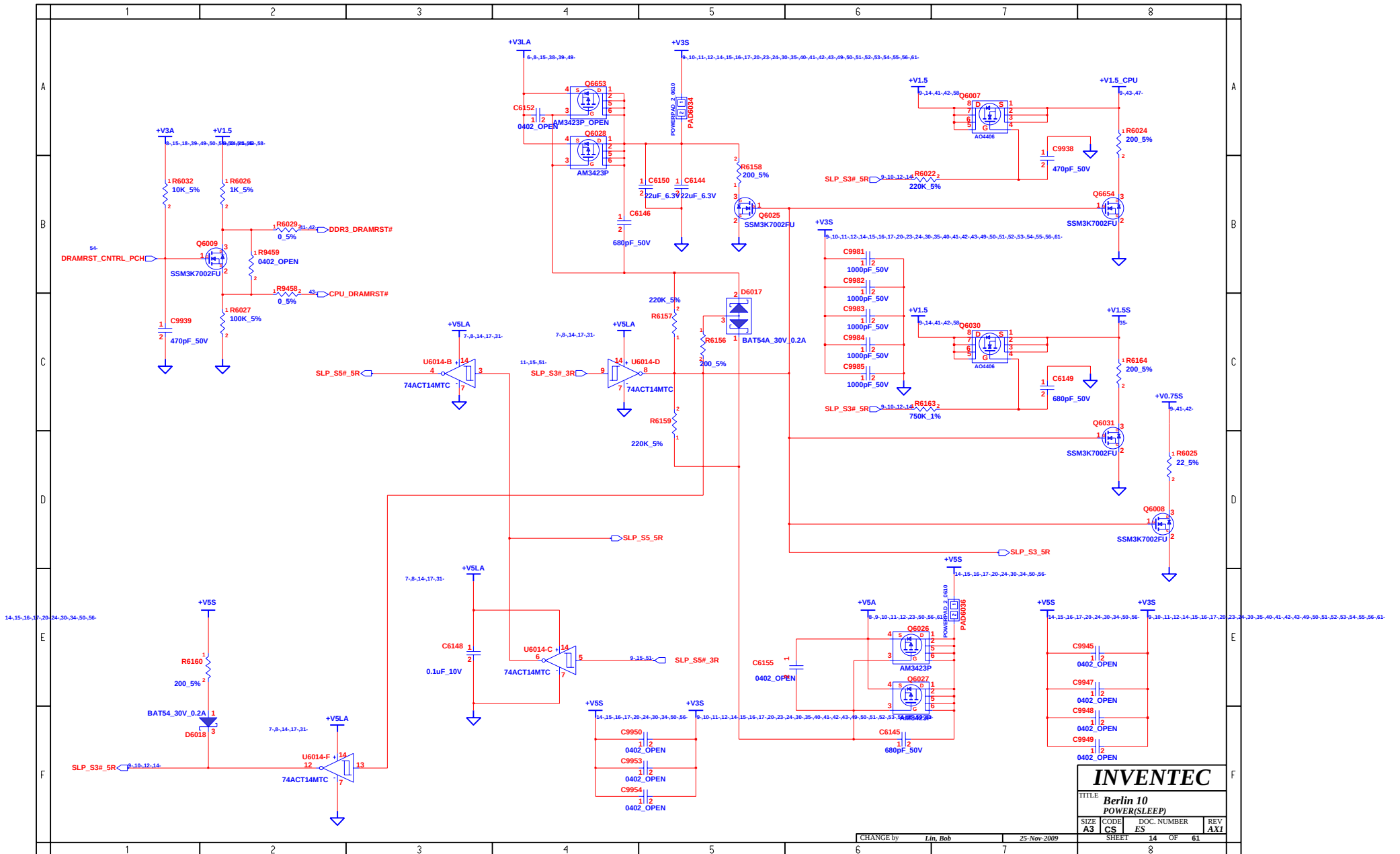
SHEET 11 OF 61

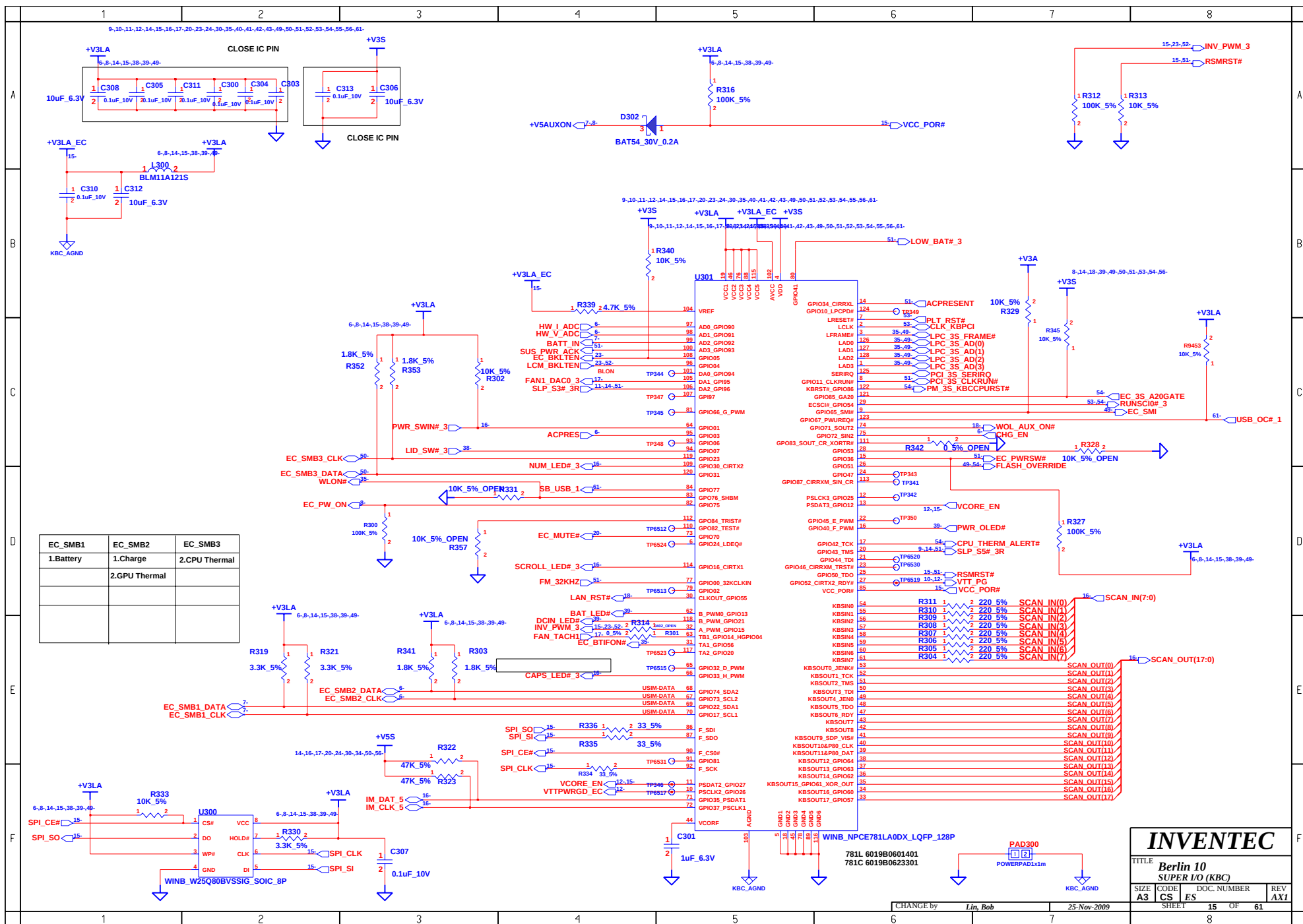


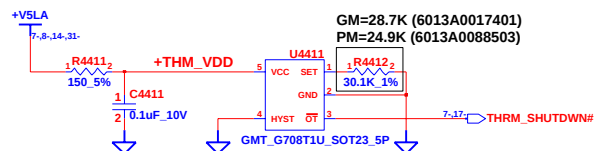
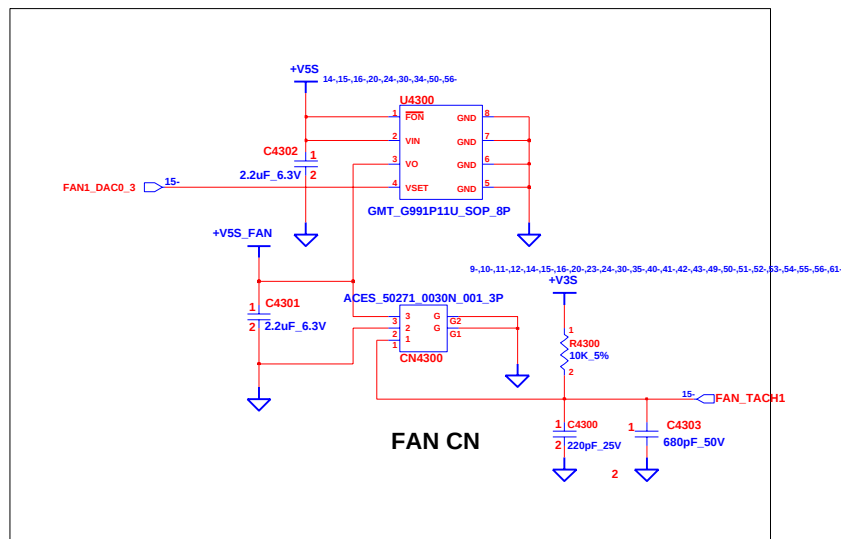
	1	2	3	4	5	6	7	8	
A	skip								A
B									B
C									C
D									D
E									E
F									F
	1	2	3	4	5	6	7	8	

INVENTEC			
TITLE Berlin 10 VGA POWER			
SIZE A3	CODE CS	DOC. NUMBER ES	REV AX1
SHEET 13		OF 61	

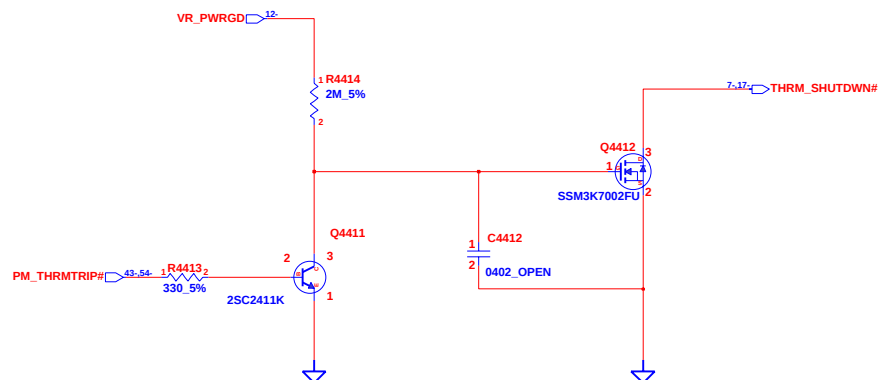
CHANGE by	Lin, Bob	25-Nov-2009
-----------	----------	-------------







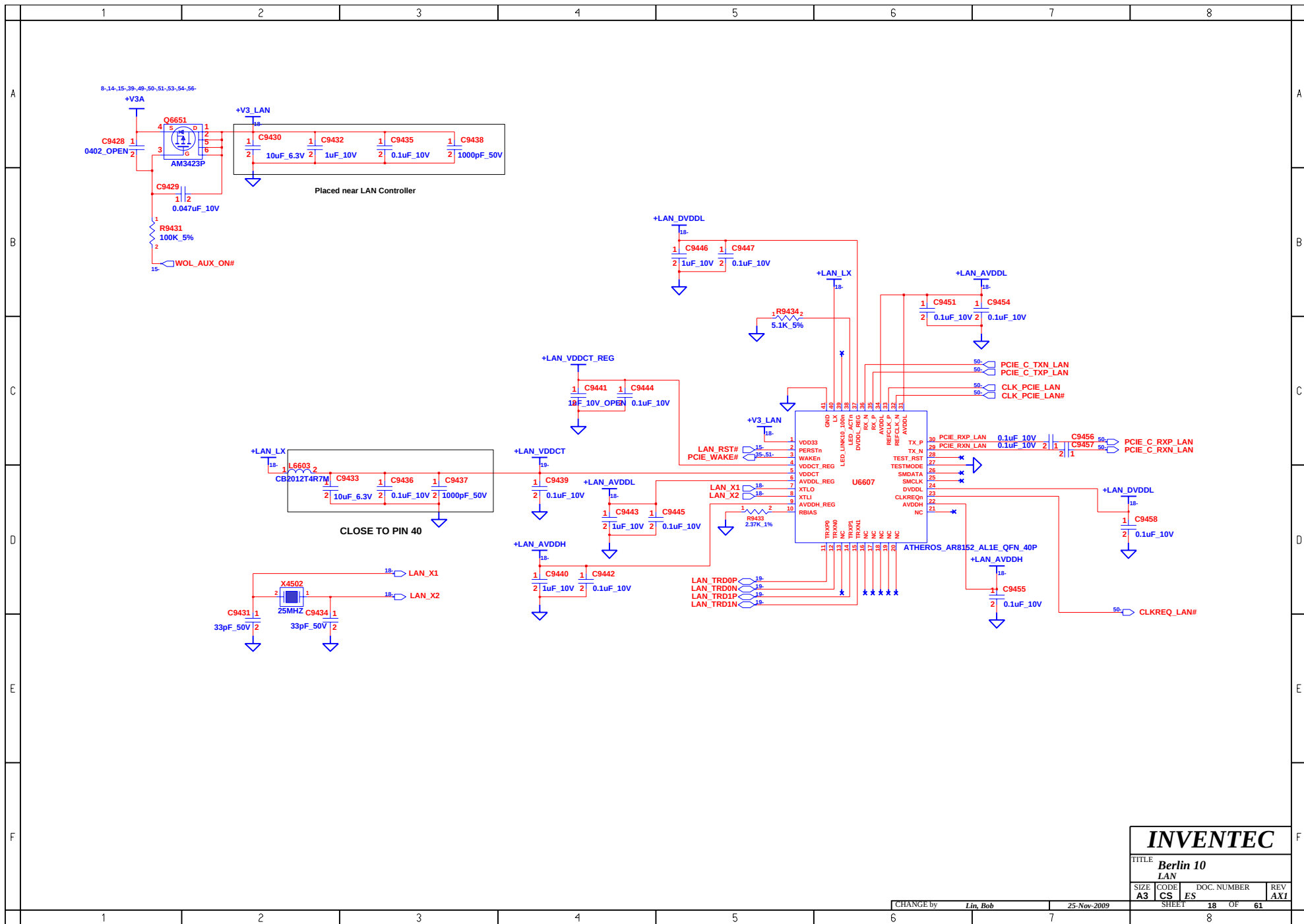
GM Thermal shutdown at 80.8°C +/-3°C from 60°C to 100°C
 PM Thermal shutdown at 86°C +/-3°C from 60°C to 100°C
 $RSET=0.0012 \cdot T^2 - 0.9308 \cdot T + 96.147$
 Hysteresis is 30C



INVENTEC

TITLE			
Berlin 10			
FAN, Thermal controller			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AX1
SHEET		17	OF 61

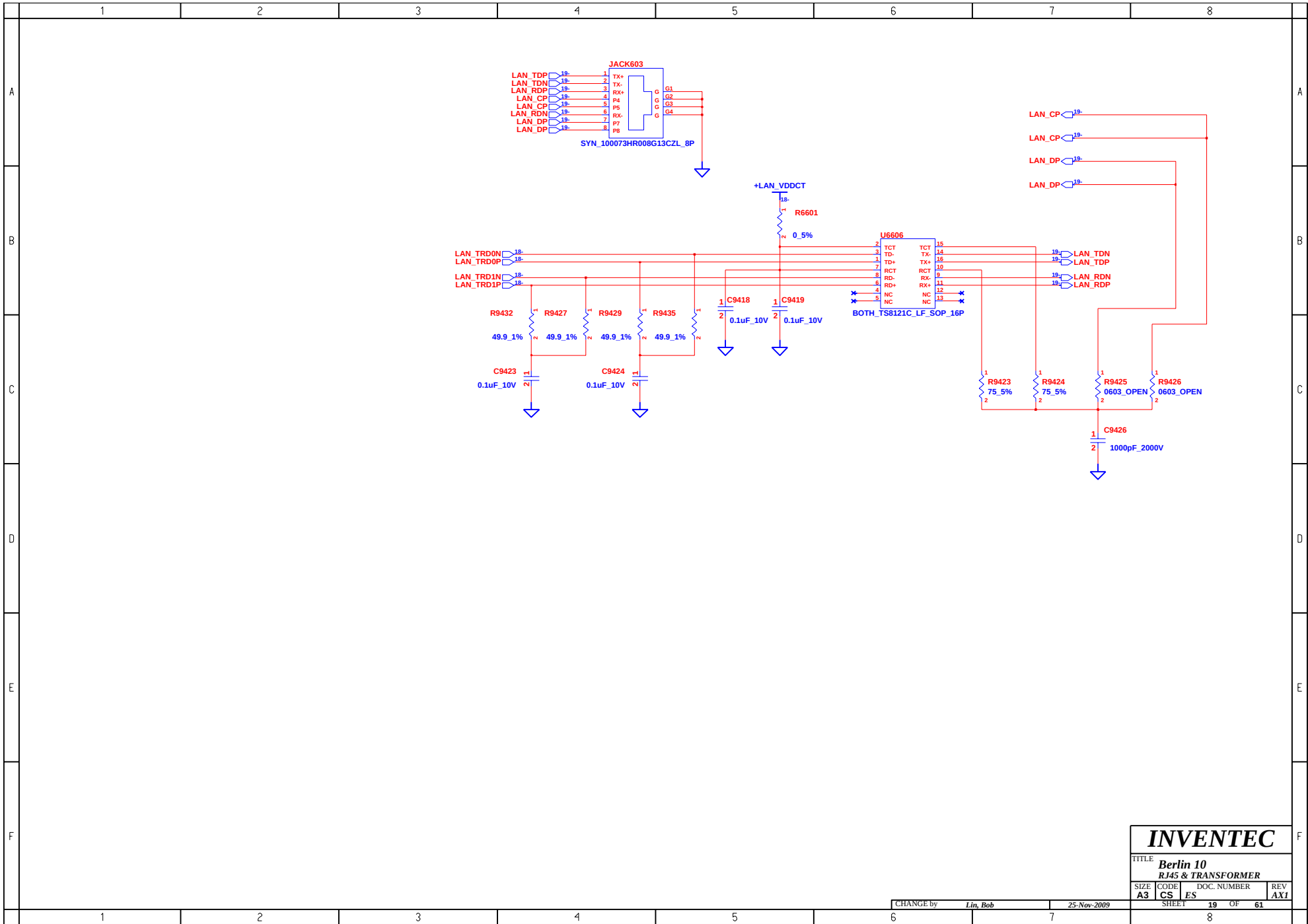
CHANGE by Lin, Bob 25-Nov-2009

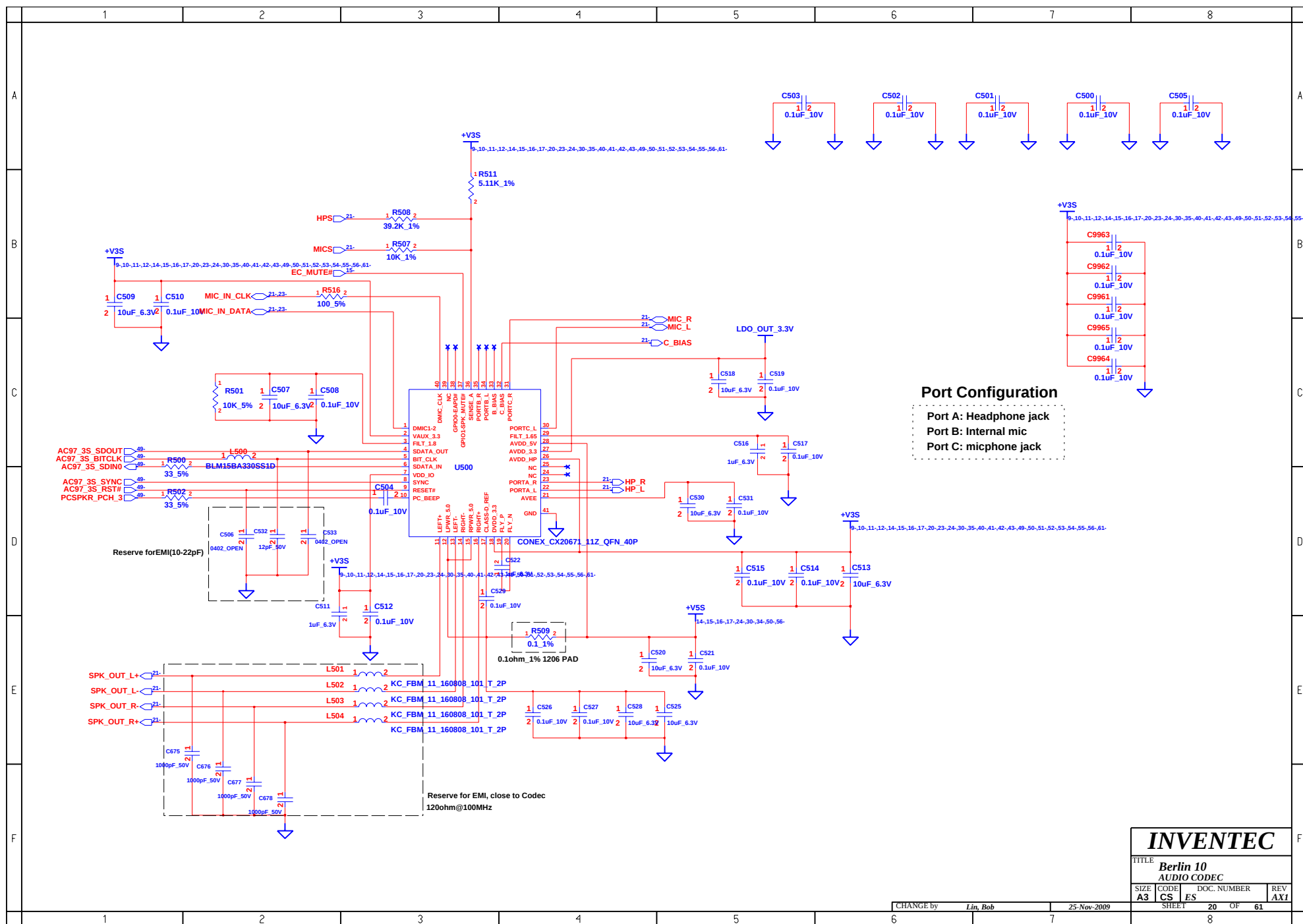


INVENTEC

TITLE			
Berlin 10			
LAN			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AXI
SHEET		18 OF	61

CHANGE by Lin, Bob 25-Nov-2009





INTERNAL SPEAKERS

SPK_OUT_L+ 20-
 SPK_OUT_L- 20-
 SPK_OUT_R- 20-
 SPK_OUT_R+ 20-

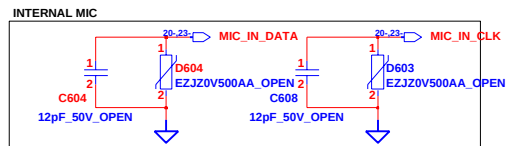
CN600
 1 1
 2 2
 3 3
 4 4

G1
 G2

ACES_87213_0400N_4P

1 C610 1 C611 1 C612 1 C613
 2 0402_OPEN 2 0402_OPEN 2 0402_OPEN 2 0402_OPEN

Reserve for EMI, place close to connector



AUDIO JACKS

Port C
External microphone

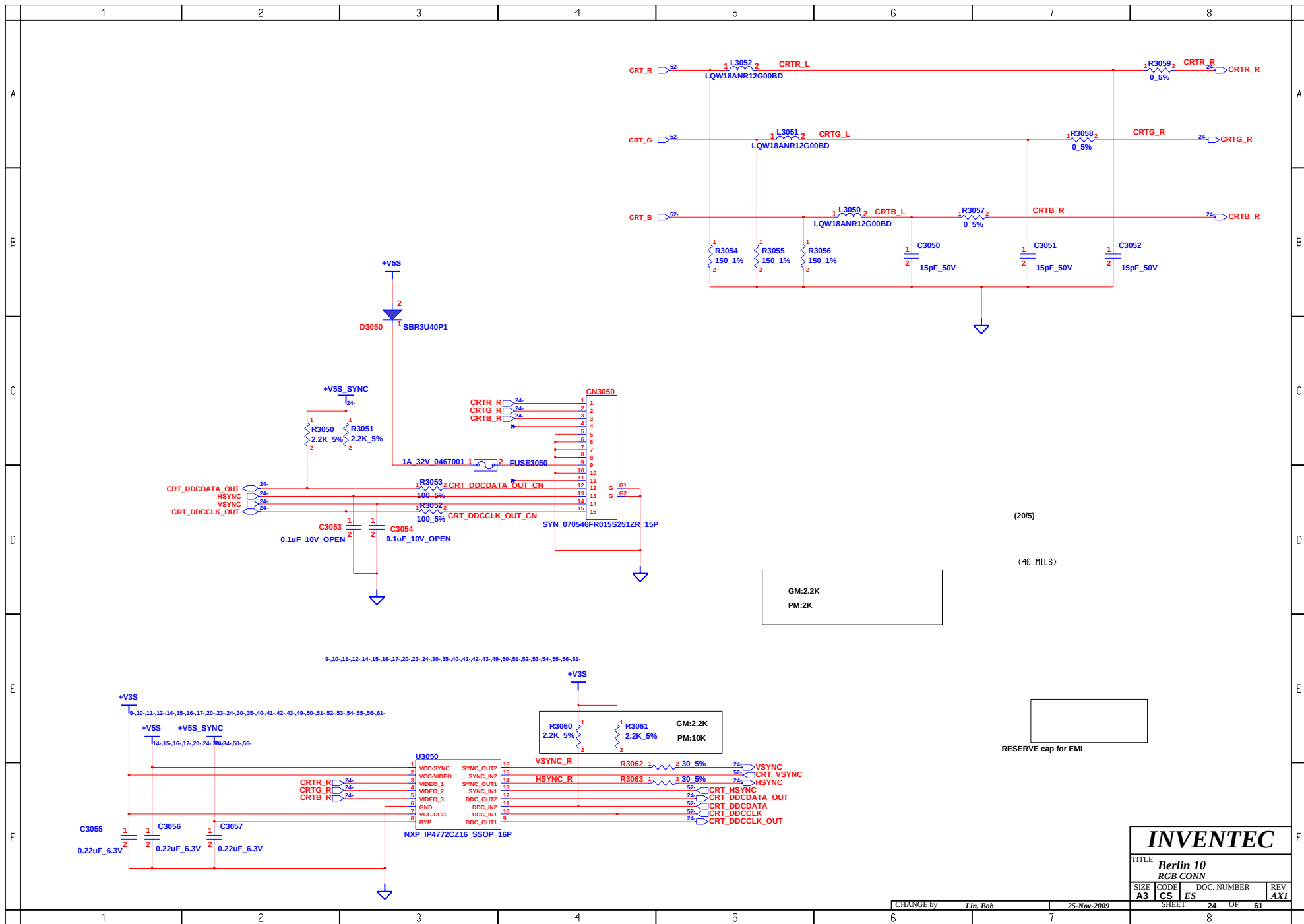
Port A
Headphone

Port B
Headphone

TITLE			
Berlin 10			
AUDIO AMP&MIC&SPEAKER			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AX1

	1	2	3	4	5	6	7	8	
A									A
B									B
C									C
D									D
E									E
F									F
						CHANGE by <i>Lin, Bob</i>		4-Jan-2010	
1	2	3	4	5	6	7	8		

INVENTEC			
TITLE <i>Berlin 10</i>			
MDC			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AXI
SHEET		22	OF 61



	1	2	3	4	5	6	7	8	
A									A
B									B
C									C
D									D
E									E
F									F
						CHANGE by <i>Lin, Bob</i>		25-Nov-2009	
1	2	3	4	5	6	7	8		

INVENTEC			
TITLE <i>Berlin 10</i>			
CEC			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	<i>ES</i>	AX1
SHEET		25	OF 61

	1	2	3	4	5	6	7	8	
A									A
B									B
C									C
D									D
E									E
F									F
						CHANGE by <i>Lin, Bob</i>		4-Jan-2010	
1	2	3	4	5	6	7	8		

INVENTEC			
TITLE Berlin 10 <i>HDMI Level Shifter</i>			
SIZE A3	CODE CS	DOC. NUMBER <i>ES</i>	REV <i>AX1</i>
SHEET		26	OF 61

	1	2	3	4	5	6	7	8	
A									A
B									B
C									C
D									D
E									E
F									F
						CHANGE by <i>Lin, Bob</i>		4-Jan-2010	
1	2	3	4	5	6	7	8		

INVENTEC			
TITLE Berlin 10 HDMI CONN			
SIZE A3	CODE CS	DOC. NUMBER ES	REV AX1
SHEET		27	OF 61

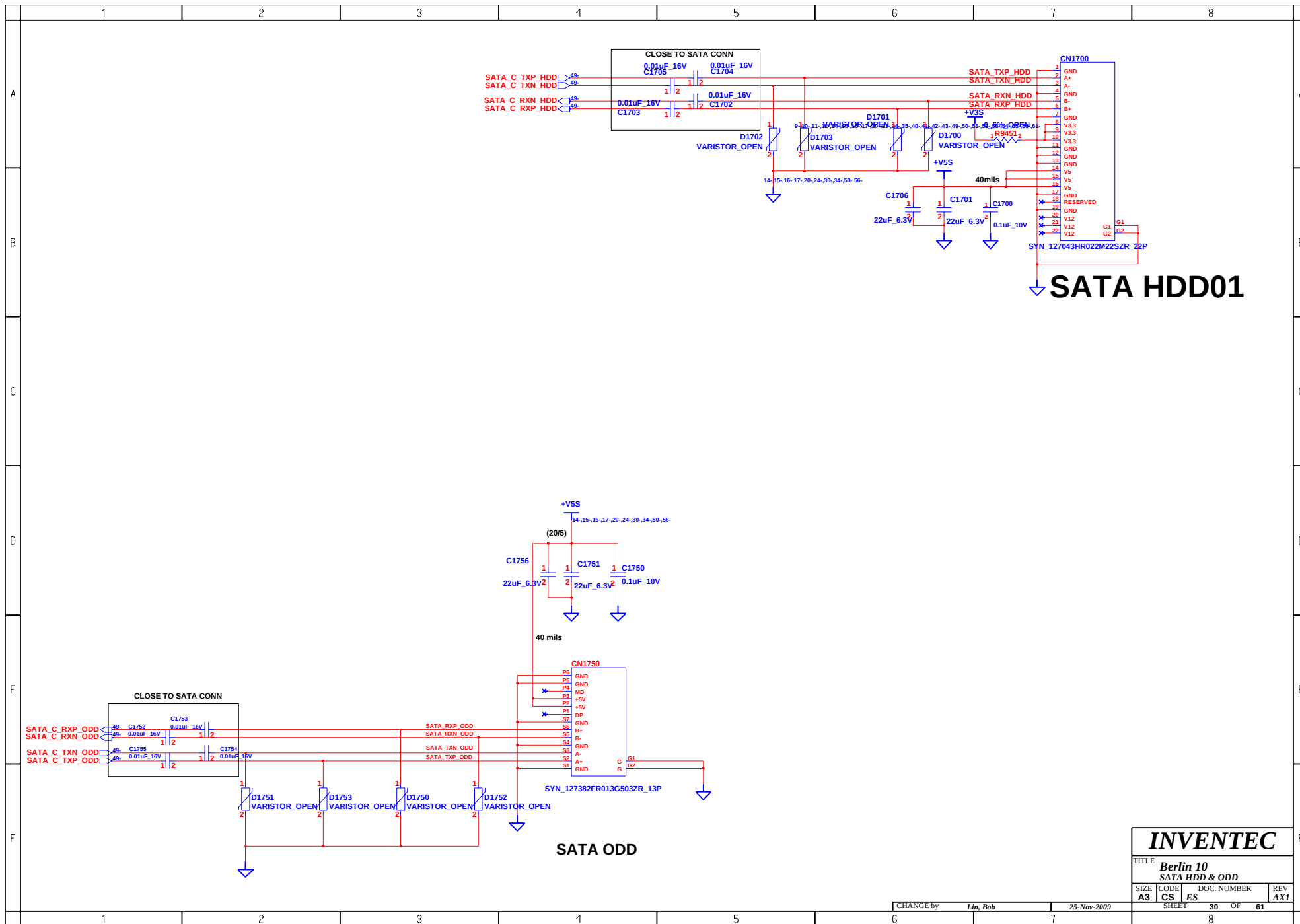
	1	2	3	4	5	6	7	8	
A									A
B									B
C									C
D									D
E									E
F									F
	1	2	3	4	5	6	7	8	

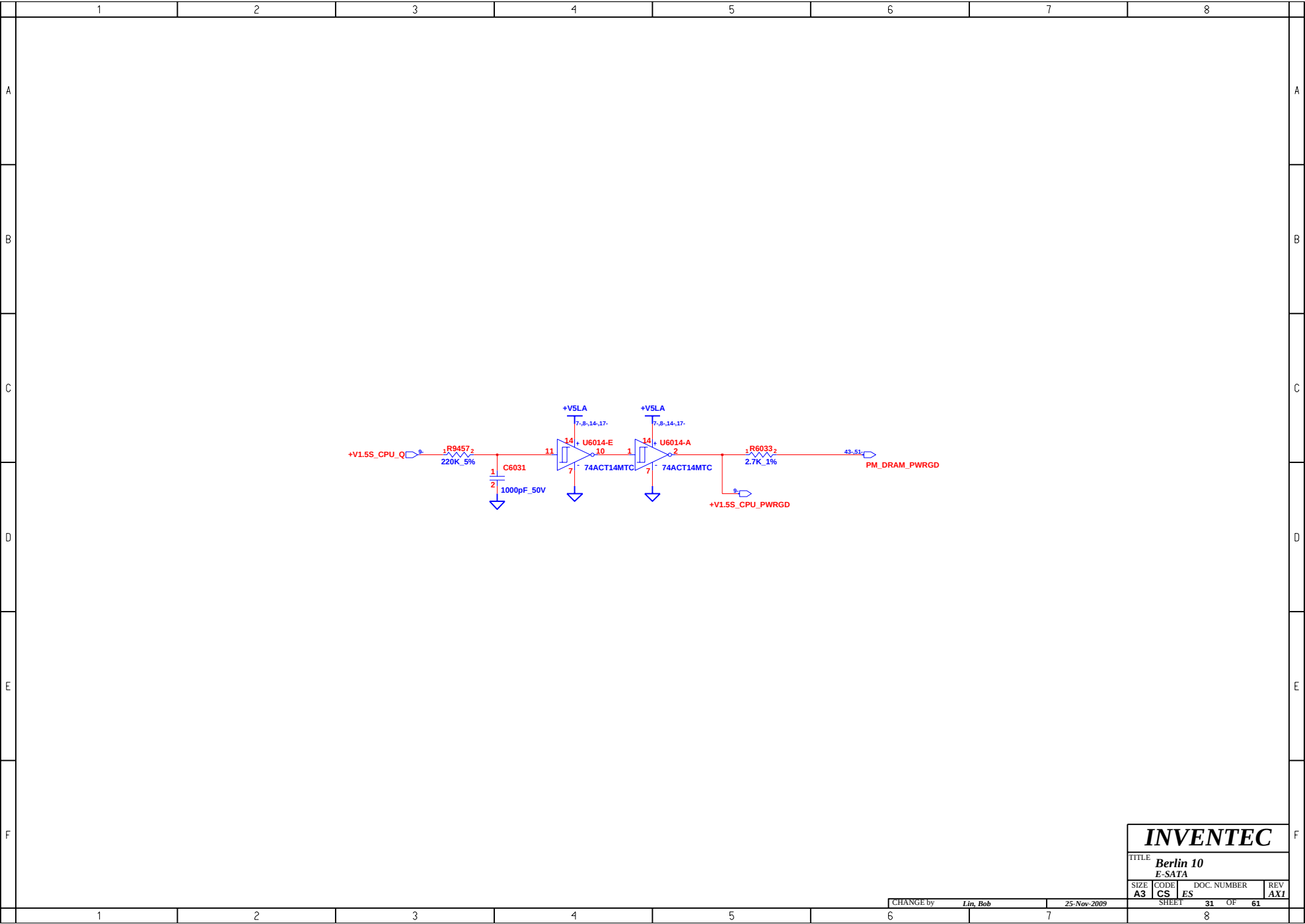
INVENTEC			
TITLE Berlin 10 EXPRESS CARD			
SIZE A3	CODE CS	DOC. NUMBER ES	REV AX1
SHEET 28 OF 61			

CHANGE by Lin, Bob 4-Jan-2010

	1	2	3	4	5	6	7	8	
A									A
B									B
C									C
D									D
E									E
F									F
						CHANGE by <i>Lin, Bob</i>		4-Jan-2010	
1	2	3	4	5	6	7	8		

INVENTEC			
TITLE <i>Berlin 10 Cardreader</i>			
SIZE A3	CODE CS	DOC. NUMBER ES	REV AX1
SHEET		29	OF 61





INVENTEC

TITLE			
Berlin 10			
E-SATA			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AX1
SHEET		31	OF 61

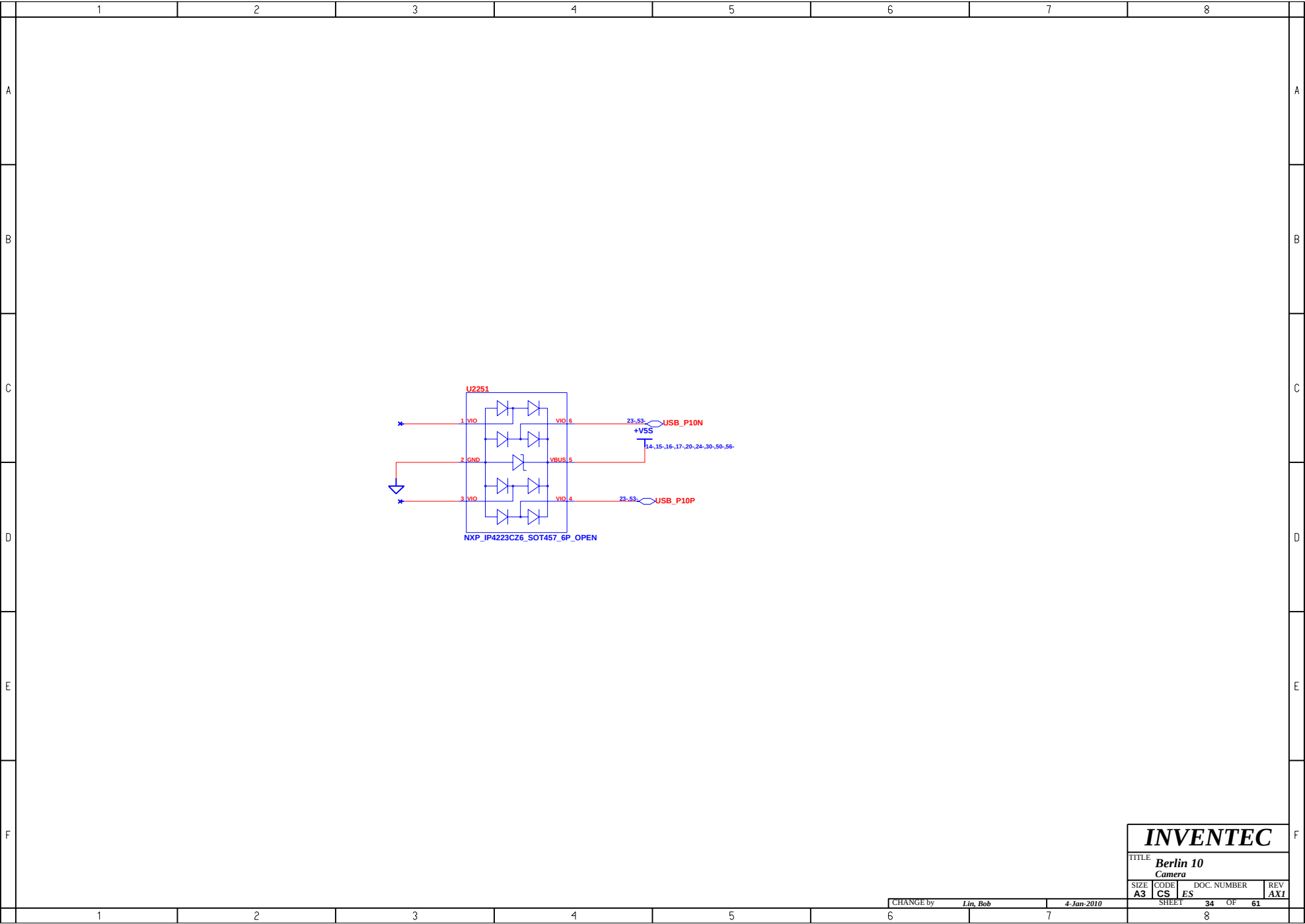
CHANGE by Lin, Bob 25-Nov-2009

	1	2	3	4	5	6	7	8	
A									A
B									B
C									C
D									D
E									E
F									F
						CHANGE by <i>Lin, Bob</i>		4-Jan-2010	
1	2	3	4	5	6	7	8		

INVENTEC			
TITLE <i>Berlin 10</i> USB CONN			
SIZE A3	CODE CS	DOC. NUMBER <i>ES</i>	REV AX1
SHEET 32 OF 61			

	1	2	3	4	5	6	7	8	
A									A
B									B
C									C
D									D
E									E
F									F
						CHANGE by <i>Lin, Bob</i>		4-Jan-2010	
1	2	3	4	5	6	7	8		

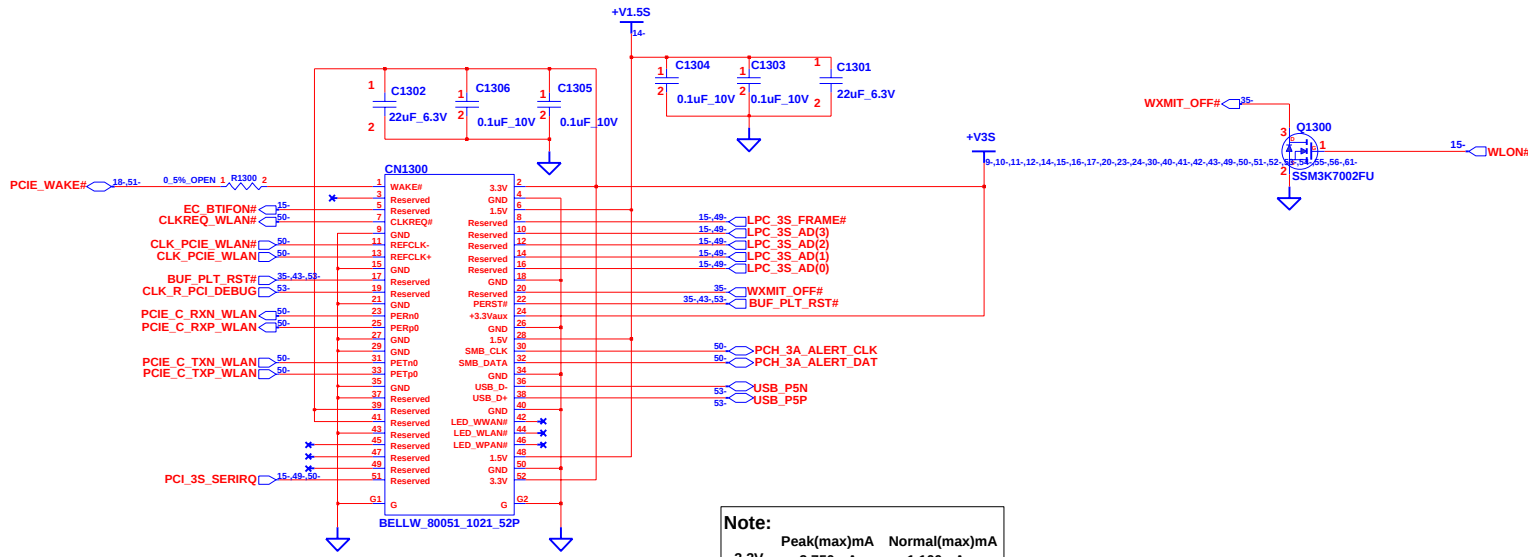
INVENTEC			
TITLE <i>Berlin 10 Bluetooth</i>			
SIZE A3	CODE CS	DOC. NUMBER ES	REV AX1
SHEET		33	OF 61



INVENTEC

TITLE			
Berlin 10			
Camera			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AXI

Wireless & Debug card



Note:

	Peak(max)mA	Normal(max)mA
3.3V	2,750mA	1,100mA
1.5V	500mA	375mA

MINI CARD 1

INVENTEC

TITLE			
Berlin 10			
WLAN			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AXI
SHEET		35	OF 61

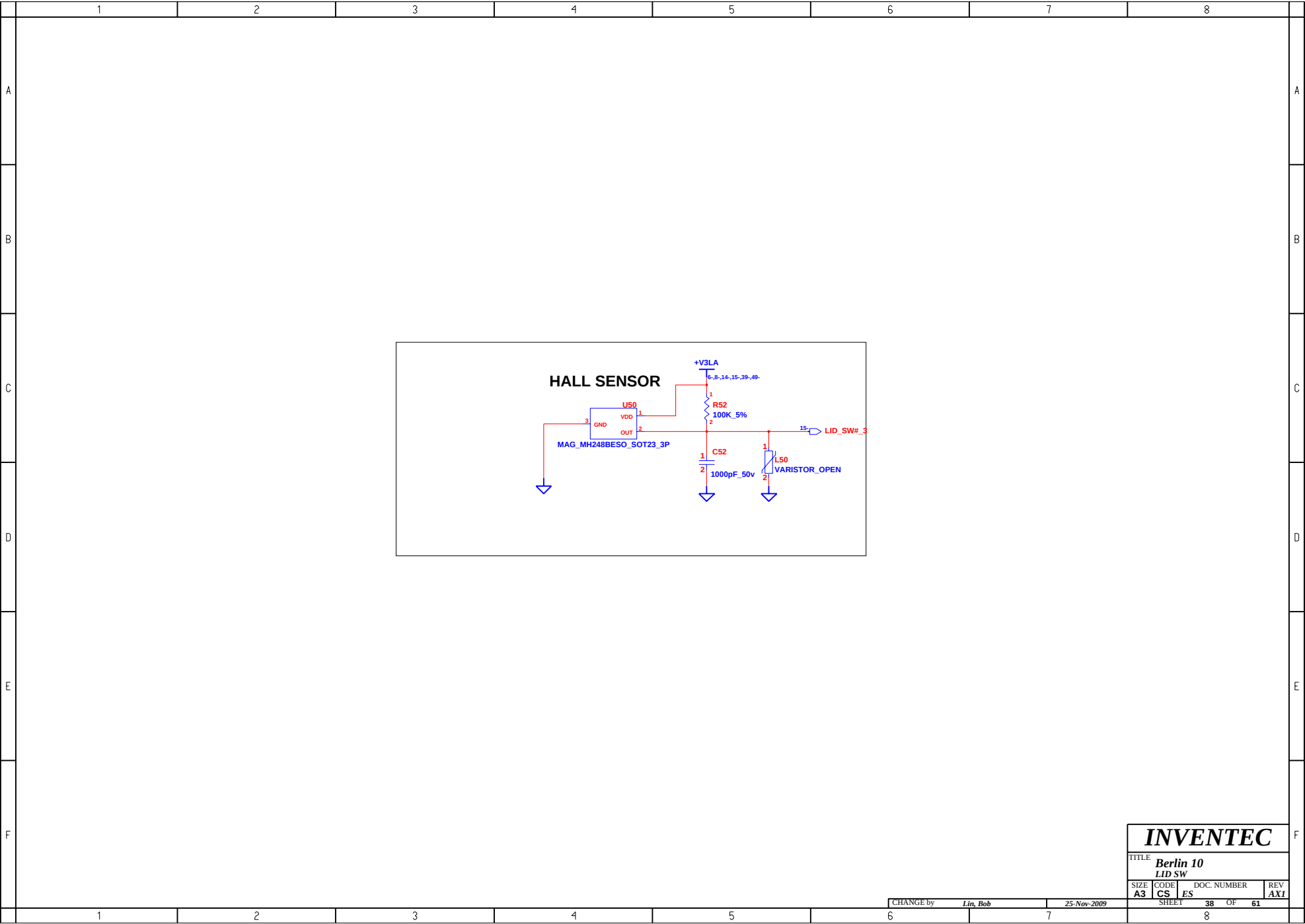
CHANGE by Lin, Bob 25-Nov-2009

	1	2	3	4	5	6	7	8	
A									A
B									B
C									C
D									D
E									E
F									F
						CHANGE by <i>Lin, Bob</i>		4-Jan-2010	
1	2	3	4	5	6	7	8		

INVENTEC			
TITLE <i>Berlin 10</i> <i>3D sensor</i>			
SIZE A3	CODE CS	DOC. NUMBER <i>ES</i>	REV <i>AX1</i>
SHEET		36	OF 61

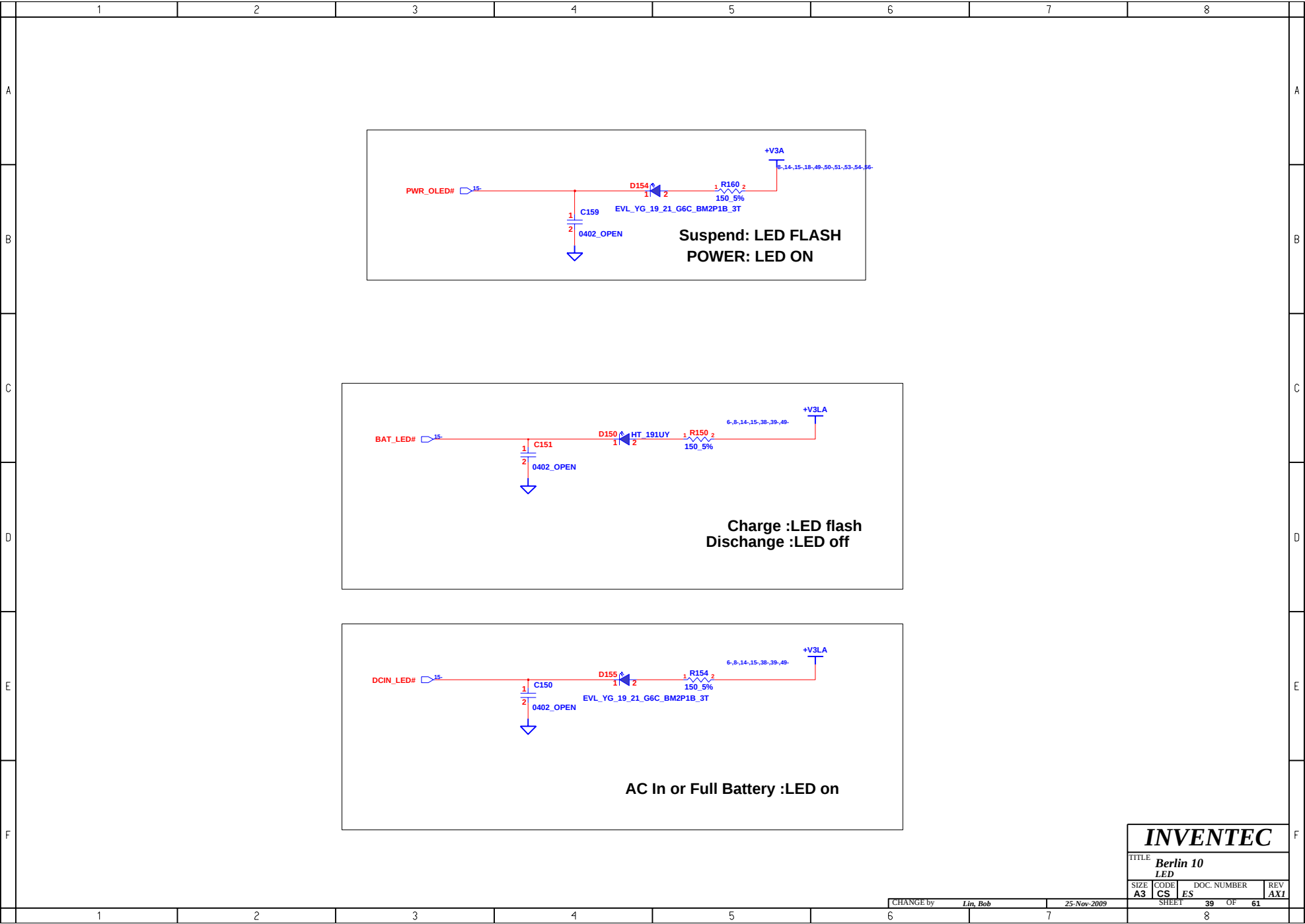
	1	2	3	4	5	6	7	8	
A									A
B									B
C									C
D									D
E									E
F									F
						CHANGE by <i>Lin, Bob</i>		4-Jan-2010	
1	2	3	4	5	6	7	8		

INVENTEC			
TITLE Berlin 10 KILL SW			
SIZE A3	CODE CS	DOC. NUMBER ES	REV AX1
SHEET		37	OF 61

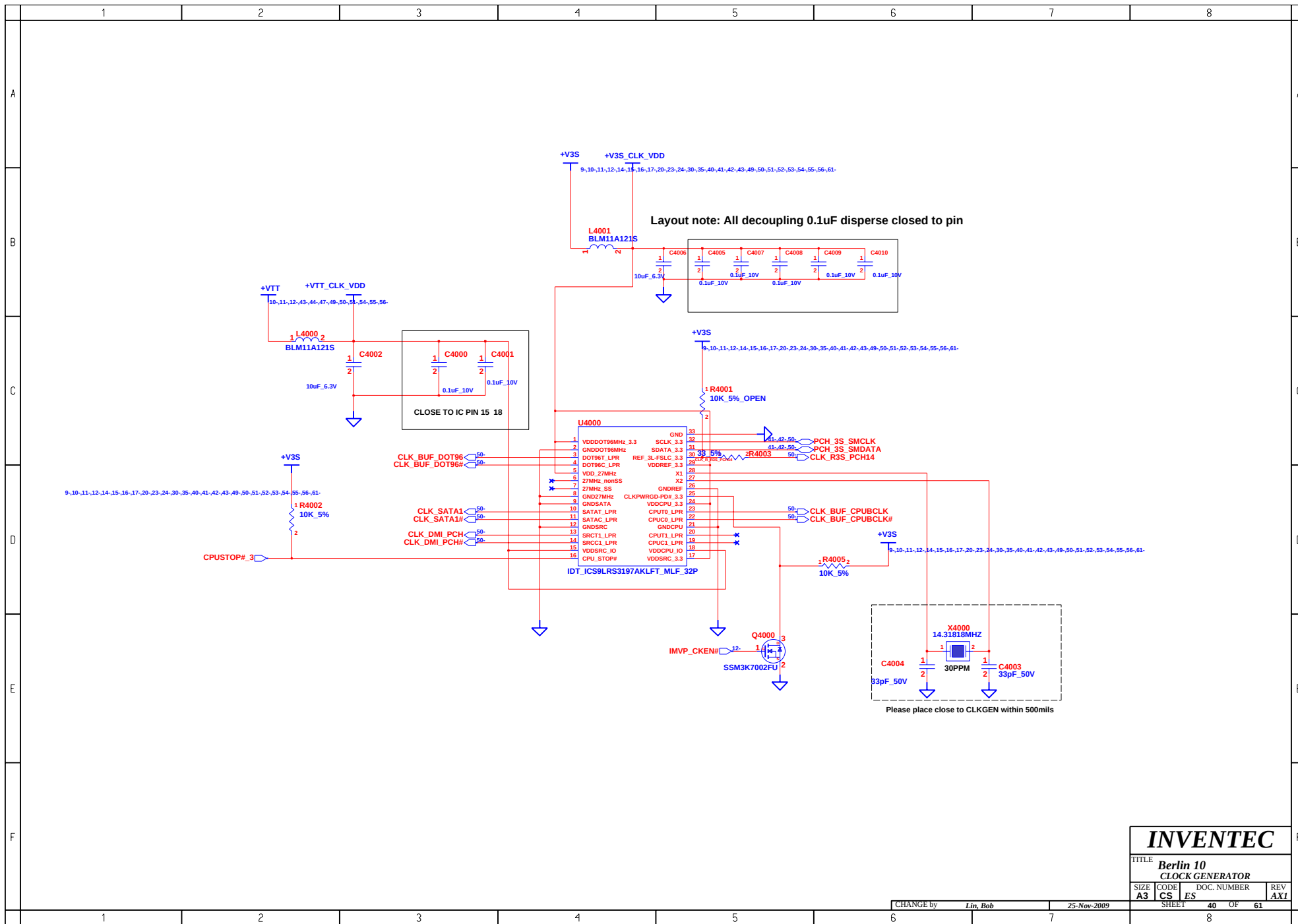


INVENTEC

TITLE			
Berlin 10			
LID SW			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AX1

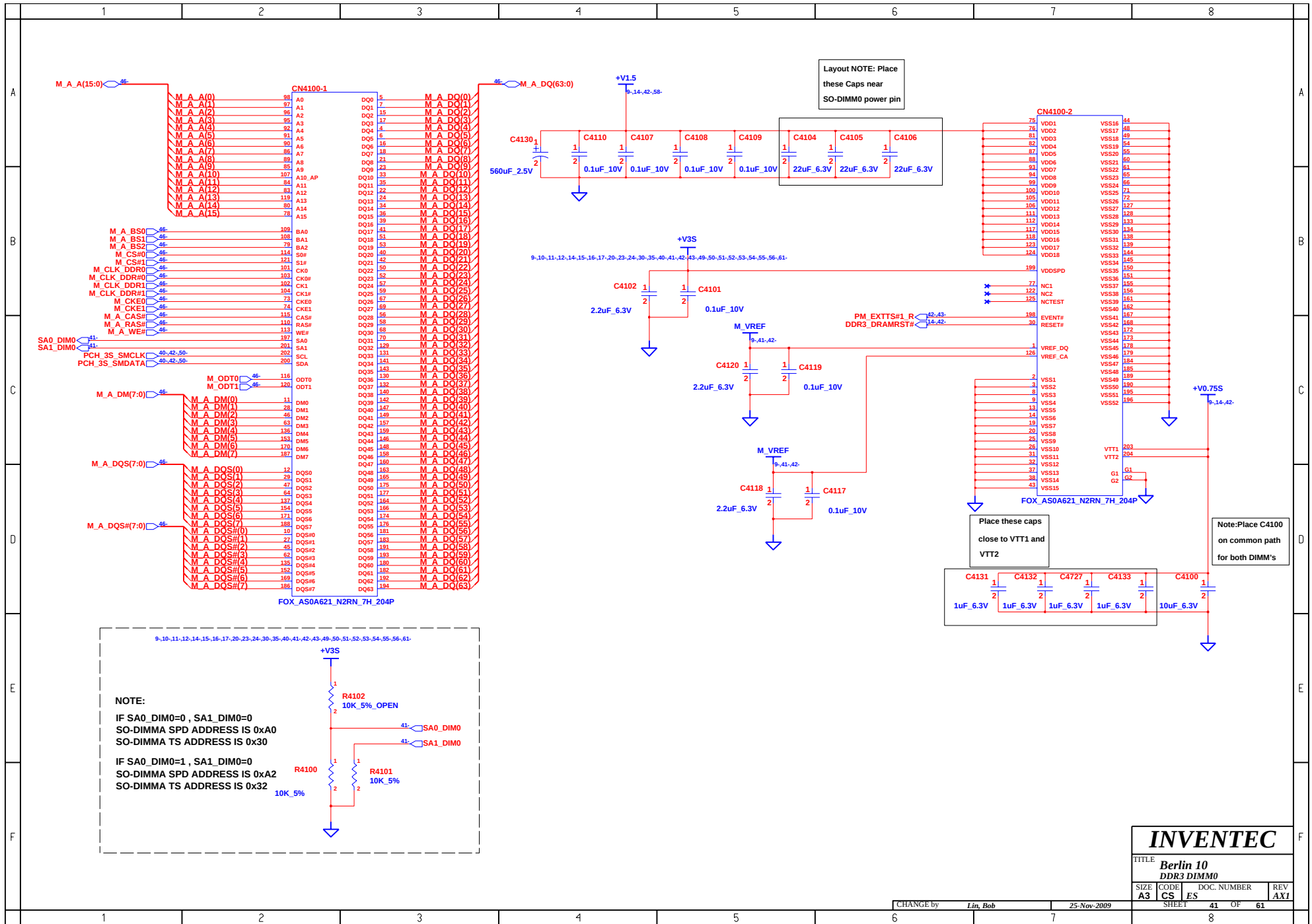


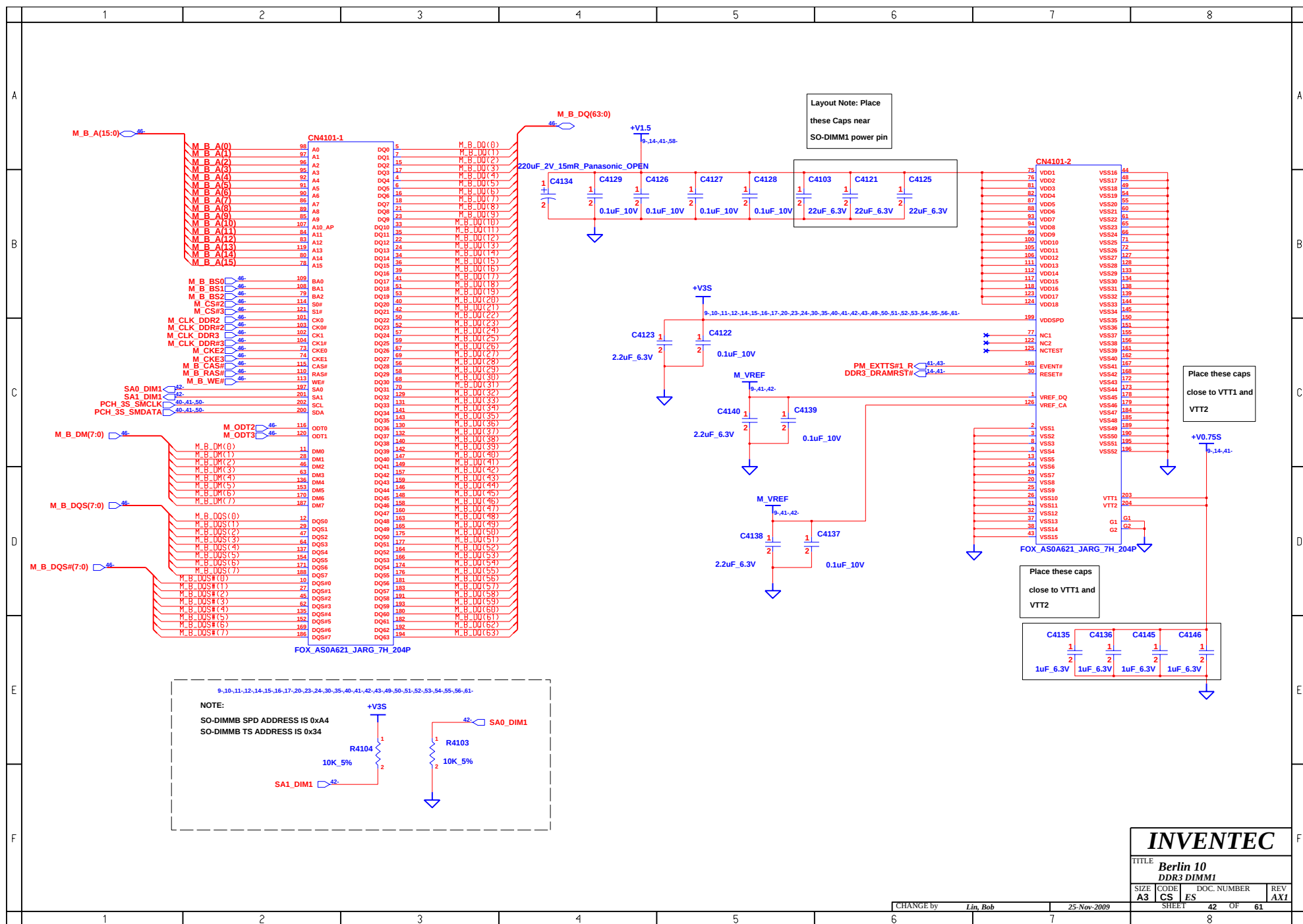
INVENTEC			
TITLE Berlin 10 LED			
SIZE A3	CODE CS	DOC. NUMBER ES	REV AX1
SHEET		39 OF	61

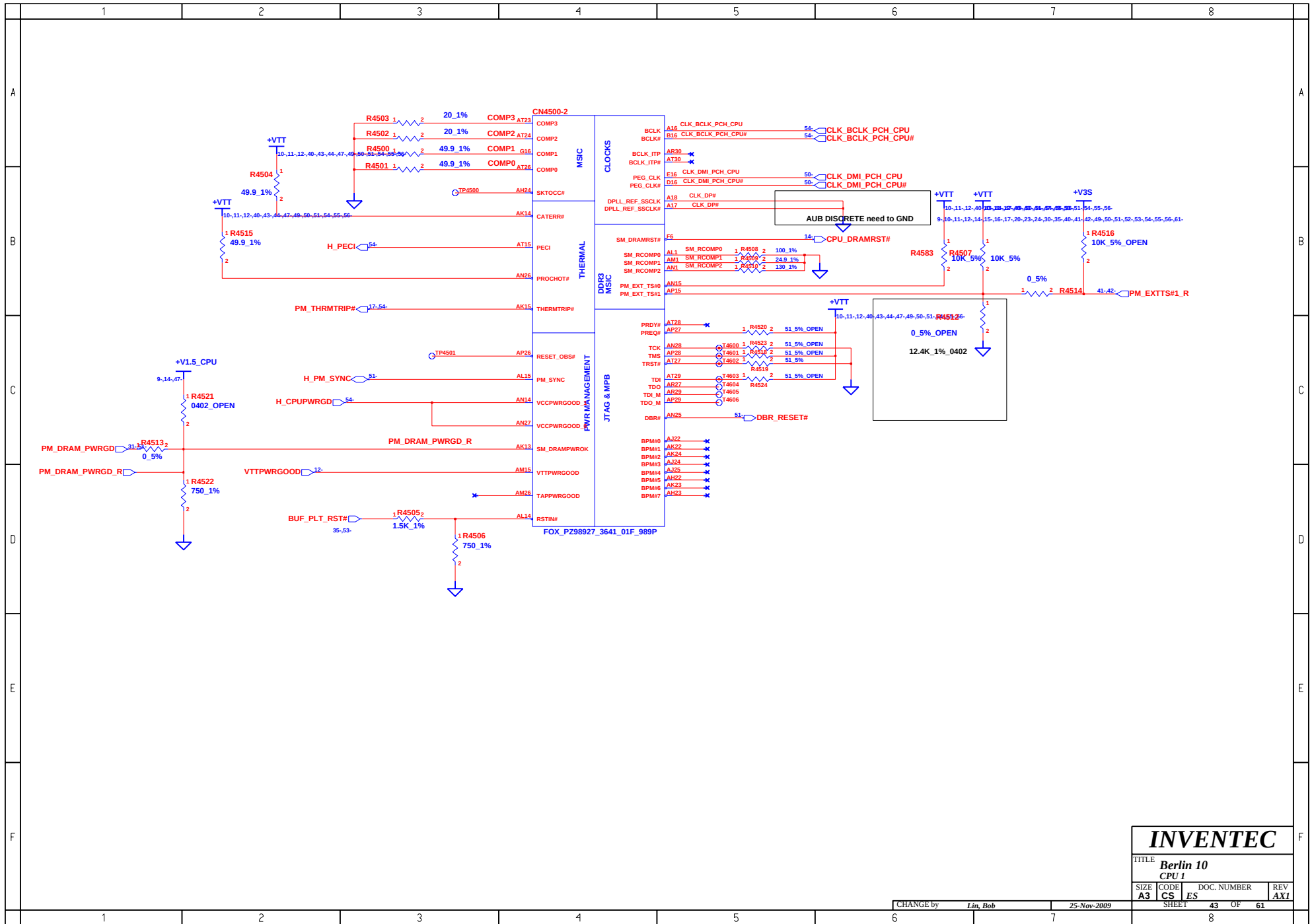


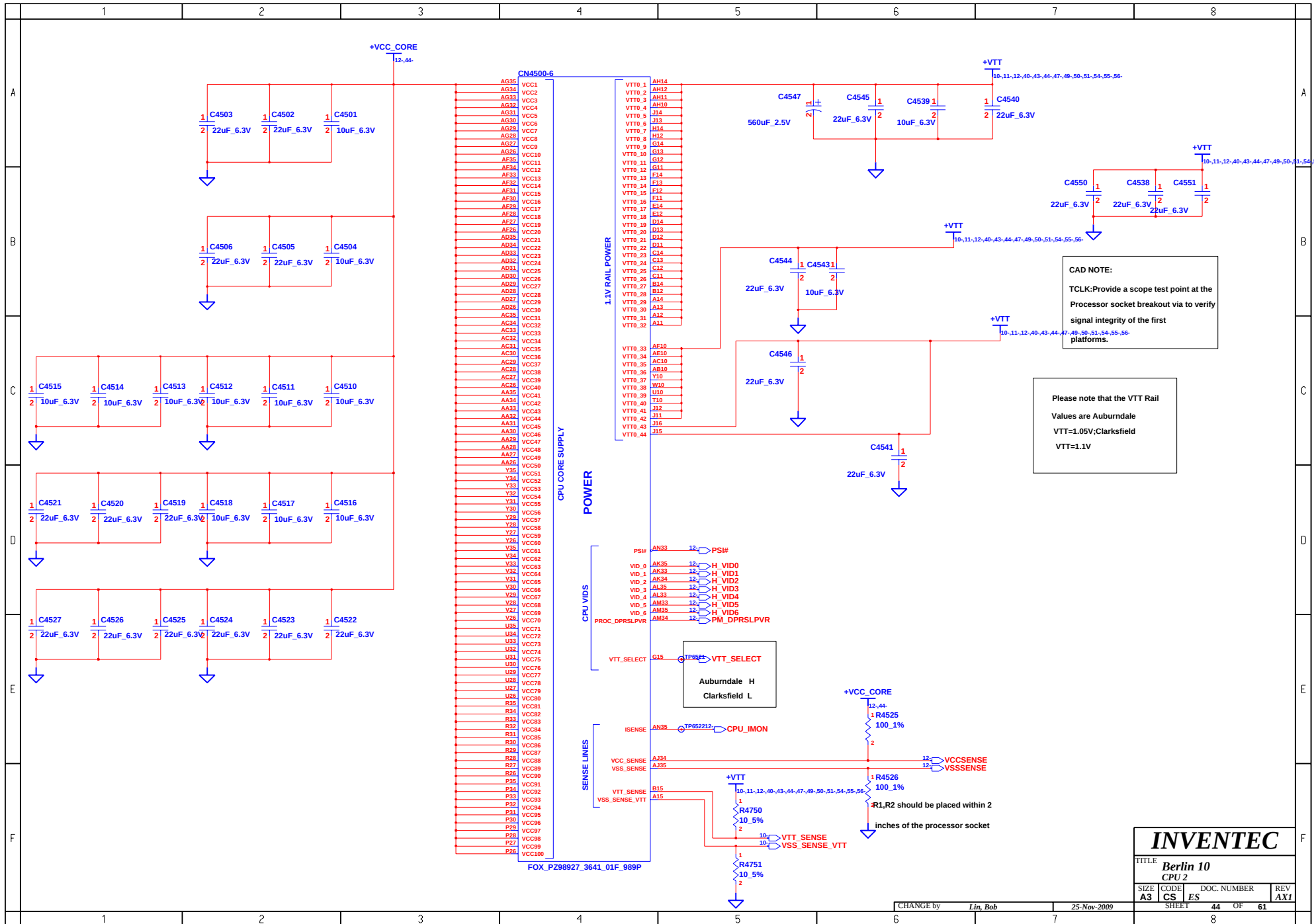
INVENTEC			
TITLE			
Berlin 10			
CLOCK GENERATOR			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AX1
SHEET		40 OF	61
8			

CHANGE by Lin, Bob 25-Nov-2009





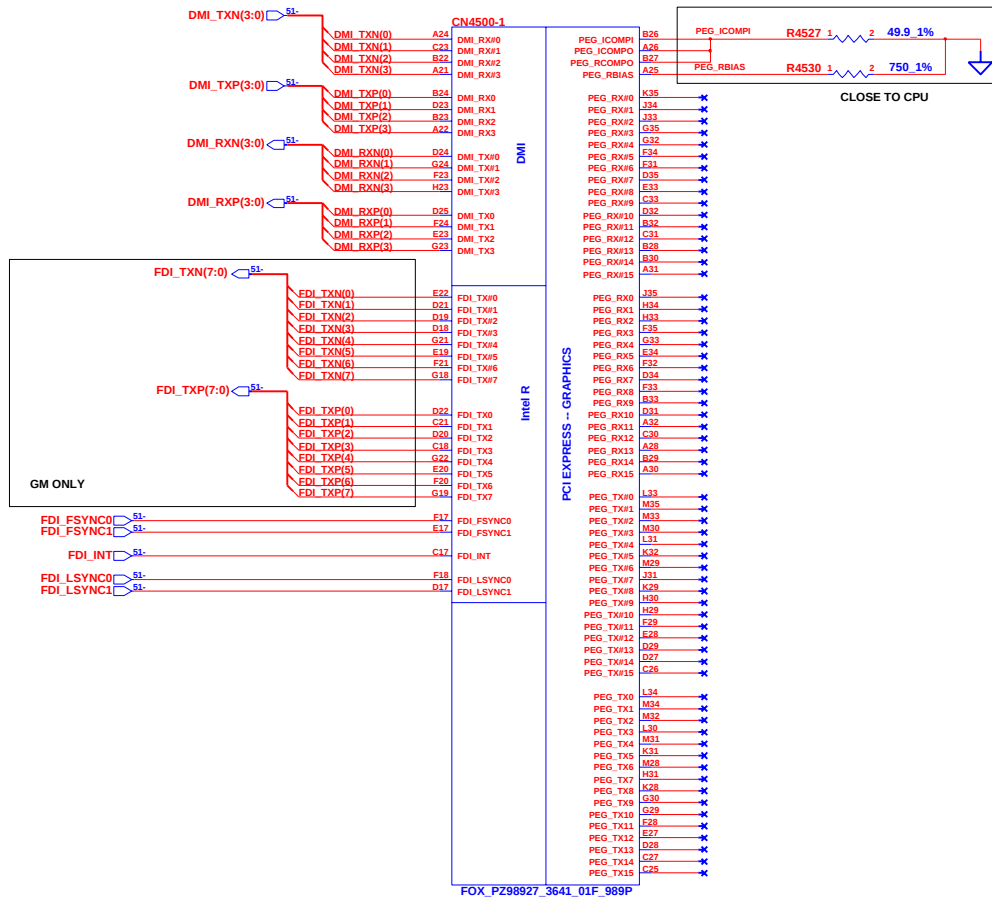




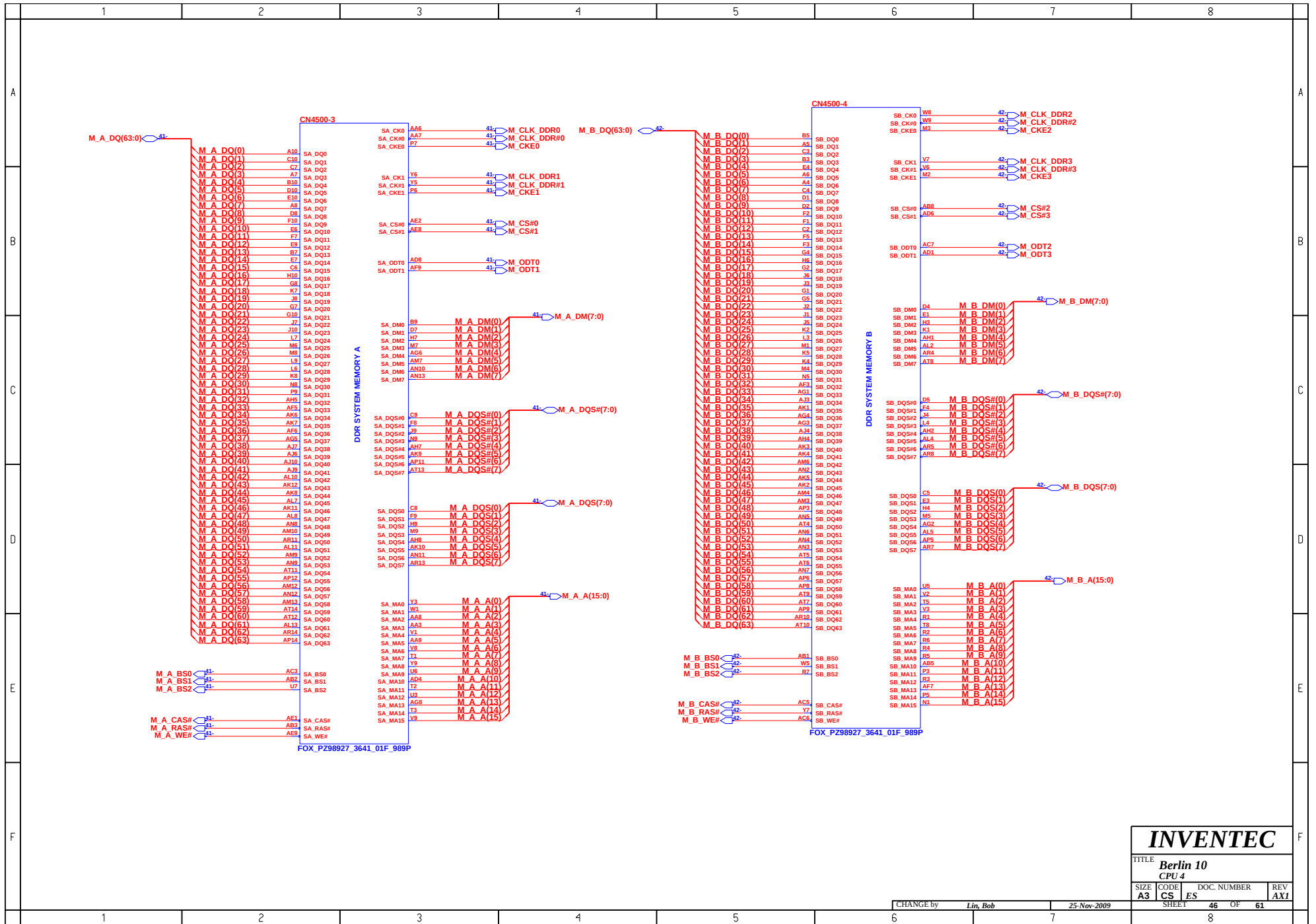
INVENTEC

TITLE			
Berlin 10			
CPU 2			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AX1
SHEET		44 OF	61

CHANGE by Lin, Bob 25-Nov-2009



INVENTEC				
TITLE				
Berlin 10				
CPU 3				
SIZE	CODE	DOC. NUMBER	REV	
A3	CS	ES	45	AXI
CHANGE by		25-Nov-2009	SHEET	
Lin, Bob		45		61

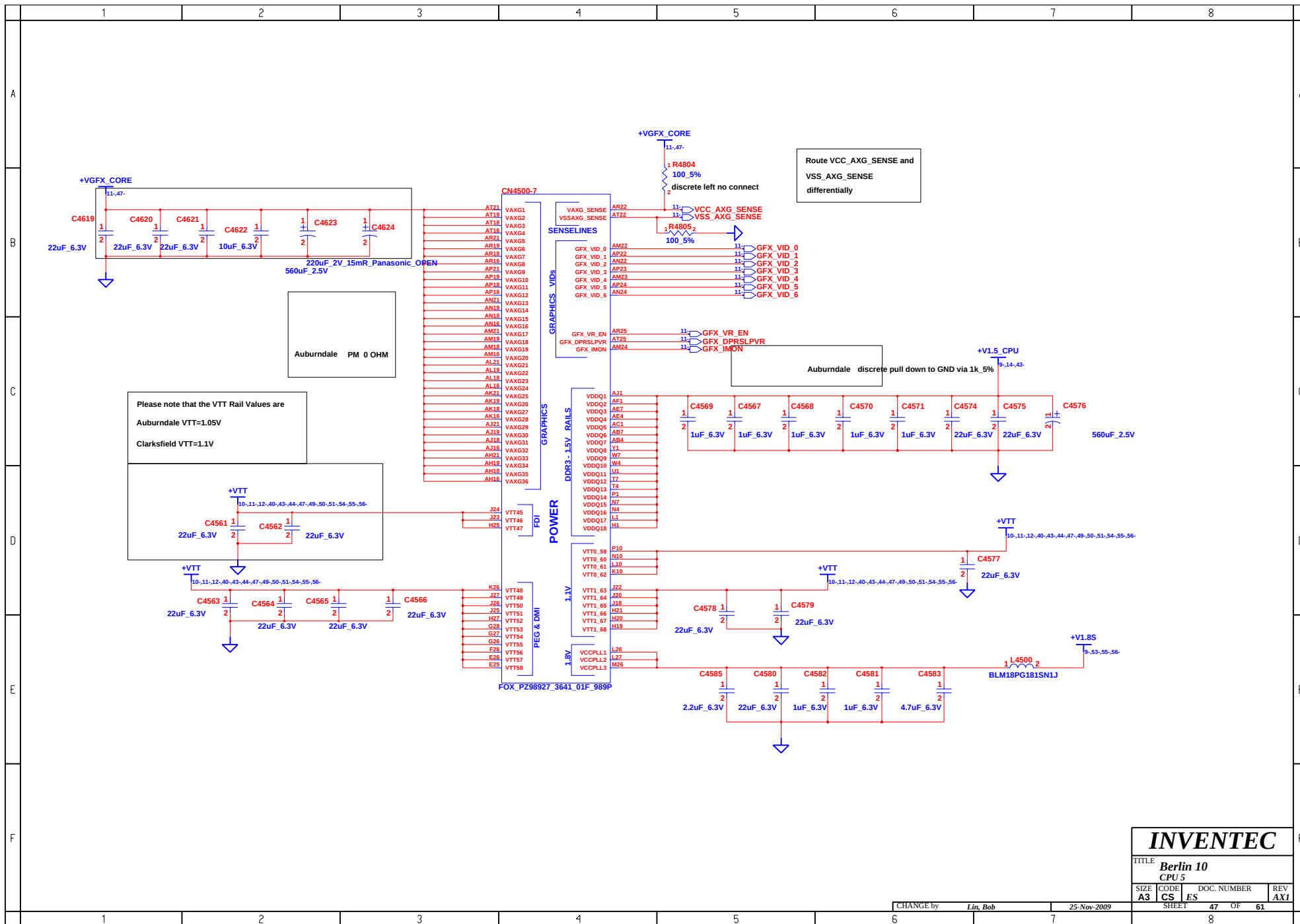


INVENTEC

TITLE				
Berlin 10				
CPU 4				
SIZE	CODE	ES	DOC. NUMBER	REV
A3	CS	ES	46	AX1
SHEET				

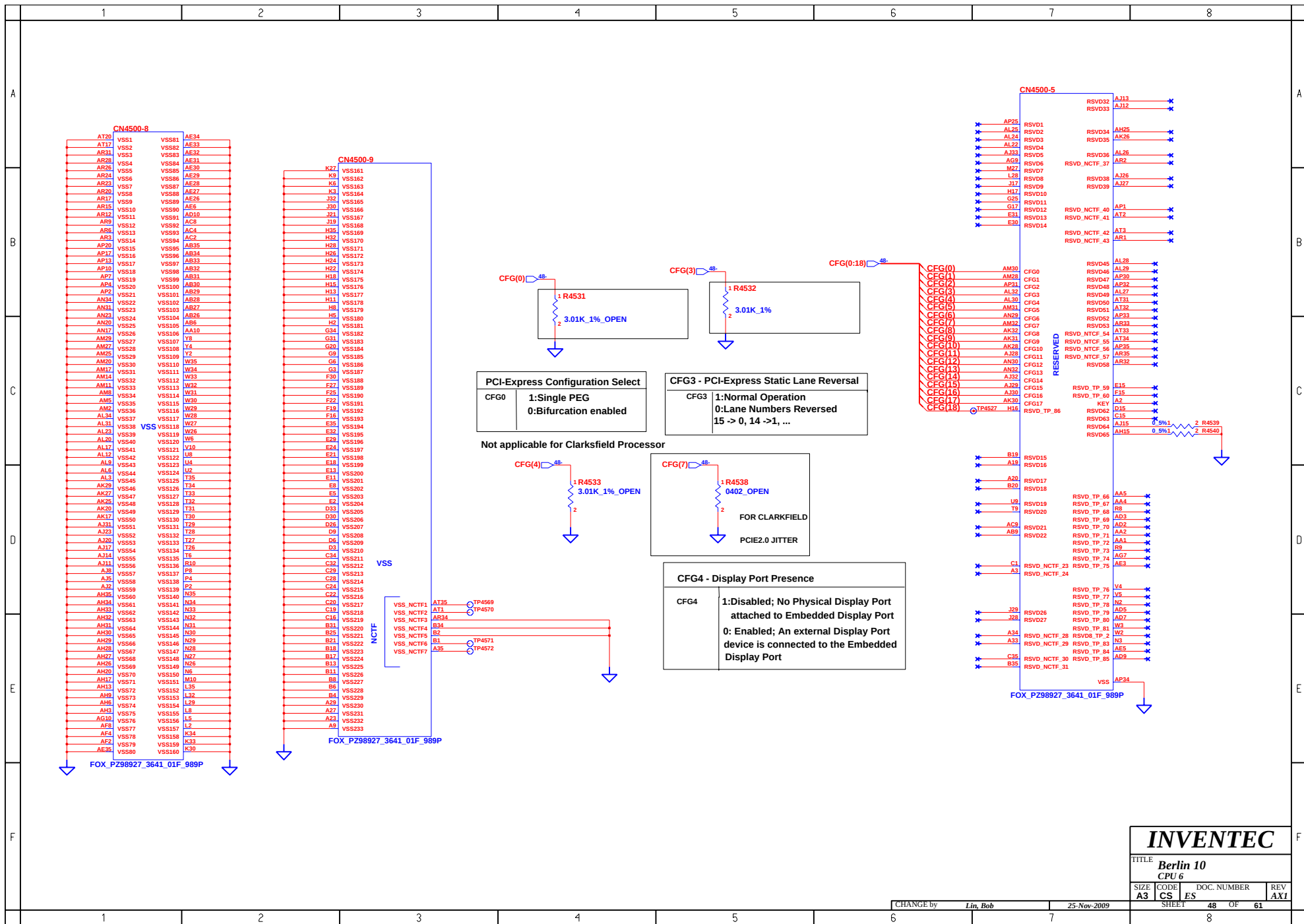
CHANGE by Lin, Bob 25-Nov-2009

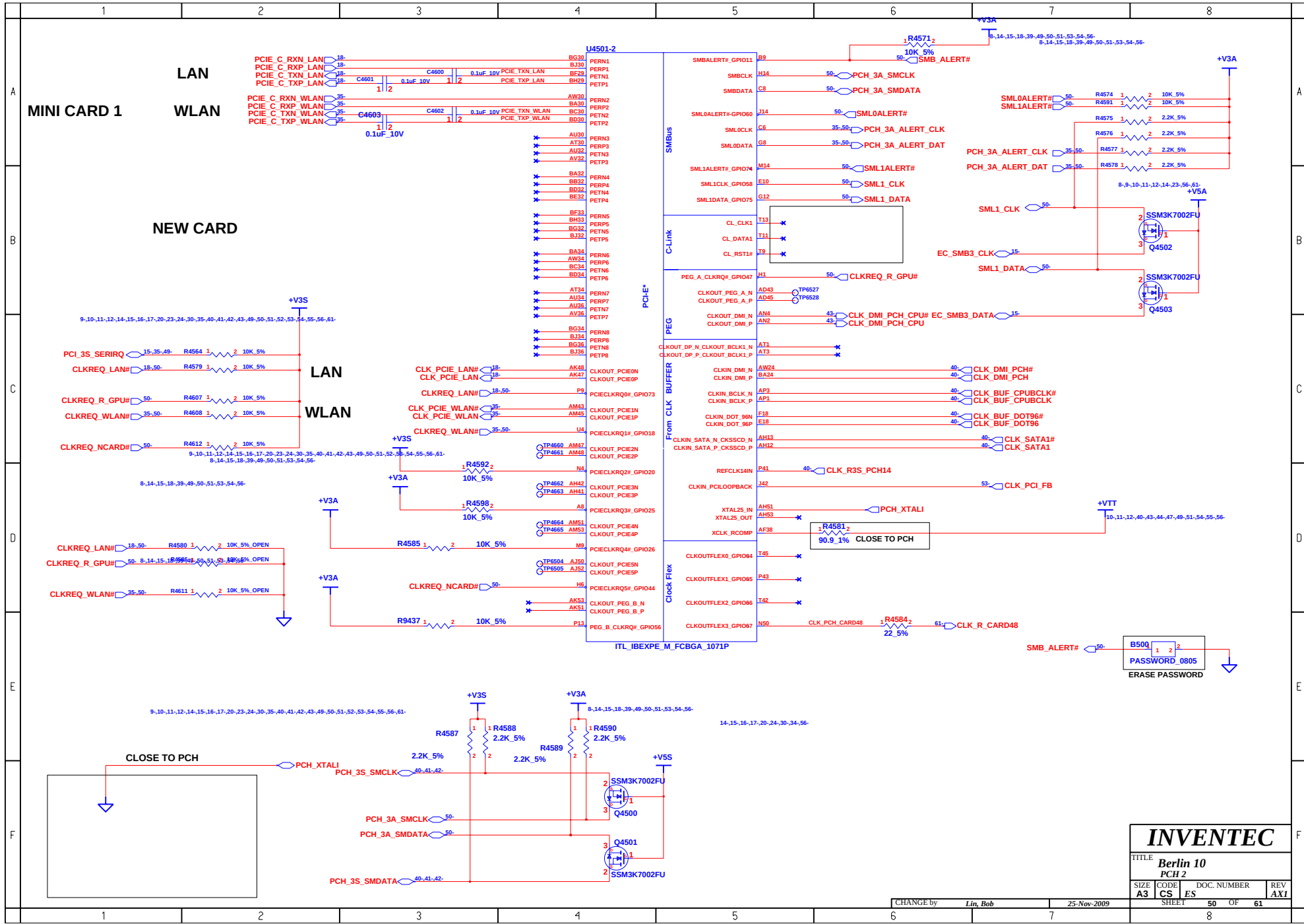
46 OF 61



INVENTEC

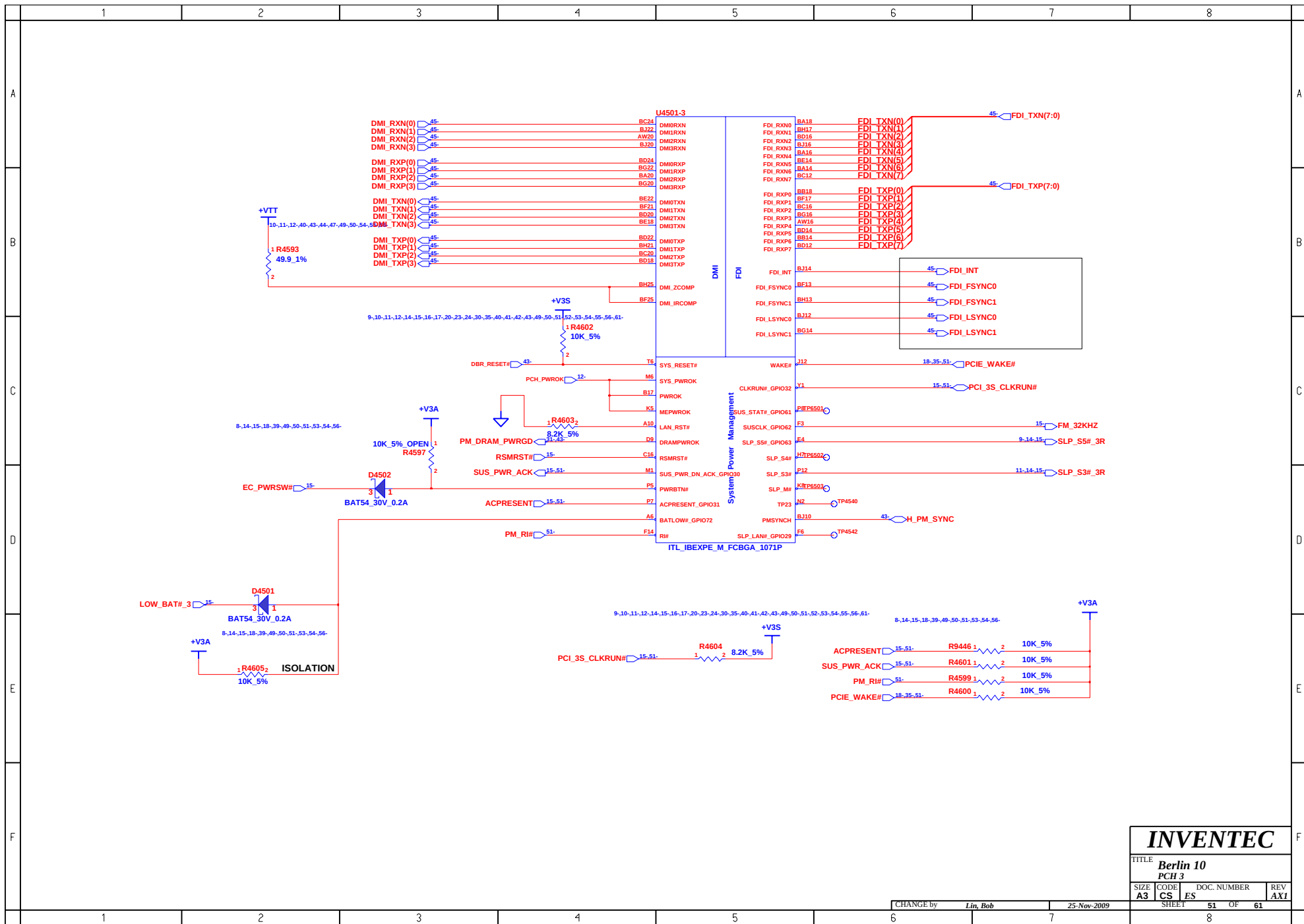
TITLE				
Berlin 10				
CPU 5				
SIZE	CODE	DOC. NUMBER	REV	
A3	CS	ES	AX1	
SHEET		47	OF	61





INVENTEC				
TITLE Berlin 10 PCH 2				
SIZE A3	CODE CS	DOC. NUMBER ES	REV AXI	
SHEET		50	OF	61

CHANGE by Lin, Bob 25-Nov-2009

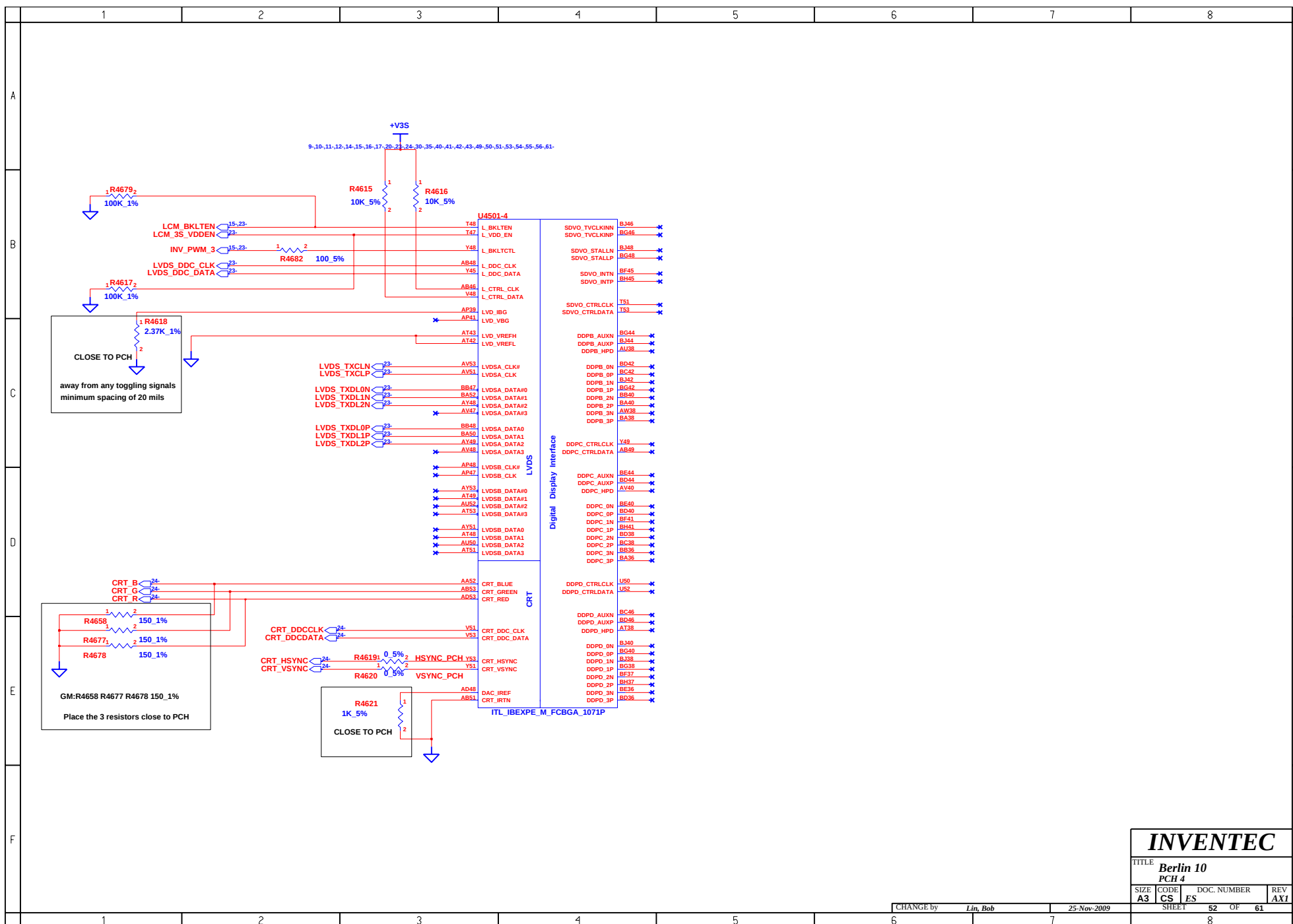


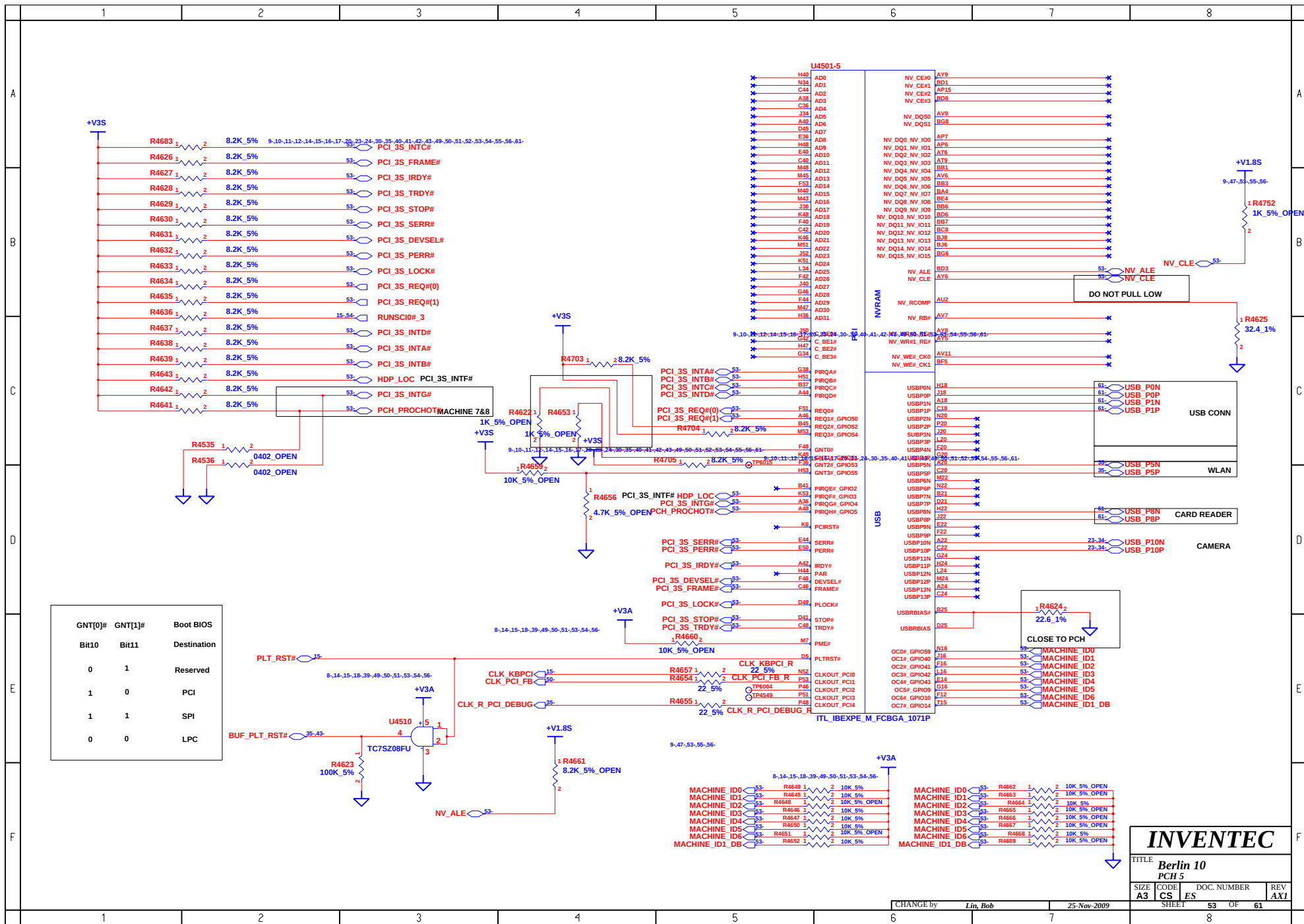
INVENTEC

TITLE			
Berlin 10			
PCH 3			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AXI

CHANGE by Lin, Bob 25-Nov-2009

SHEET 51 OF 61





INVENTEC

TITLE **Berlin 10**

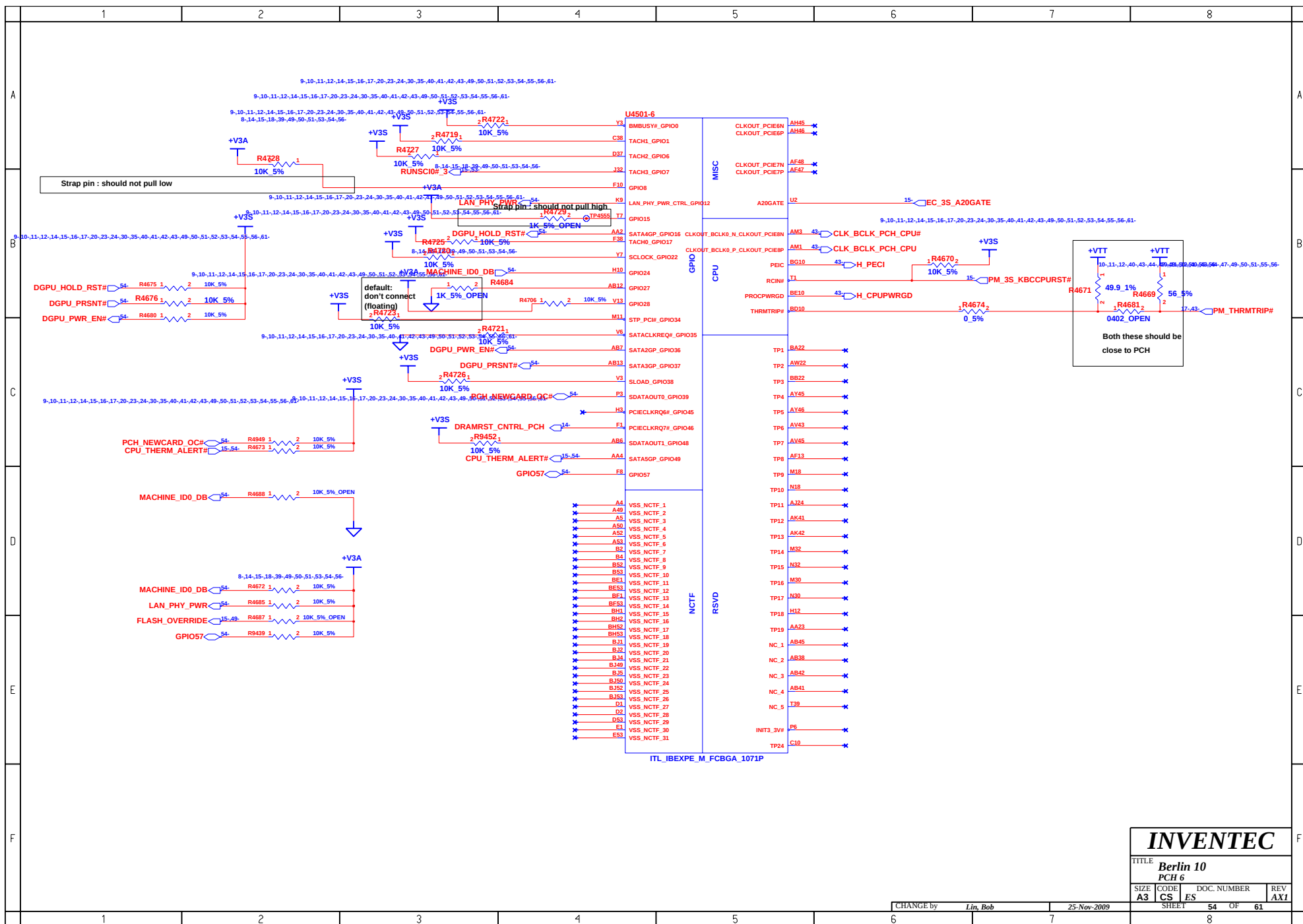
PCH 5

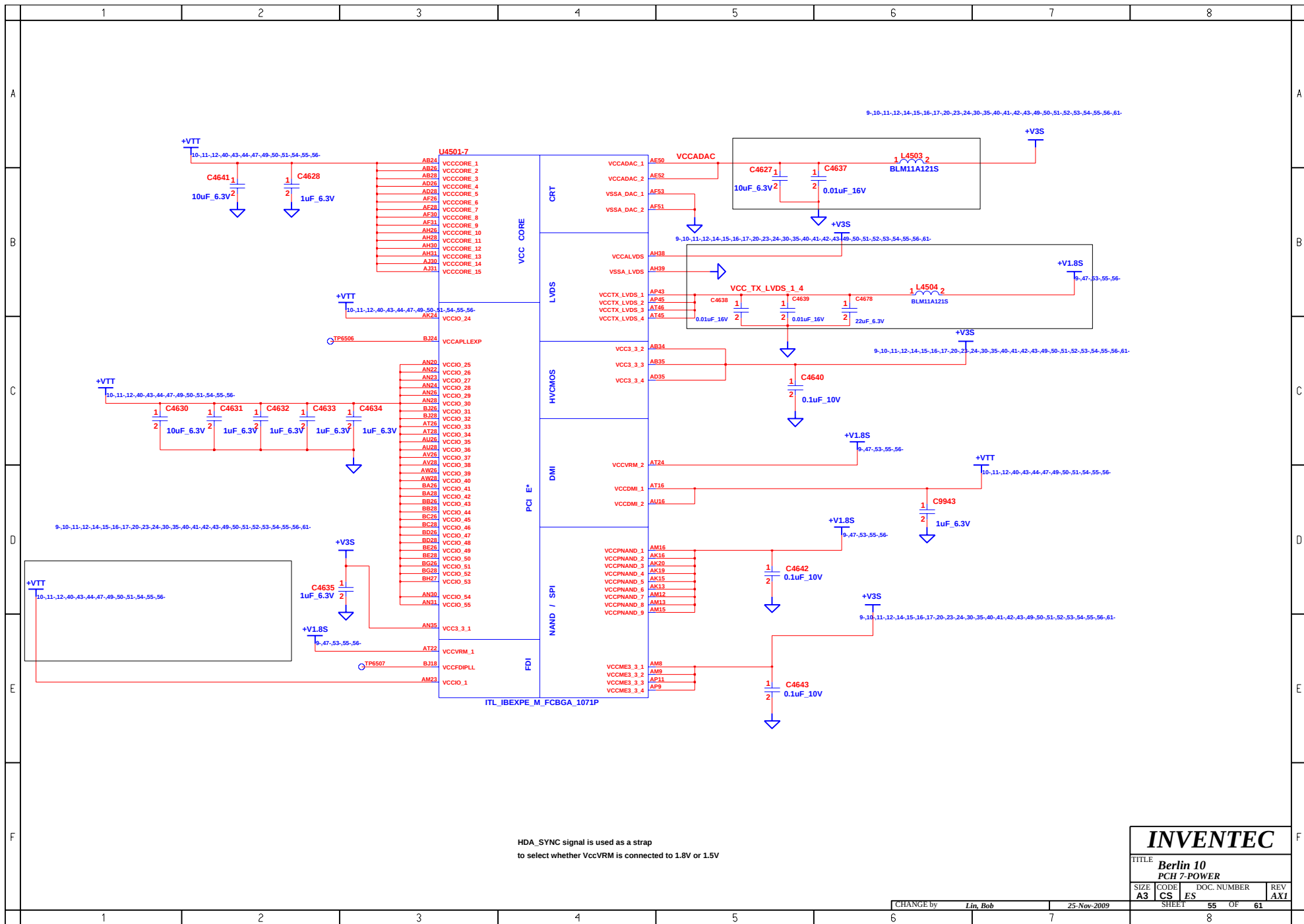
SIZE CODE CS ES DOC. NUMBER REV

A3 CS ES 53 OF 61 AX1

CHANGE by Lin, Bob 25-Nov-2009

8





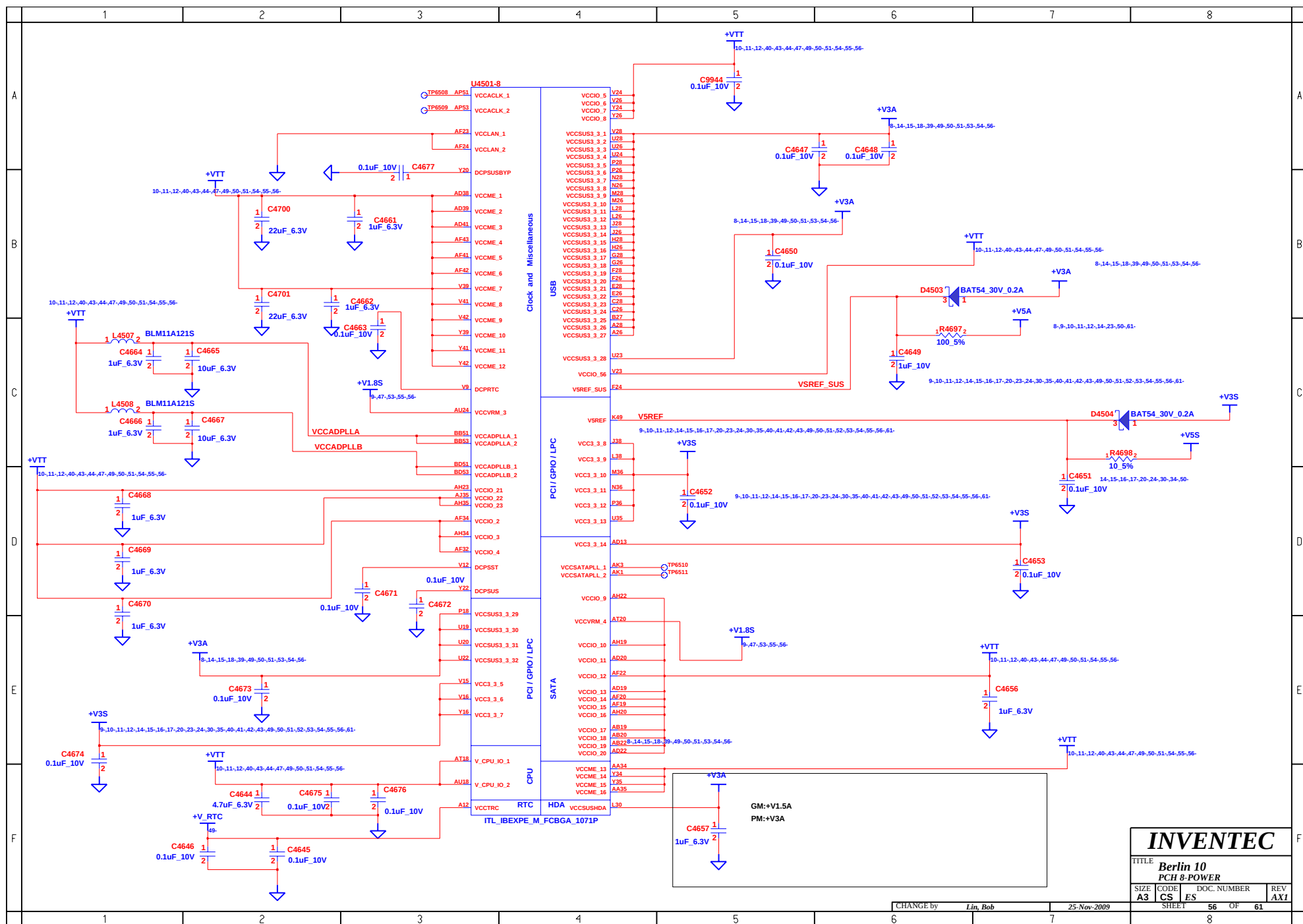
HDA_SYNC signal is used as a strap
to select whether VccVRM is connected to 1.8V or 1.5V

INVENTEC

TITLE			
Berlin 10			
PCH 7-POWER			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AXI

CHANGE by Lin, Bob 25-Nov-2009

SHEET 55 OF 61
8



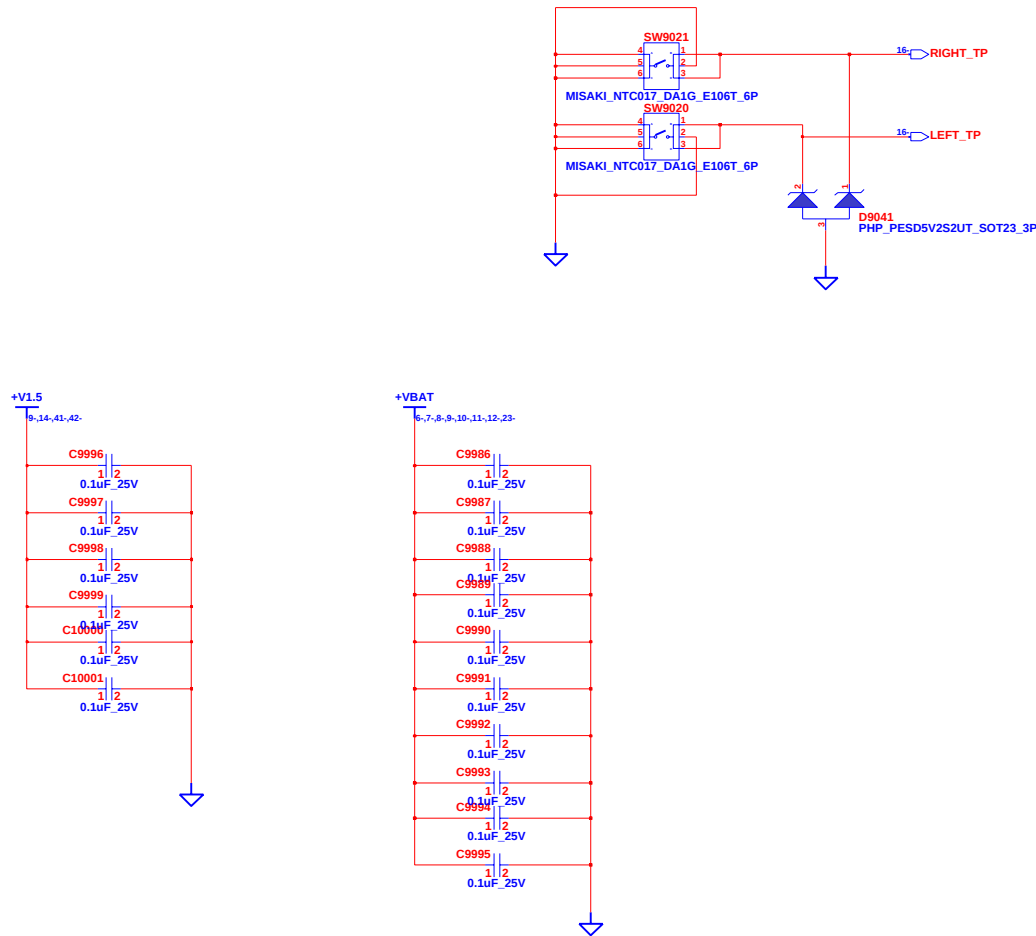
	1	2	3	4	5	6	7	8
A								
B								
C								
D								
E								
F								

TITLE				Berlin 10			
SIZE				PCH 9			
CODE		DOC. NUMBER		REV			
A3		CS		ES		AXI	

CHANGE by	Lin, Bob	25-Nov-2009	SHEET	57	OF	61
-----------	----------	-------------	-------	----	----	----

PICK BUTTON and EMI

(For - Touchpad Module, Touchpad Switch)



INVENTEC

TITLE			
Berlin 10			
Hot key board			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AXI
SHEET		58 OF	61

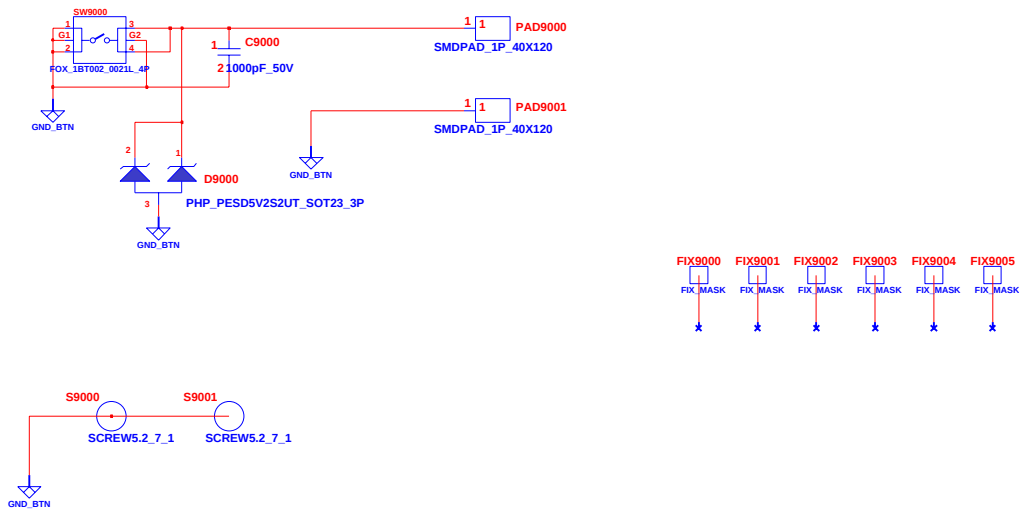
CHANGE by Lin, Bob 7-Jan-2010

8

	1	2	3	4	5	6	7	8	
A									A
B									B
C									C
D									D
E									E
F									F
	1	2	3	4	5	6	7	8	

INVENTEC			
TITLE Berlin 10 <i>Touch pad</i>			
SIZE A3	CODE CS	DOC. NUMBER ES	REV AX1
CHANGE by <i>Lin, Bob</i>		5-Jan-2010	
SHEET		59	OF 61

POWER BUTTON



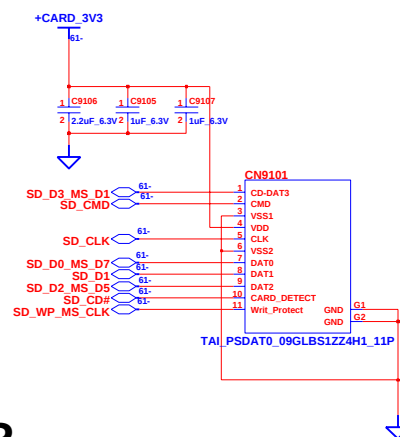
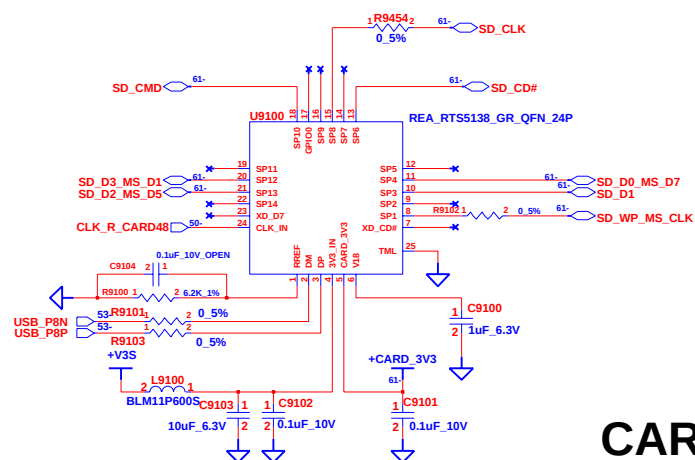
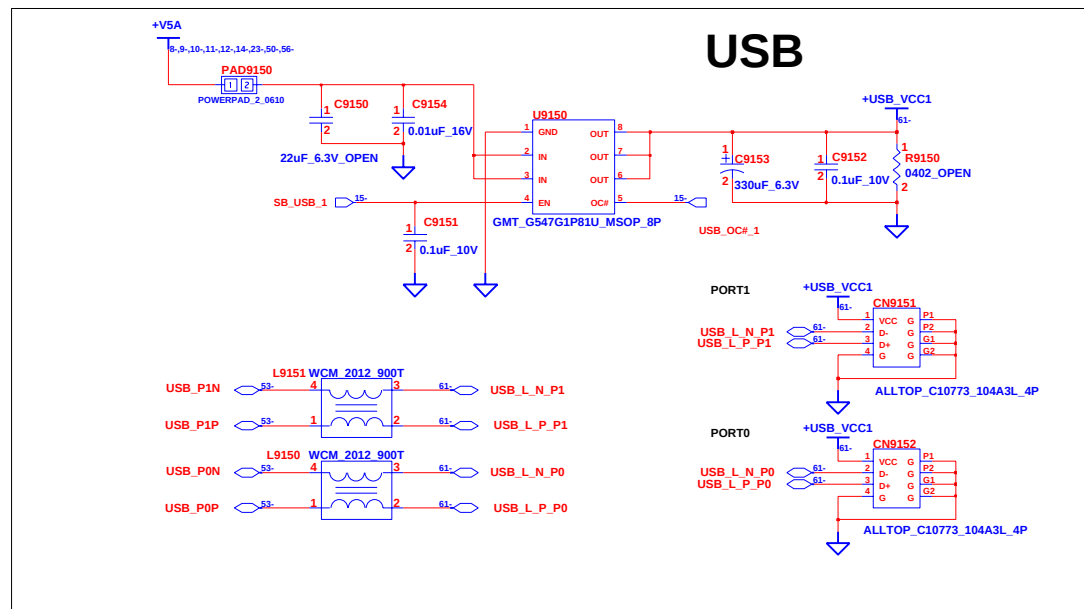
EMI

INVENTEC

TITLE			
Berlin 10			
EMI			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	ES	AXI
SHEET		60 OF	61

CHANGE by Lin, Bob 17-Mar-2010

CARD READER & USB



INVENTEC

TITLE
Berlin 10

SIZE CODE DOC. NUMBER REV
A3 CS ES

CHANGE by **Lin, Bob** 25-Nov-2009

SHEET **61** OF **61**