

	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	

Bremen 10G

MP build(A02)

2010.04.15

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SIZE	CODE	DOC. NUMBER	REV
A3	CS	6050A23385-0-MTR	A
SHEET		1	OF 63

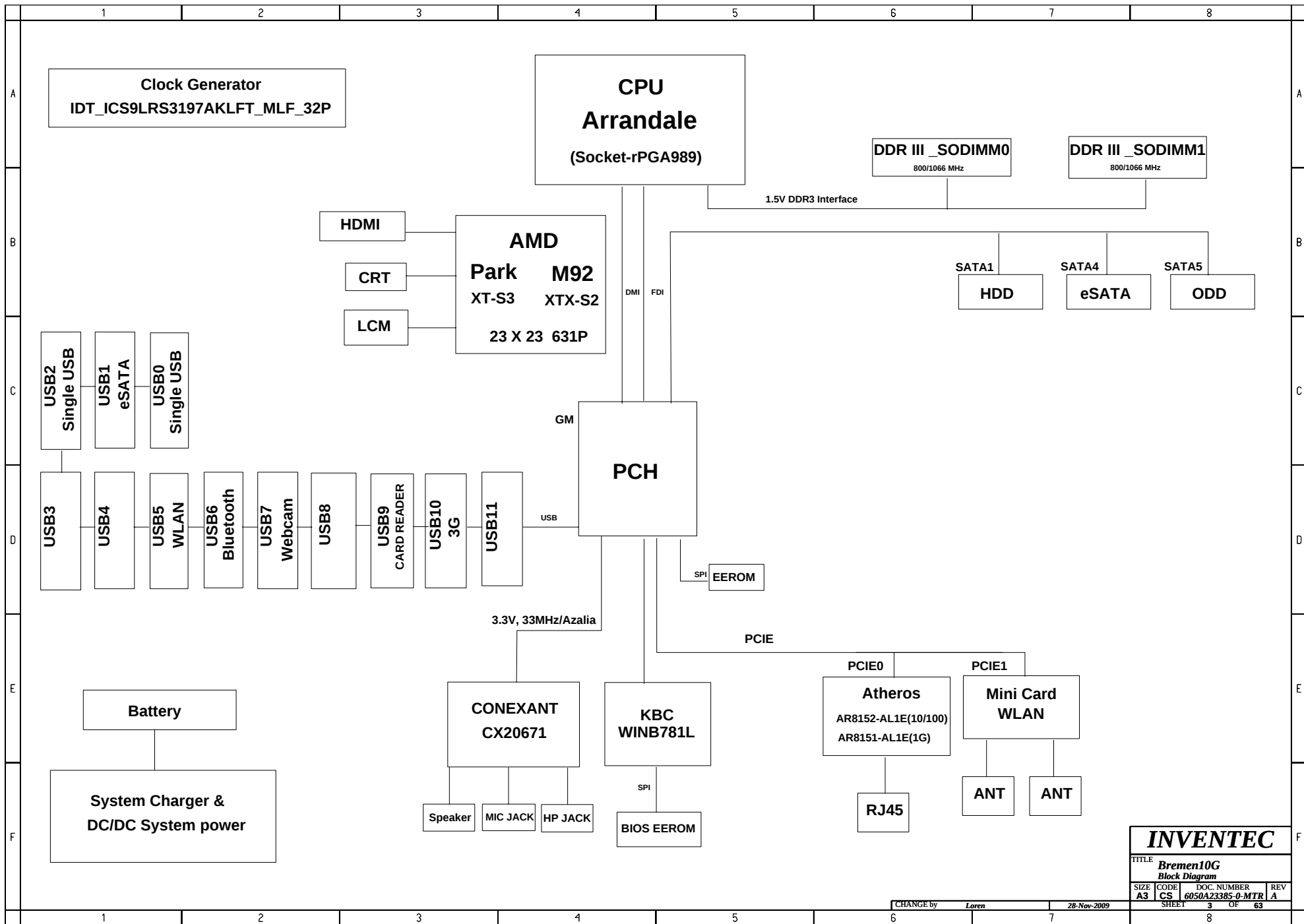
CHANGE by *Loren* 14-Apr-2010

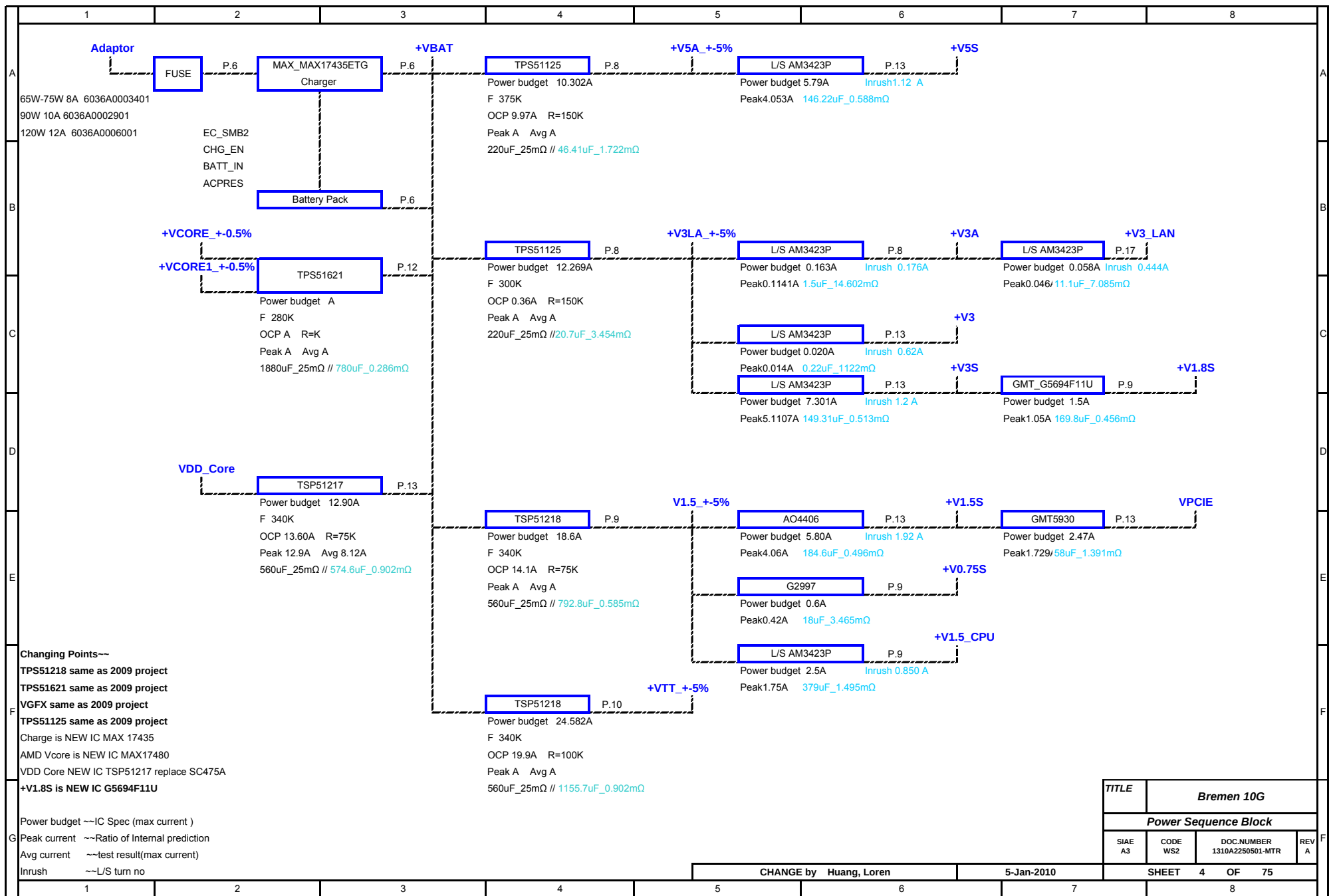
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2. INDEX	32. LED	62. Power board
3. BLOCK DIAGRAM	33. CLOCK GENERATOR	63. USB/Card Reader board
4. POWER SEQUENCE BLOCK	34. DDR DIMM0	
5. PCB	35. DDR DIMM1	
6. SYSTEM POWER	36. CPU 1	
7. SYSTEM POWER	37. CPU 2	
8. SYSTEM POWER	38. CPU 3	
9. SYSTEM POWER	39. CPU 4	
10. SYSTEM POWER	40. CPU 5	
11. SYSTEM POWER	41. CPU 6	
12. SYSTEM POWER	42. PCH 1	
13. SYSTEM POWER	43. PCH 2	
14. SYSTEM POWER	44. PCH 3	
15. SUPER I/O(KBC)	45. PCH 4	
16. K/B & TP/B CONN	46. PCH 5	
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21. AUDIO JACK	51. 3D sensor	
22. LCM	52. GPU 1	
23. RGB CONN	53. GPU 2	
24. HDMI CONN	54. GPU 3	
25. SATA HDD & ODD	55. GPU 4	
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27. USB/eSATA CONN	57. GPU 6	
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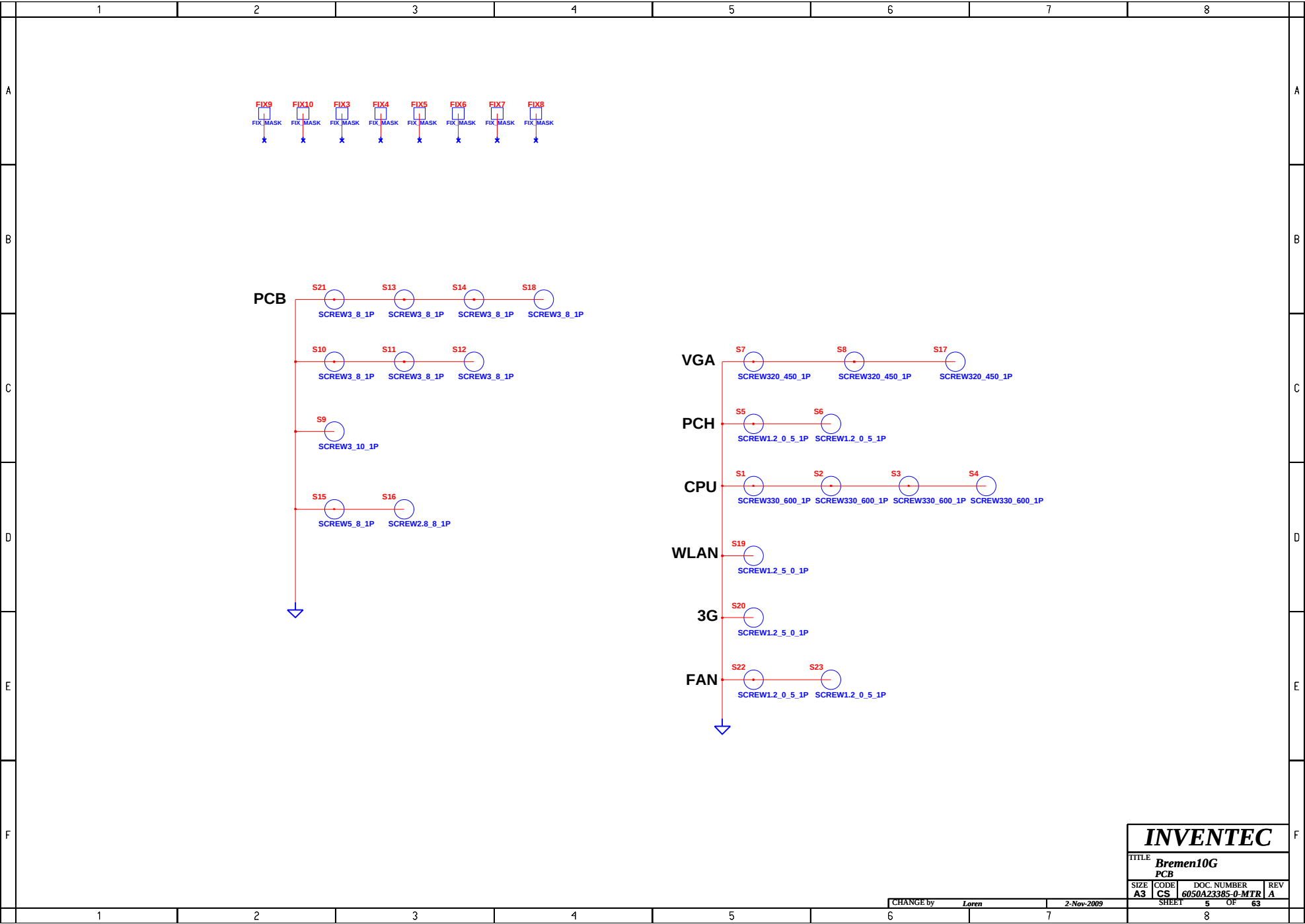
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CHANGE by *Loren* 1-Dec-2009

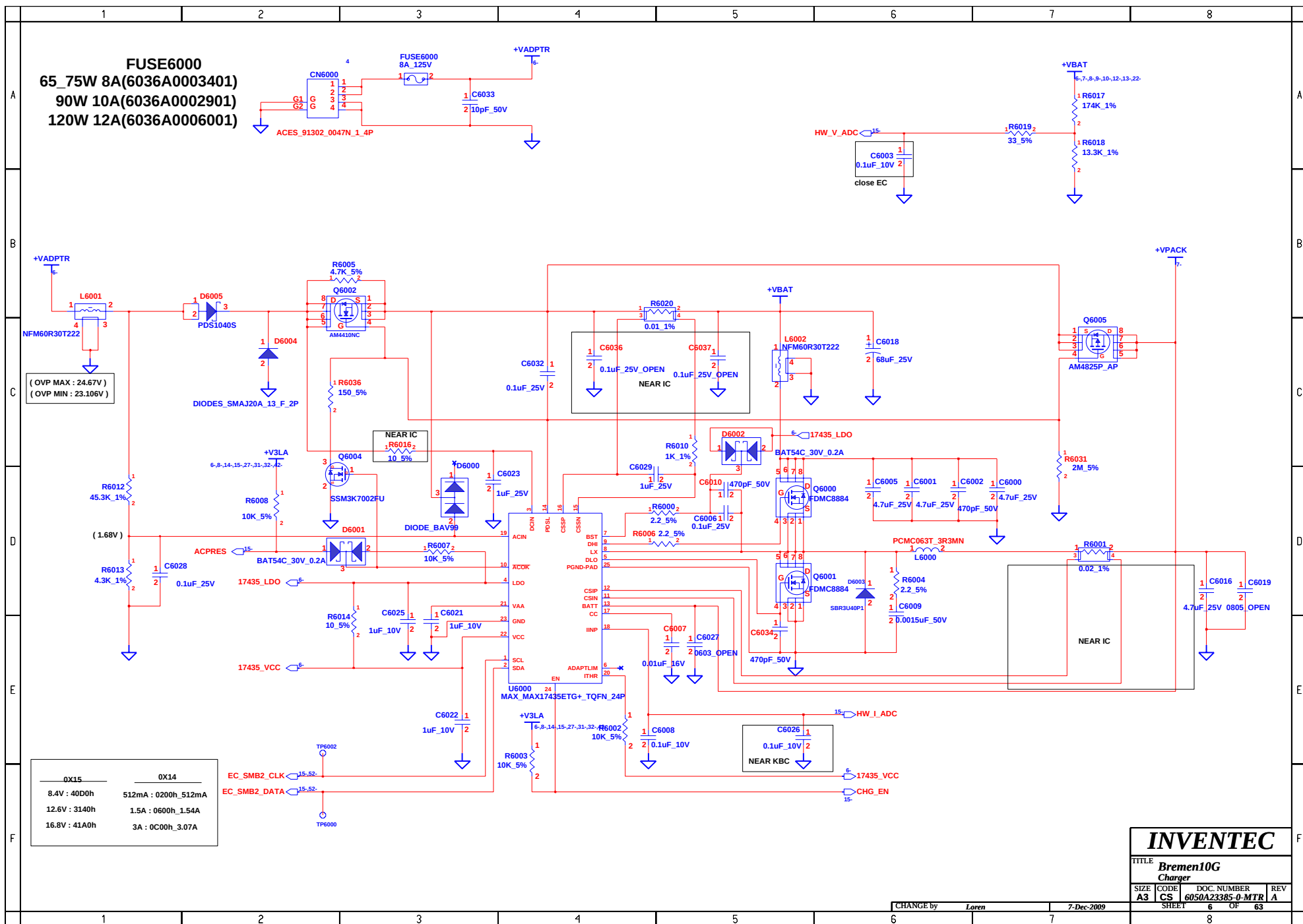




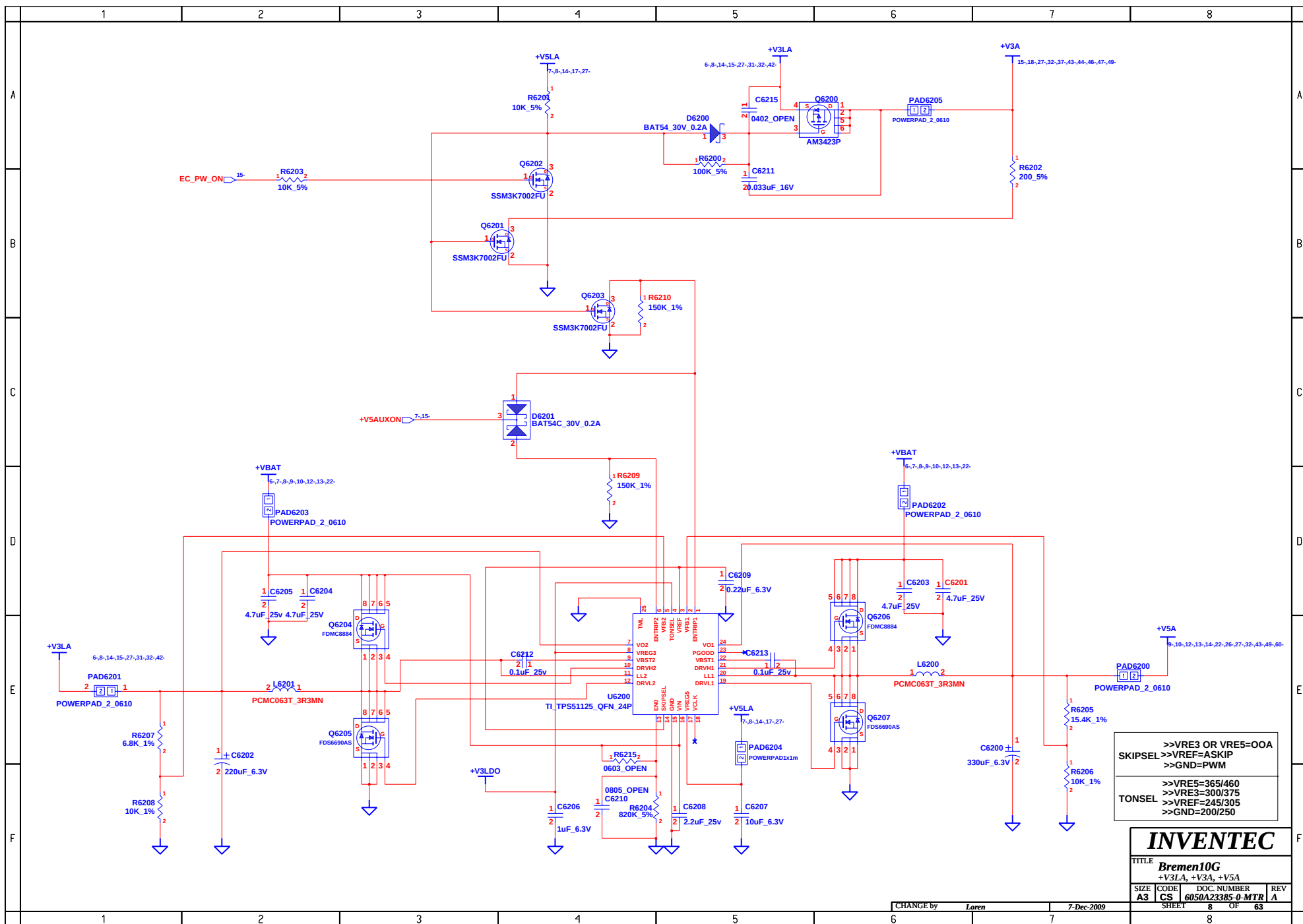
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SHEET 4 OF 75			



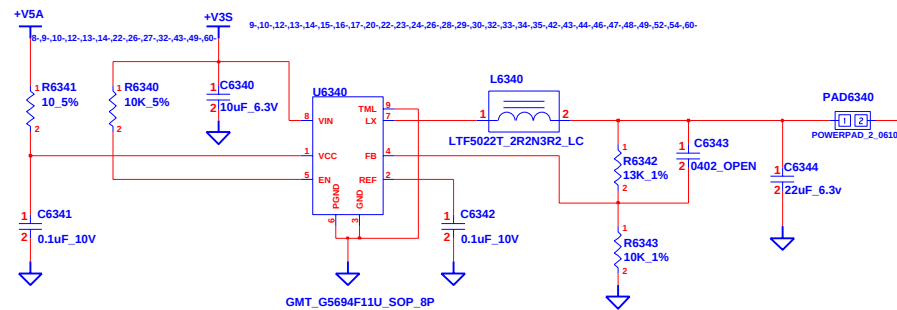
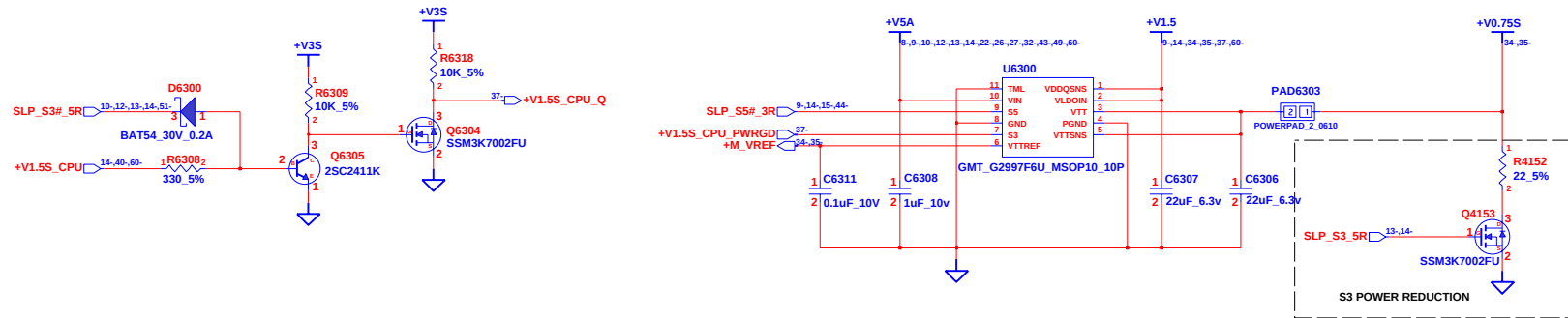
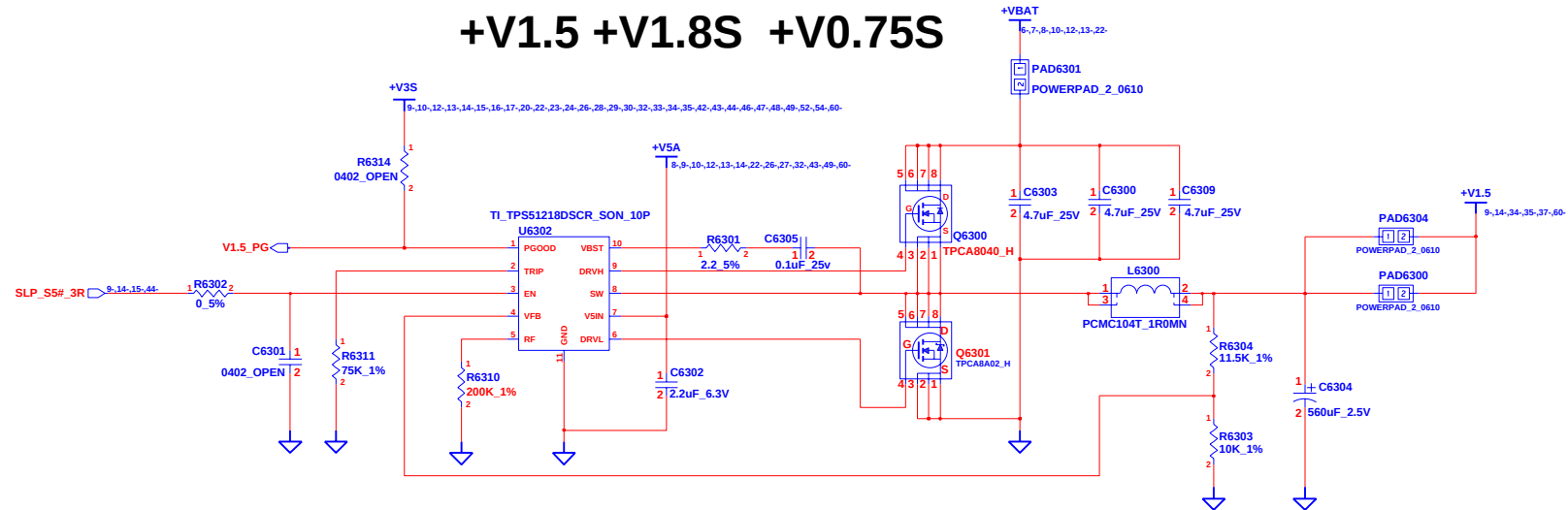
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SIZE A3	CODE CS	DOC. NUMBER 6050A23385-0-MTR	REV A
CHANGE by Loren		2-Nov-2009	
SHEET		5 OF 63	







+V1.5 +V1.8S +V0.75S



INVENTEC

TITLE
Bremen10G
+V1.5, +V1.8S, +V0.75S

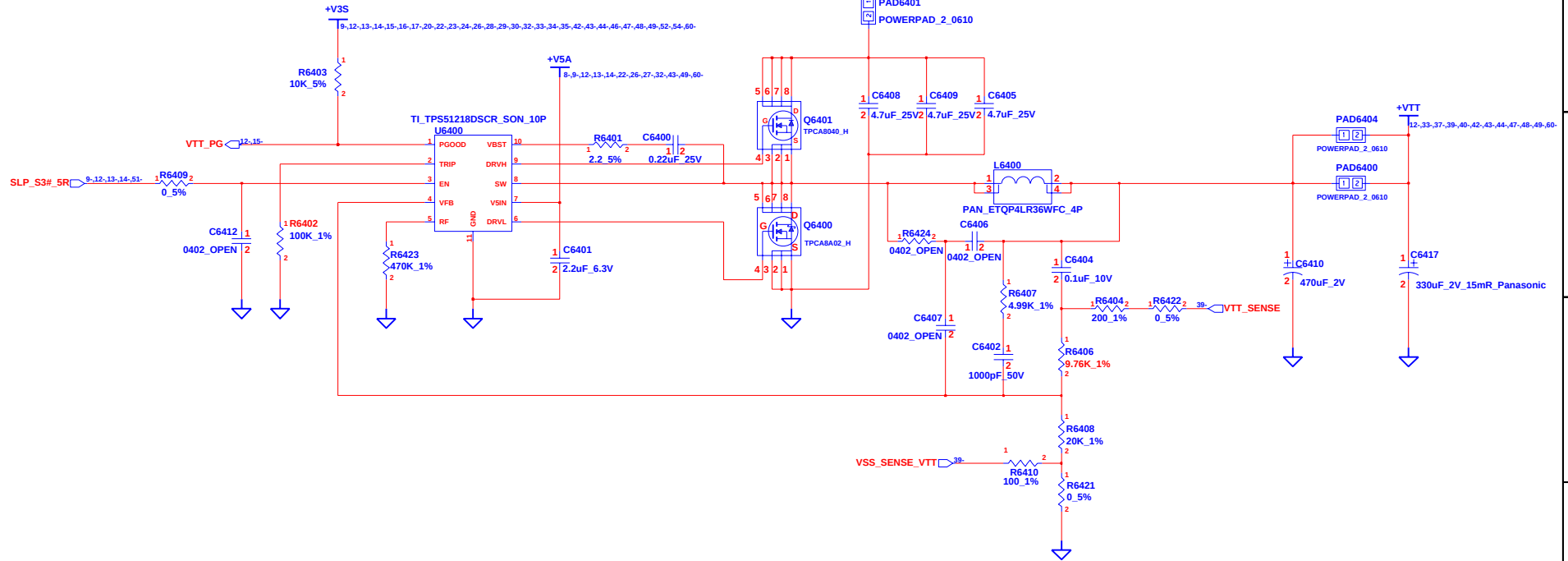
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A3	CS	6050A23385-0-MTR	A

CHANGE by **Loren**

7-Dec-2009

SHEET 9 OF 63

+VTT +V1.05S



INVENTEC

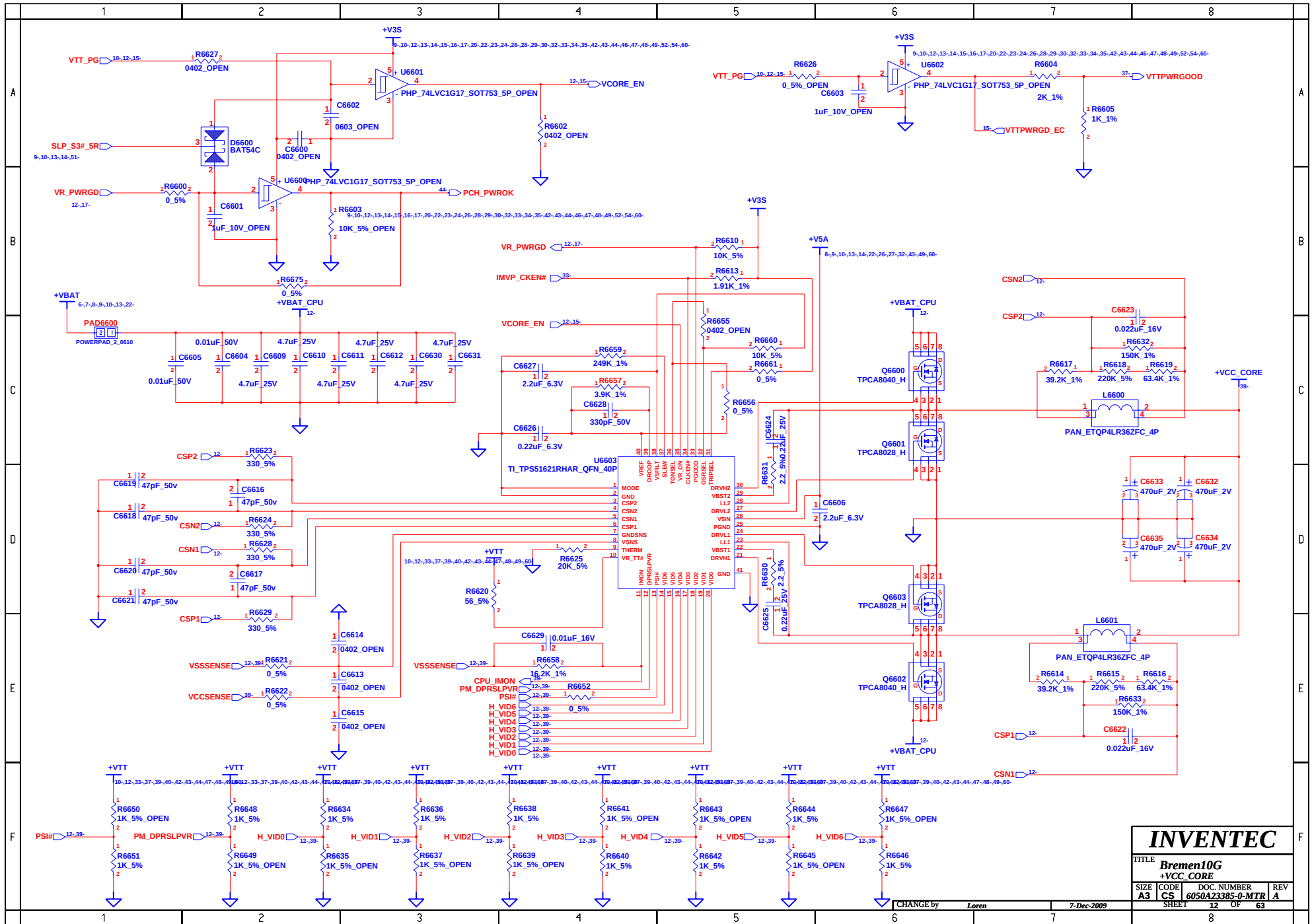
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+VTT, +V1.05S			
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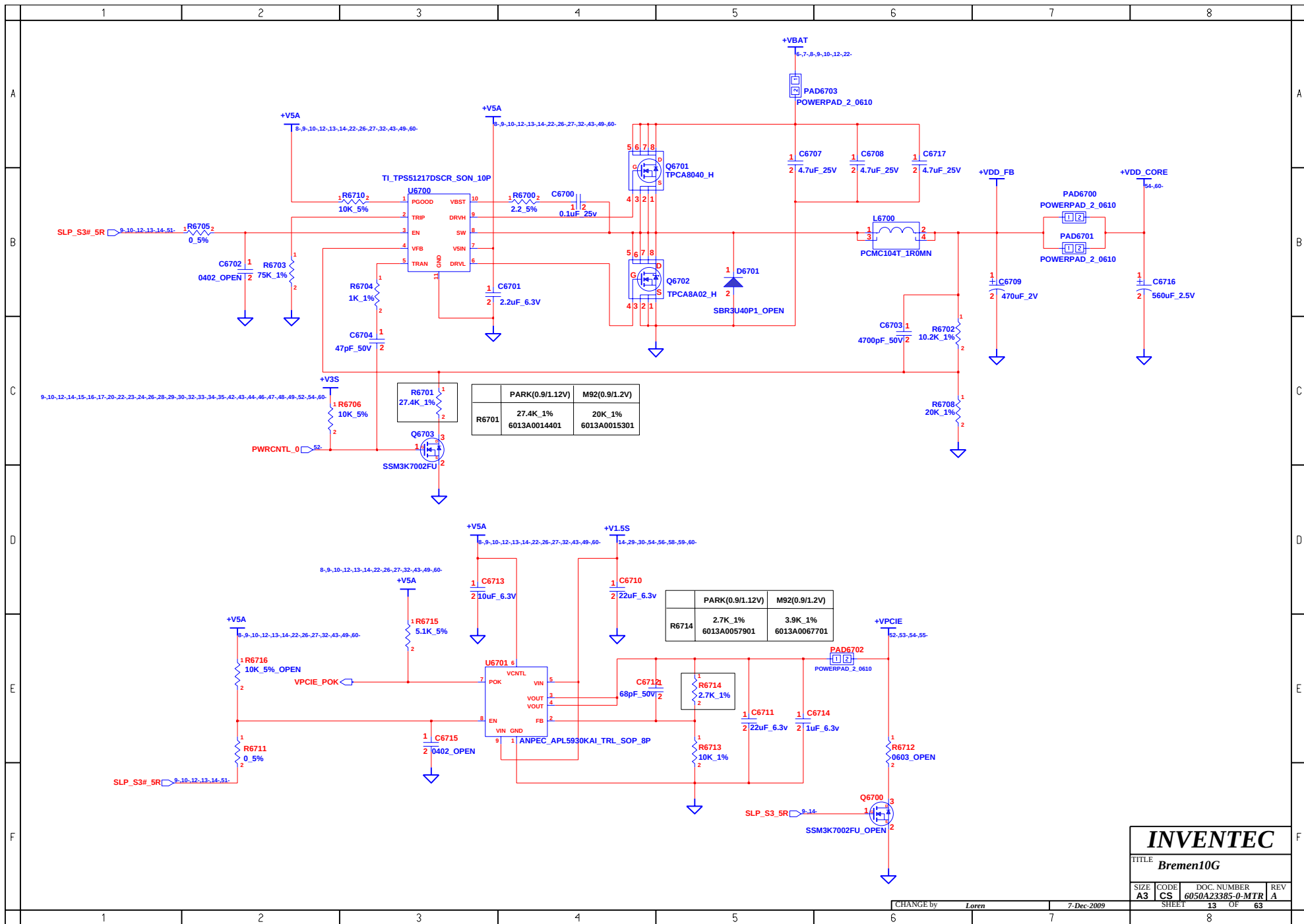
CHANGE by Loren 7-Dec-2009

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

INVENTEC			
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SIZE A3	CODE CS	DOC. NUMBER 6050A23385-0-MTR	REV A
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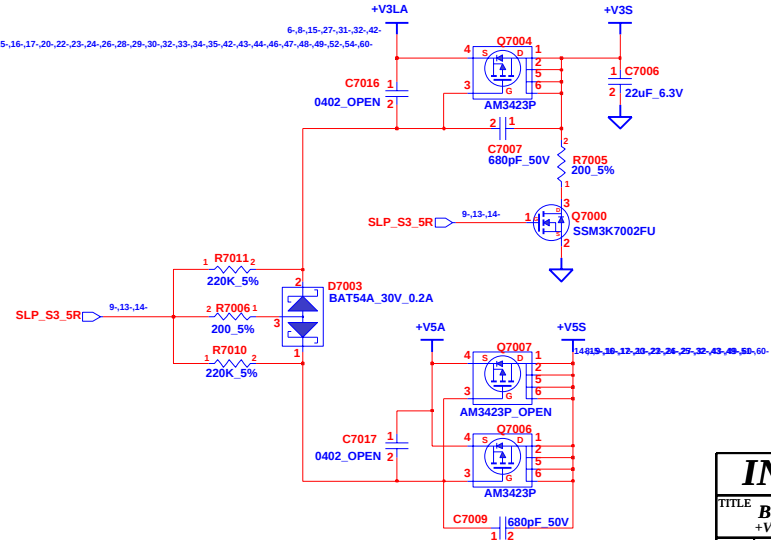
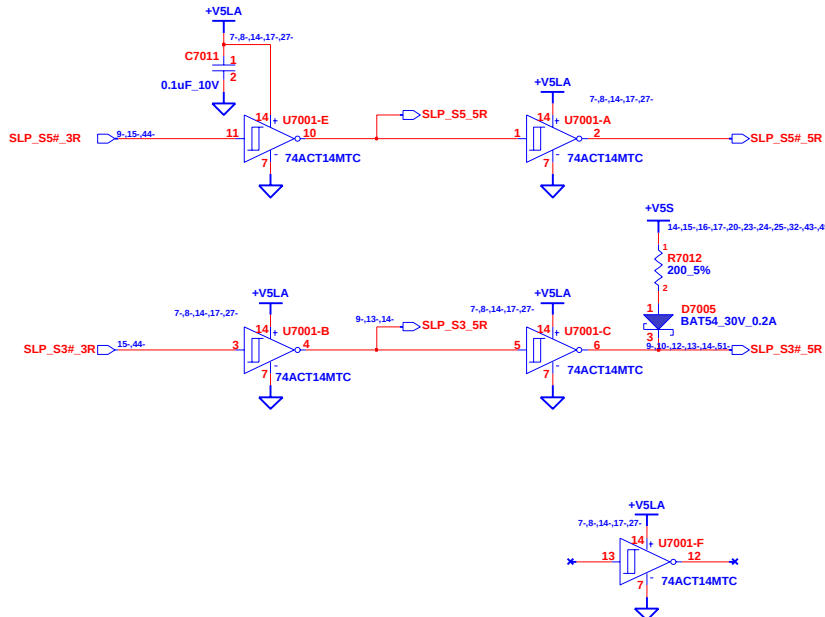
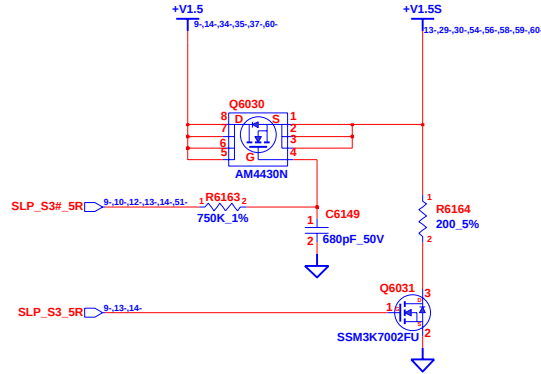
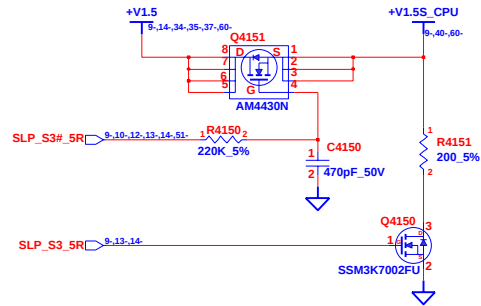
CHANGE by	Loren	2-Nov-2009
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+V5S +V3S +V1.5S +V1.5S_CPU

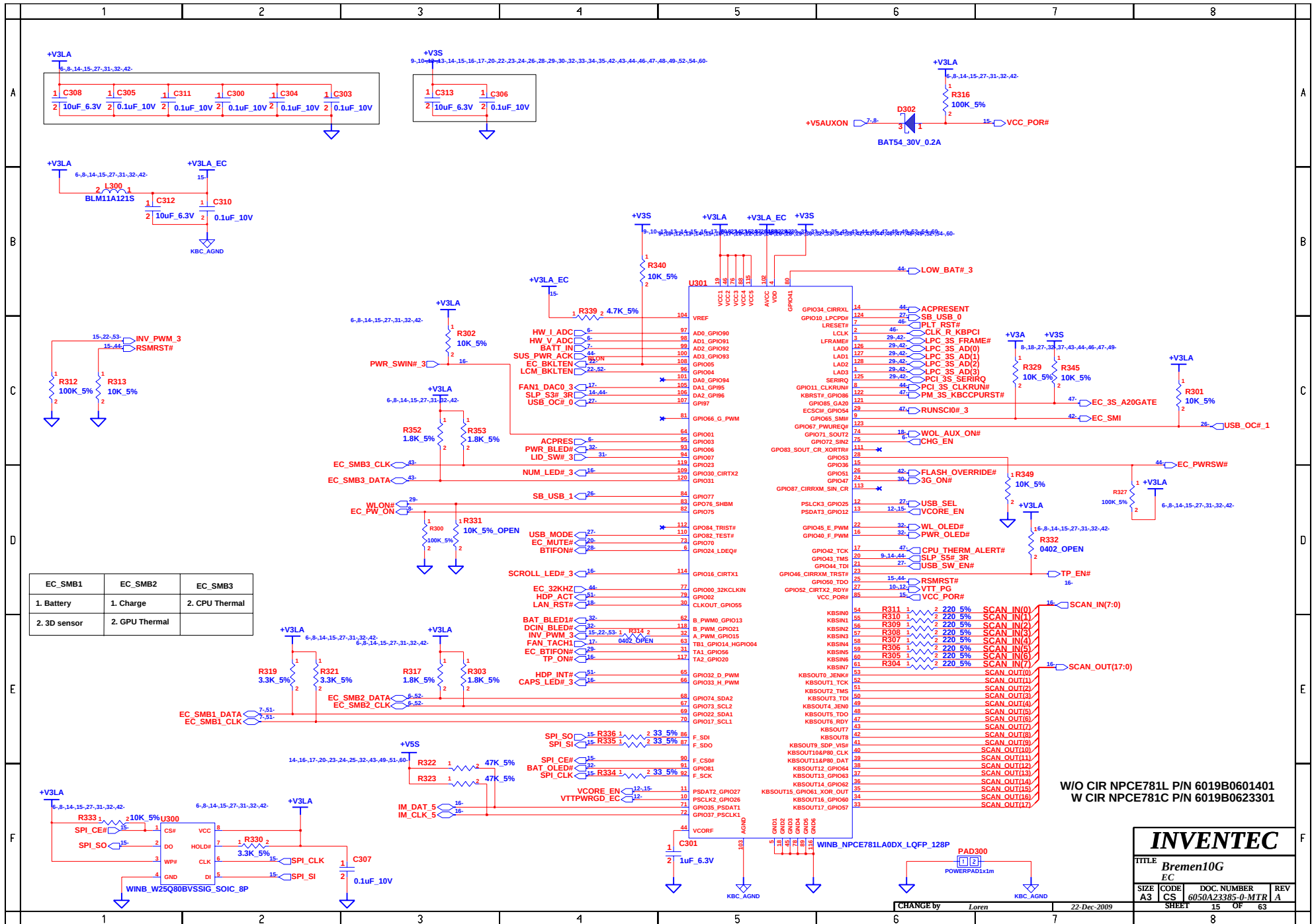
S3 POWER REDUCTION

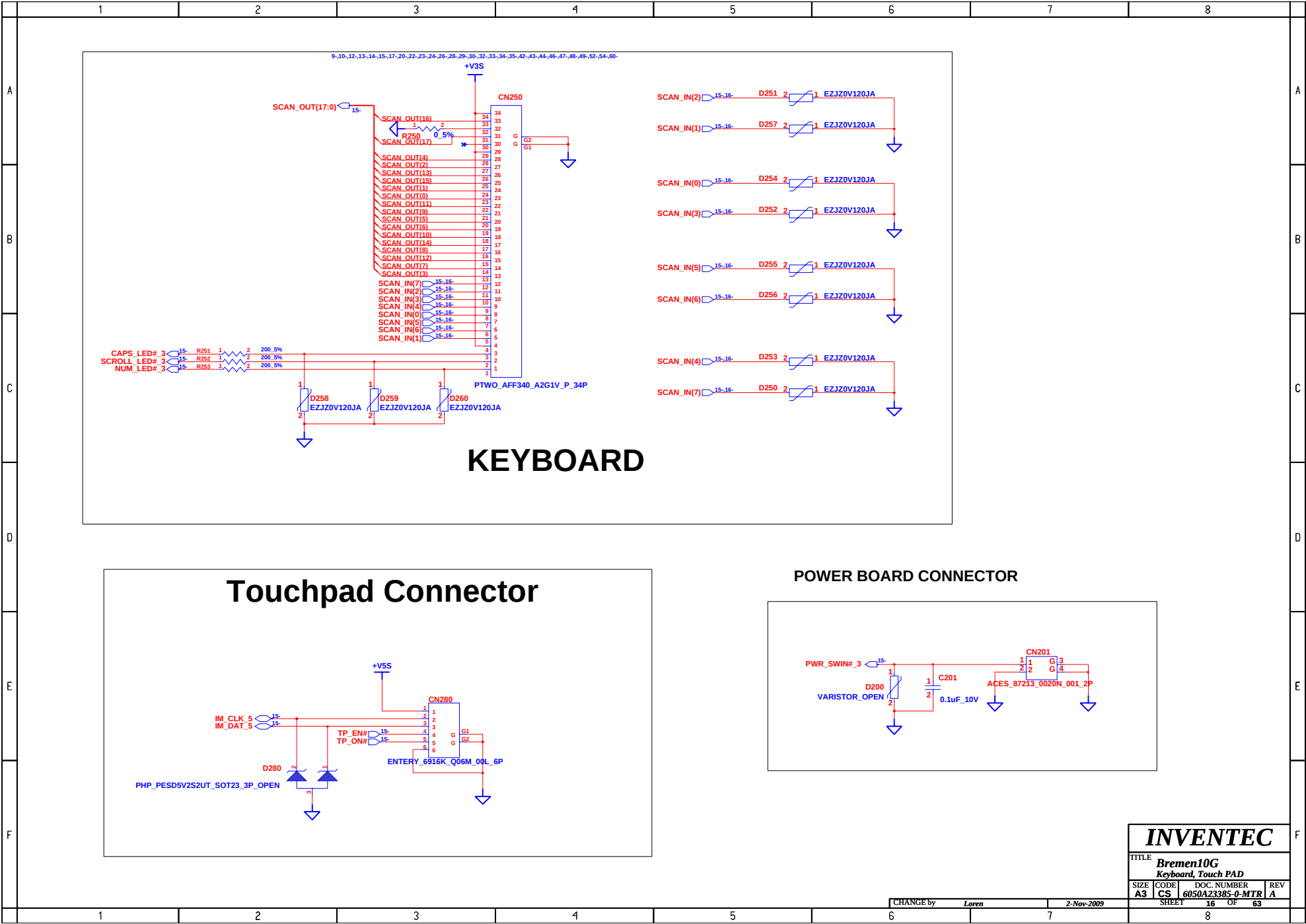


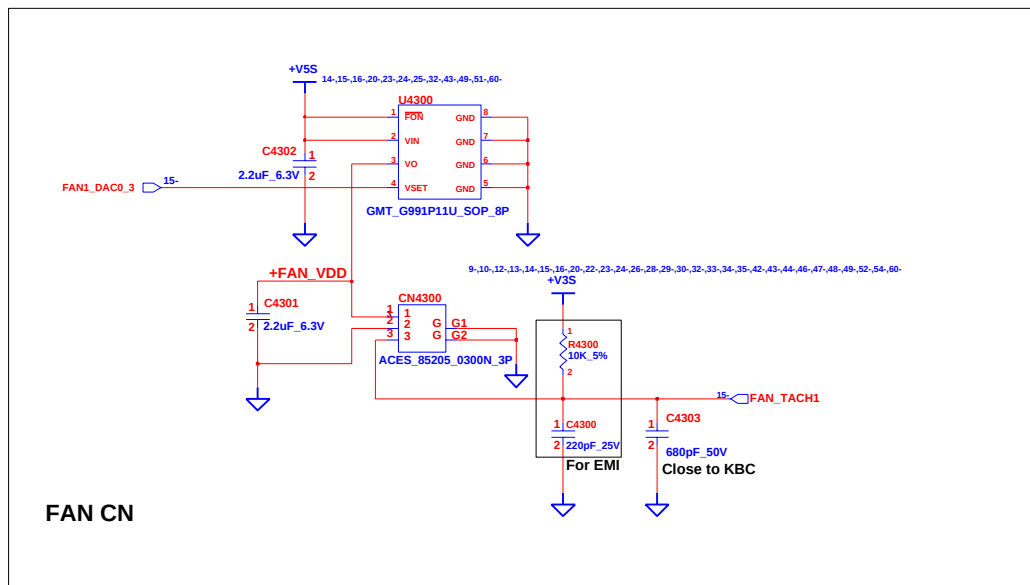
INVENTEC

TITLE			
Bremen10G			
+V5S +V3S +V1.5S			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	6050A23385-0-MTR	A
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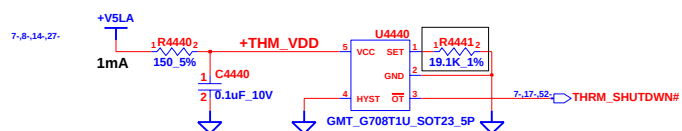
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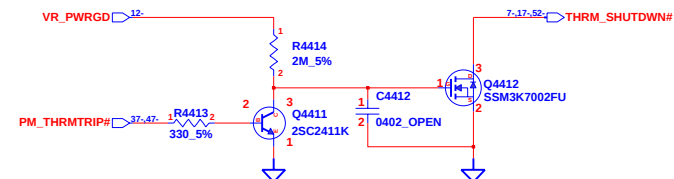
Board Thermal Sensor



Thermal shutdown at 94 C° +/- 3 C° from 60 C° to 100 C°

$$RSET = 0.0012 * T^2 - 0.9308 * T + 96.147$$

Hysteresis is 30C



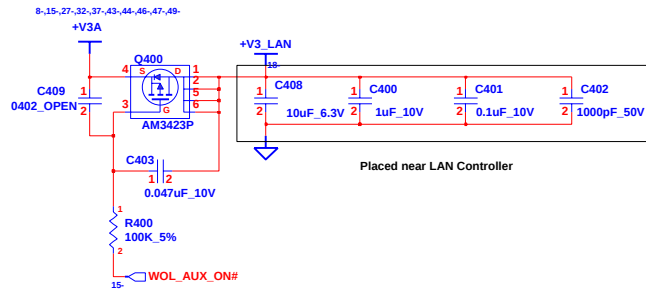
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TITLE
Bremen10G
FAN, Thermal controller

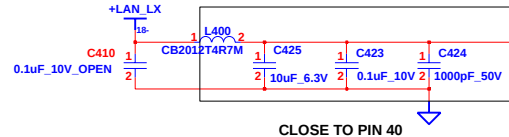
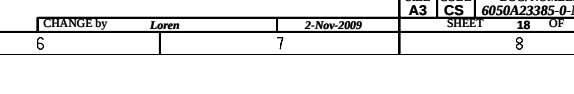
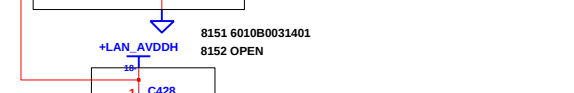
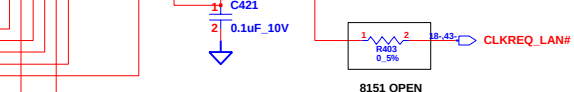
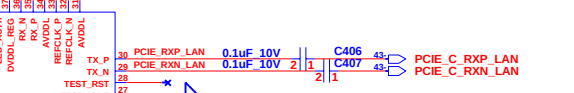
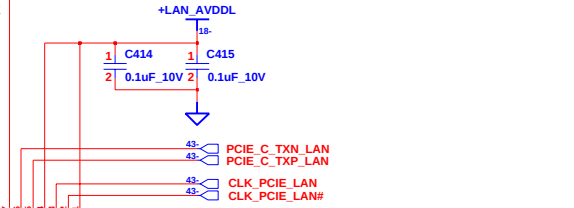
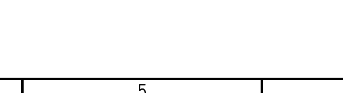
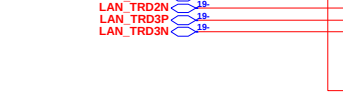
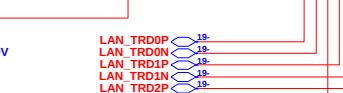
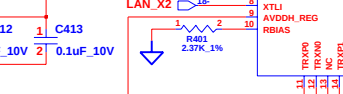
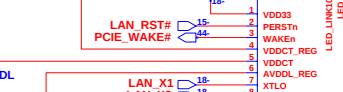
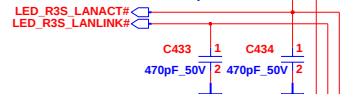
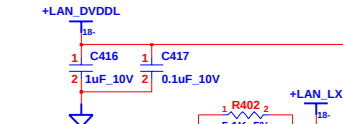
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A3	CS	6050A23385-0-MTR	A

CHANGE by *Loren* 2-Nov-2009

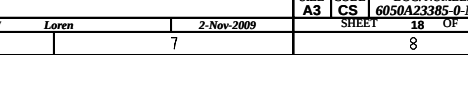
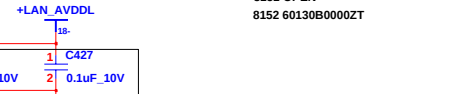
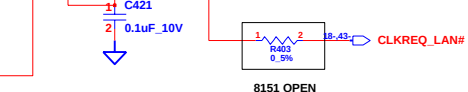
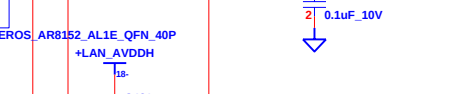
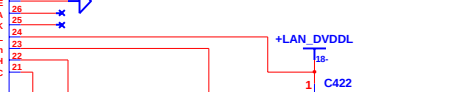
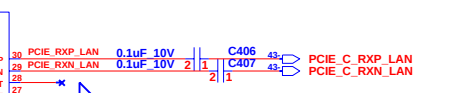
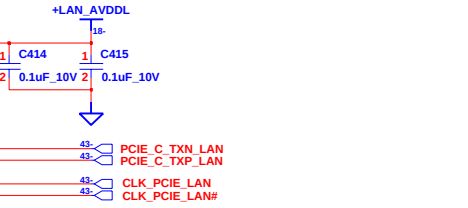
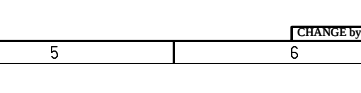
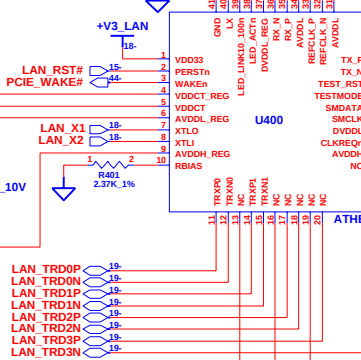
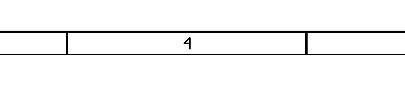
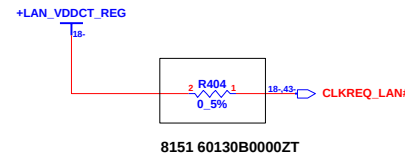
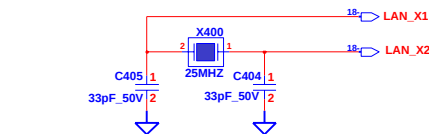
SHEET 17 OF 63



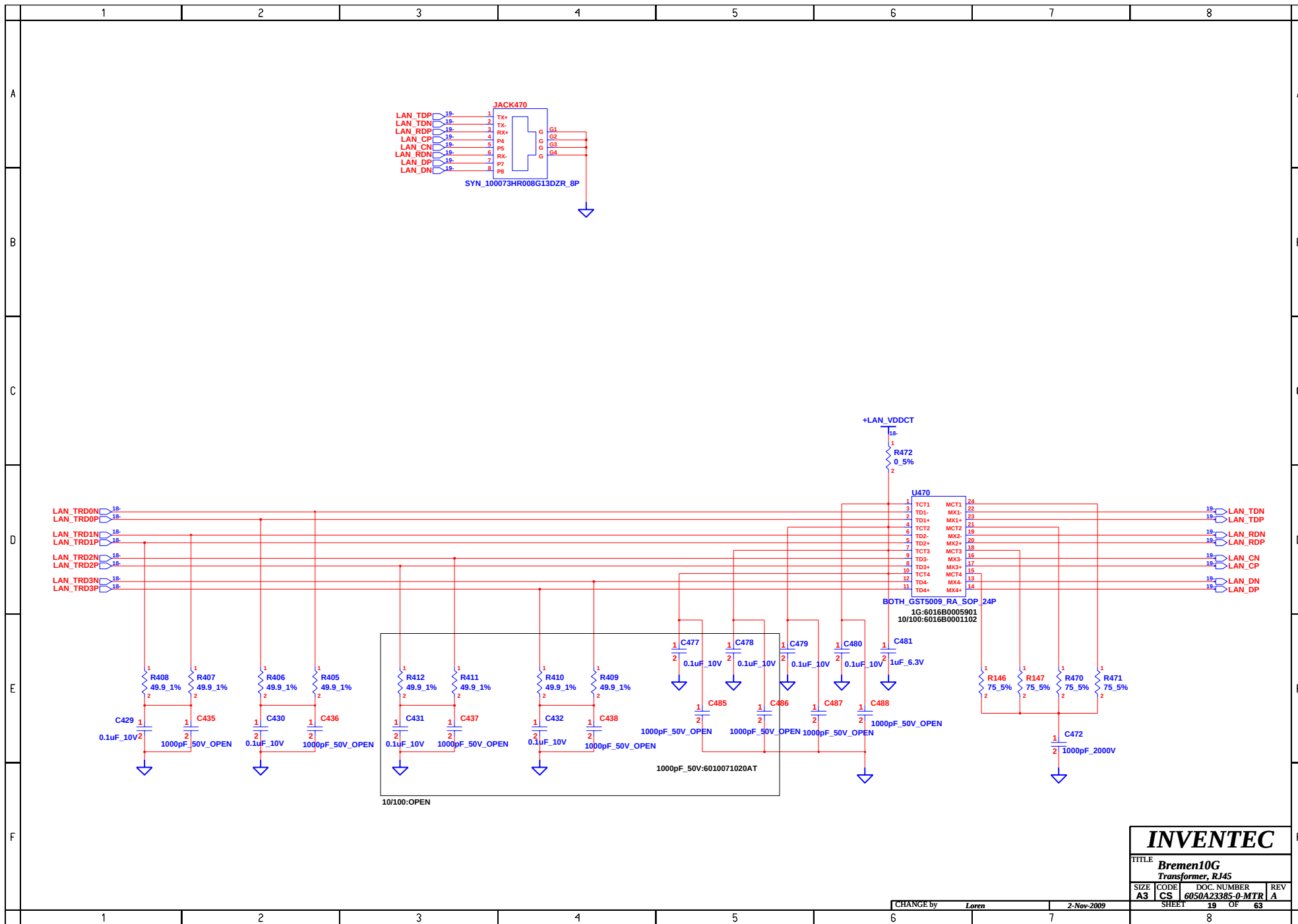
Placed near LAN Controller



CLOSE TO PIN 40



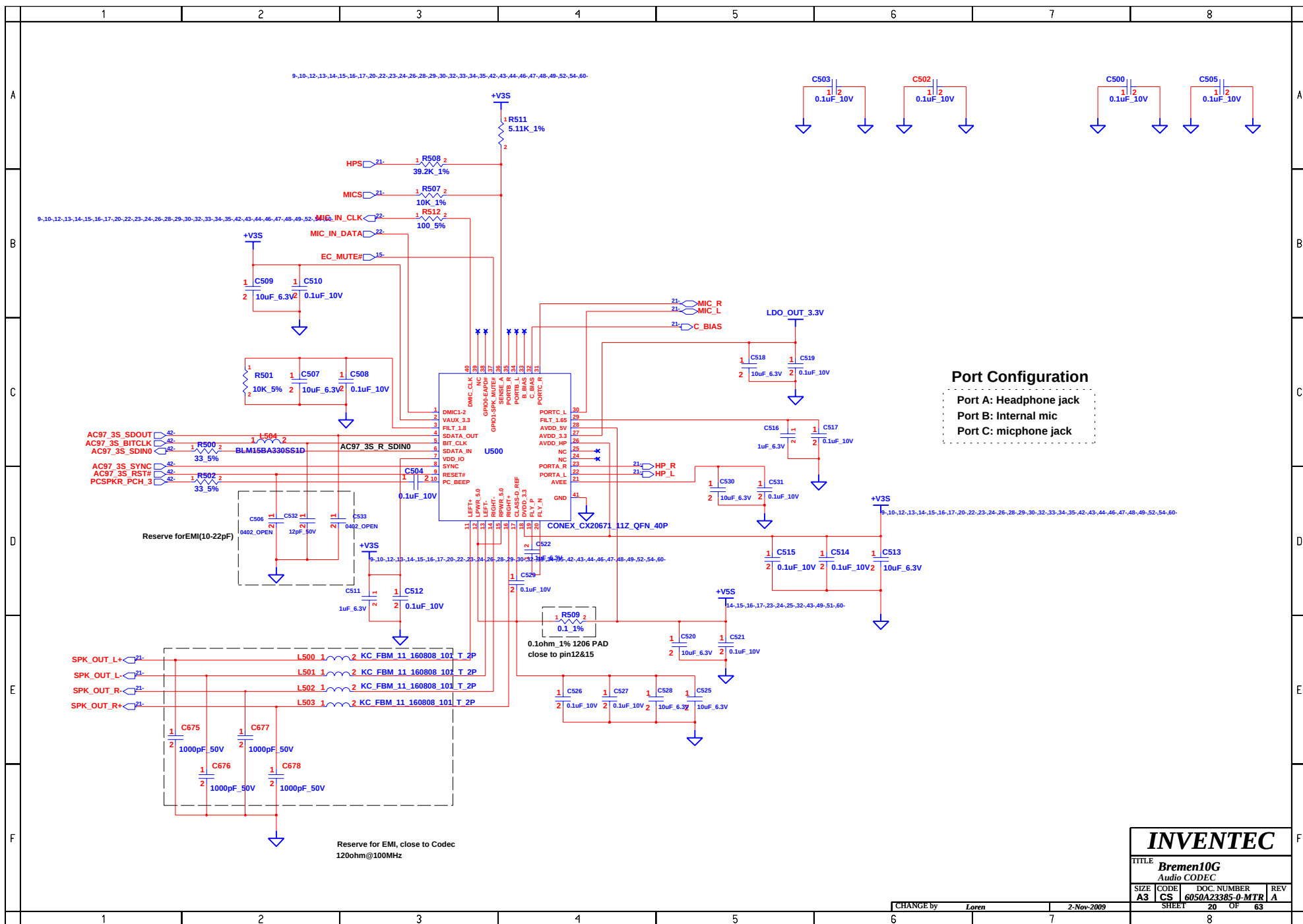
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Bremen10G				
LAN				
SIZE	CODE	DOC. NUMBER	REV	
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CHANGE by		Loren	2-Nov-2009	
SHEET		18	OF 63	



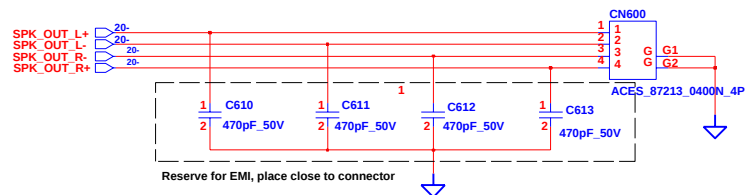
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TITLE			
Bremen10G Transformer, RJ45			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	6050A23385-0-MTR	A
SHEET		19	OF 63

CHANGE by Loren 2-Nov-2009

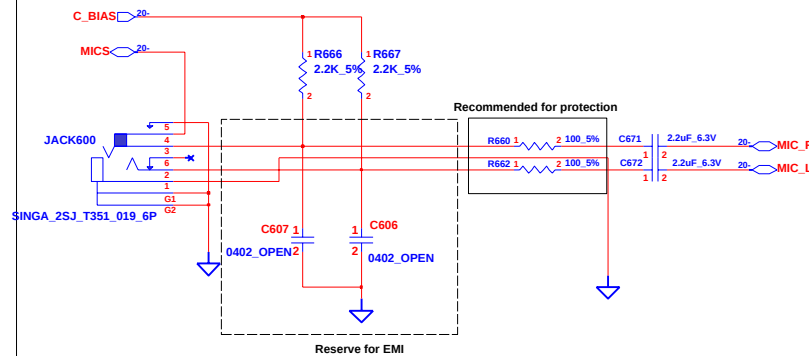


INTERNAL SPEAKERS

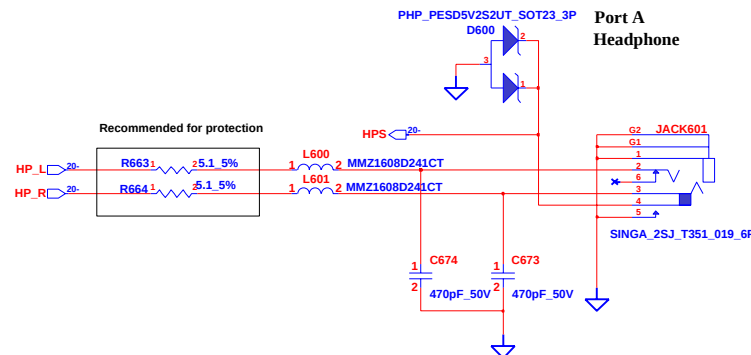


AUDIO JACKS

Port C
External microphone

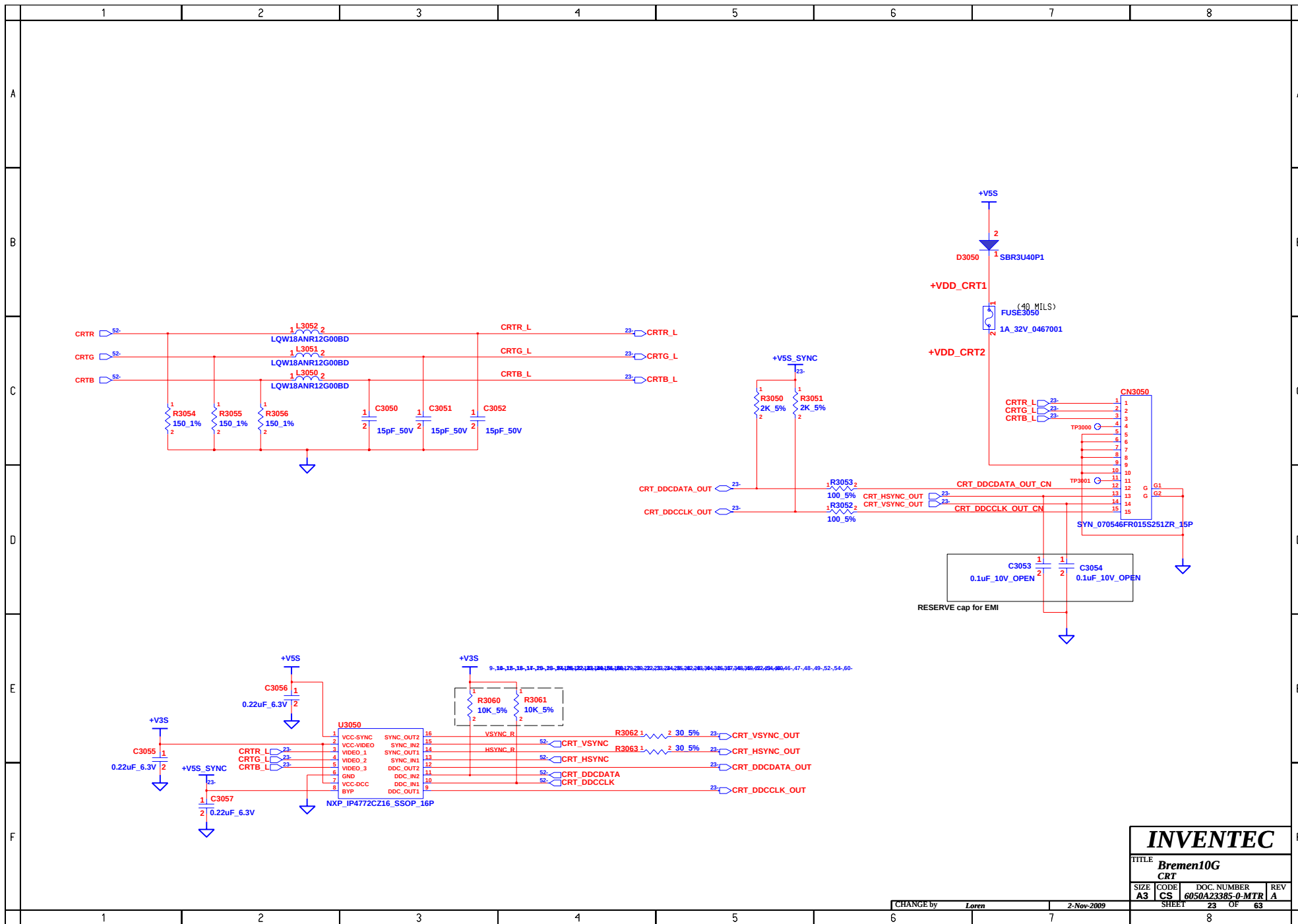


Port A
Headphone



INVENTEC

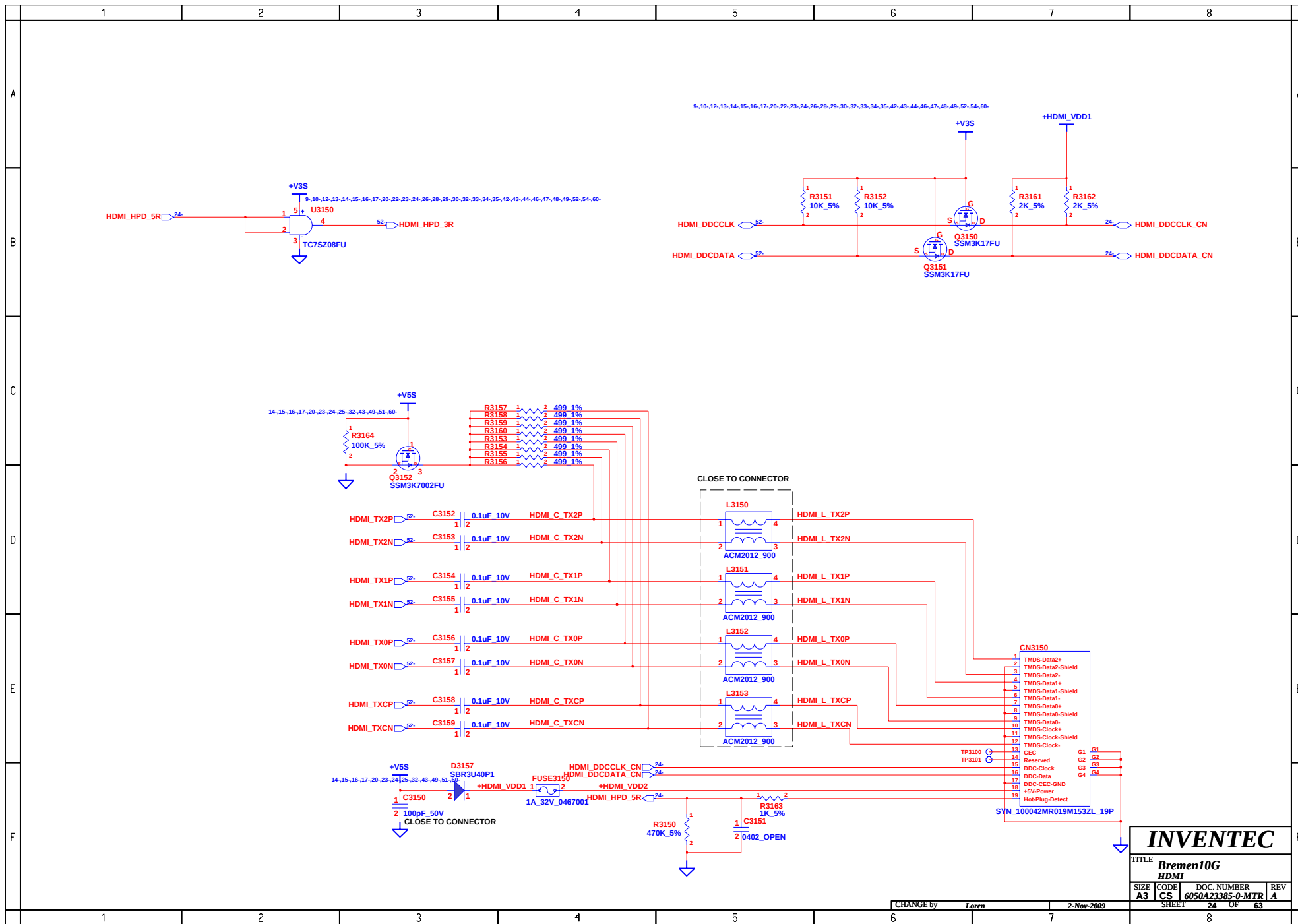
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SIZE A3	CODE CS	DOC. NUMBER 6050A23385-0-MTR	REV A
CHANGE by Loren		2-Nov-2009	
SHEET 21		OF 63	



INVENTEC

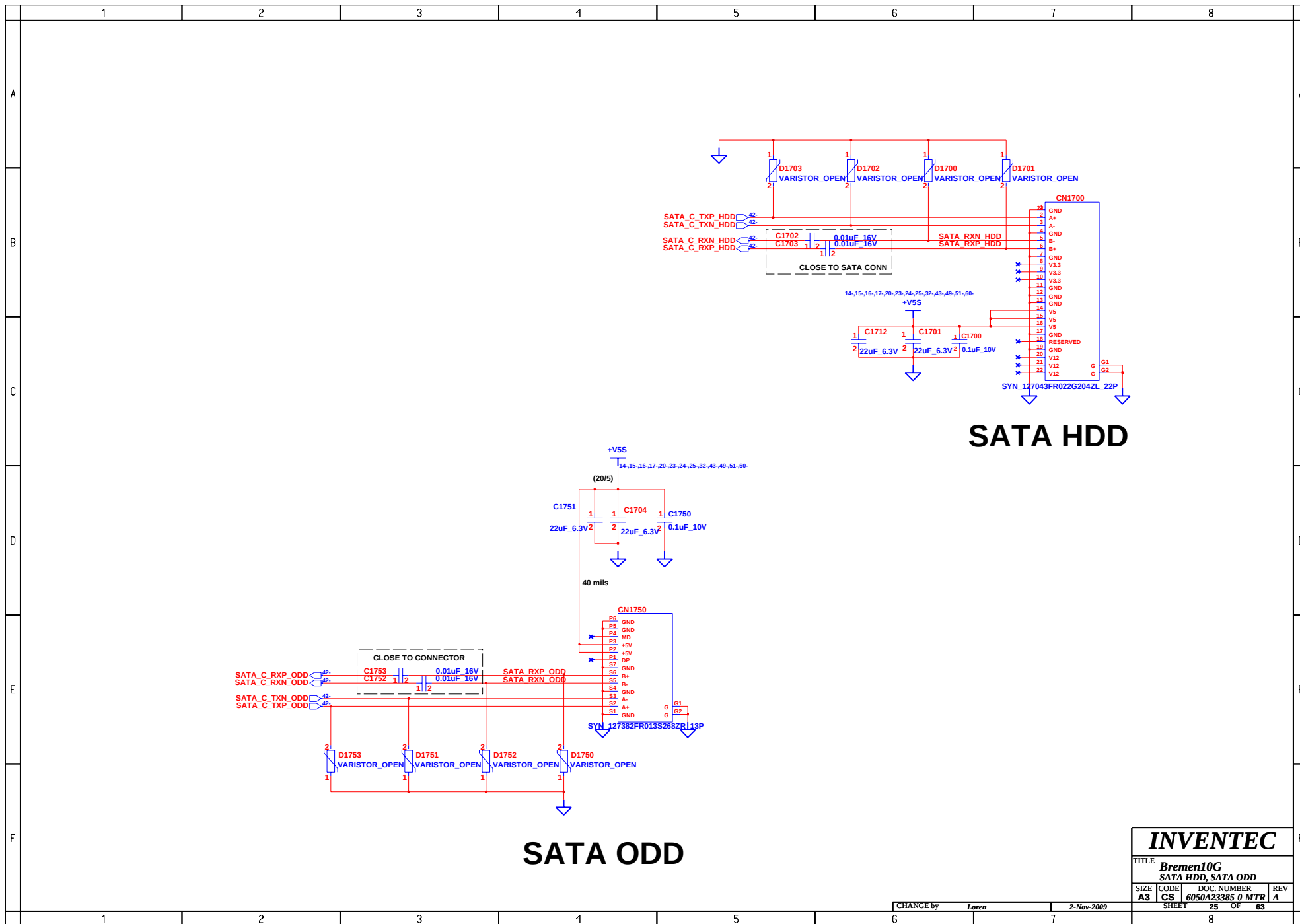
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CHANGE by Loren 2-Nov-2009



INVENTEC			
TITLE Bremen10G HDMI			
SIZE A3	CODE CS	DOC. NUMBER 6050A23385-0-MTR	REV A
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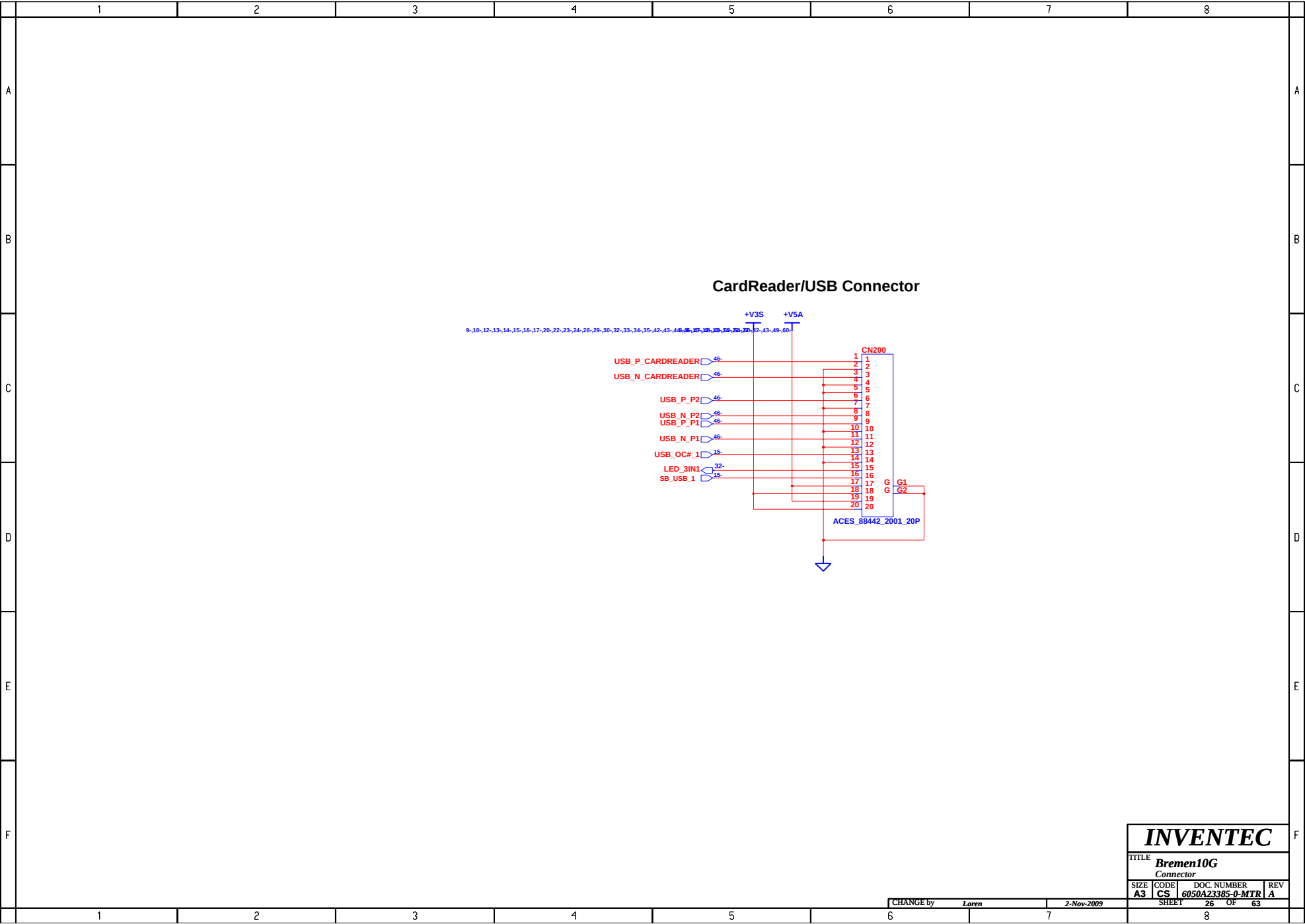
CHANGE by Loren 2-Nov-2009



INVENTEC

TITLE			
Bremen10G			
SATA HDD, SATA ODD			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	6050A23385-0-MTR	A
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CHANGE by Loren 2-Nov-2009



INVENTEC

TITLE
Bremen10G
Connector

SIZE A3	CODE CS	DOC. NUMBER 6050A23385-0-MTR	REV A
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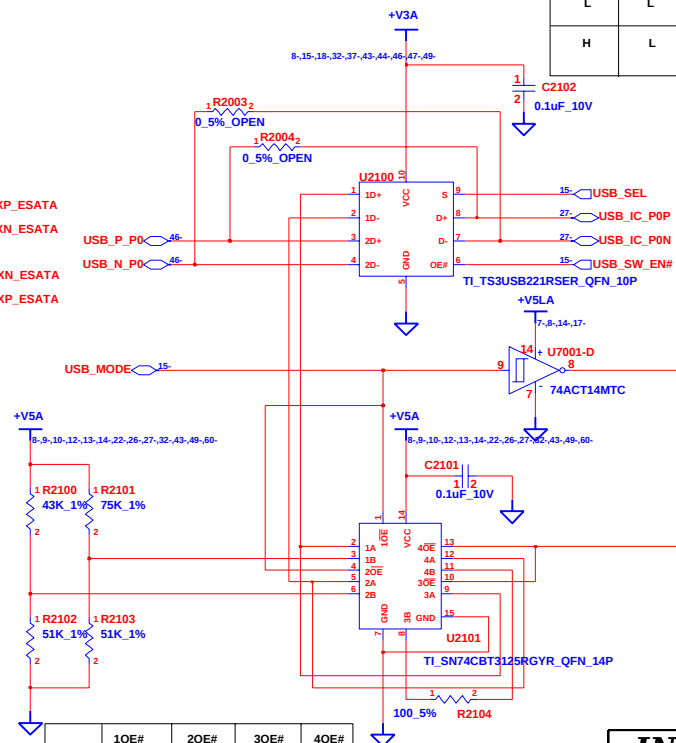
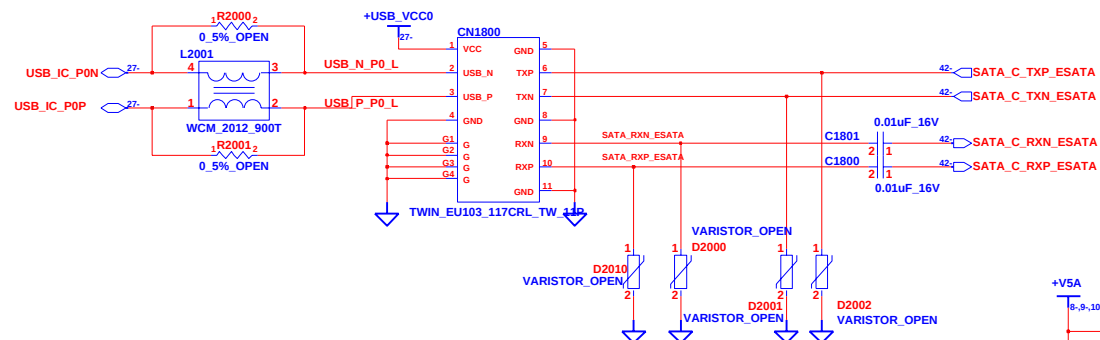
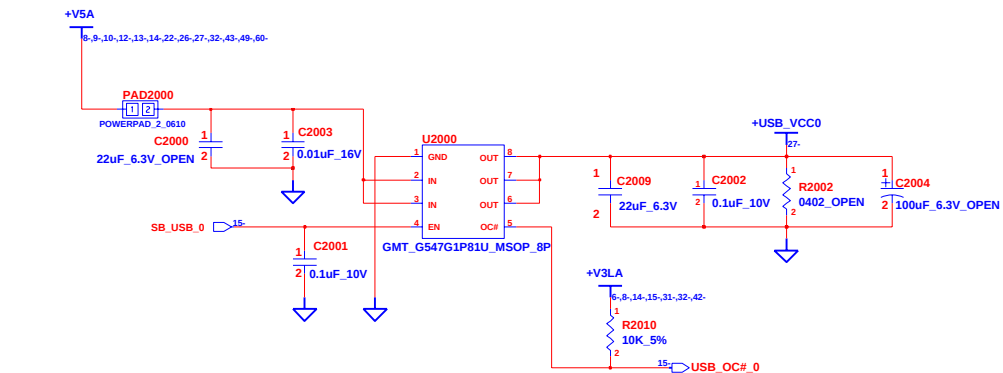
CHANGE by *Loren* 2-Nov-2009

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USB/eSATA COMBO

EN	D0	D1	FUNCTION
0	X	X	STANDBY
1	0	0	DEFAULT
1	1	0	CH0->5DB
1	0	1	CH1->5DB
1	1	1	CH0,1->5DB

S	OE#	Function
X	H	Disconnect
L	L	D=1D
H	L	D=2D



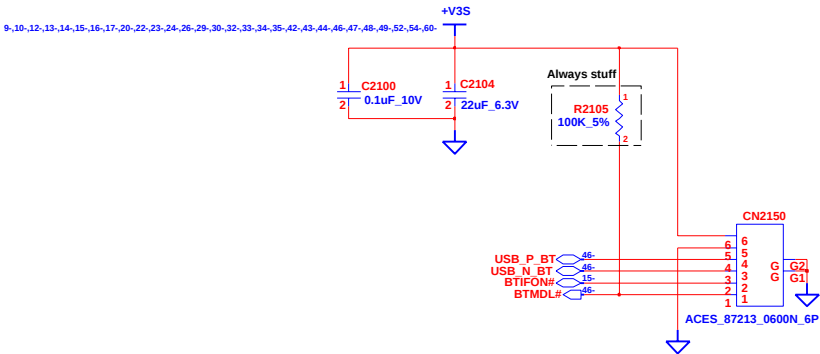
	1OE#	2OE#	3OE#	4OE#
Mode3	High	High	Low	Low
Mode4	Low	Low	High	High

INVENTEC

TITLE			
Bremen10G			
USB/eSATA combo			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	6050A23385-0-MTR	A
SHEET		27	OF 63

CHANGE by Loren 2-Nov-2009

BLUEBOOTH



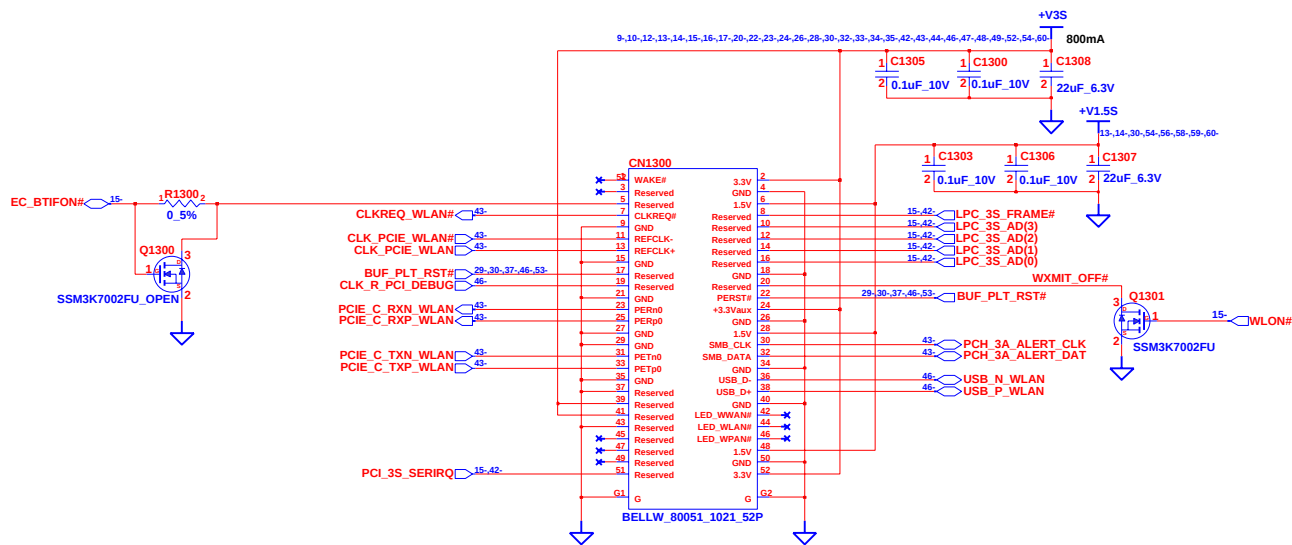
INVENTEC

TITLE
Bremen10G
BlueTooth

SIZE A3	CODE CS	DOC. NUMBER 6050A23385-0-MTR	REV A
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CHANGE by *Loren* 2-Nov-2009

Wireless & Debug card



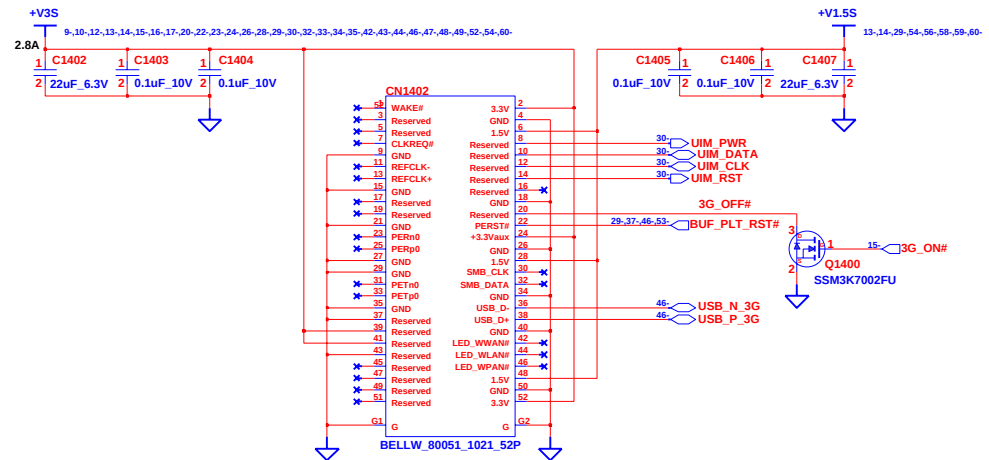
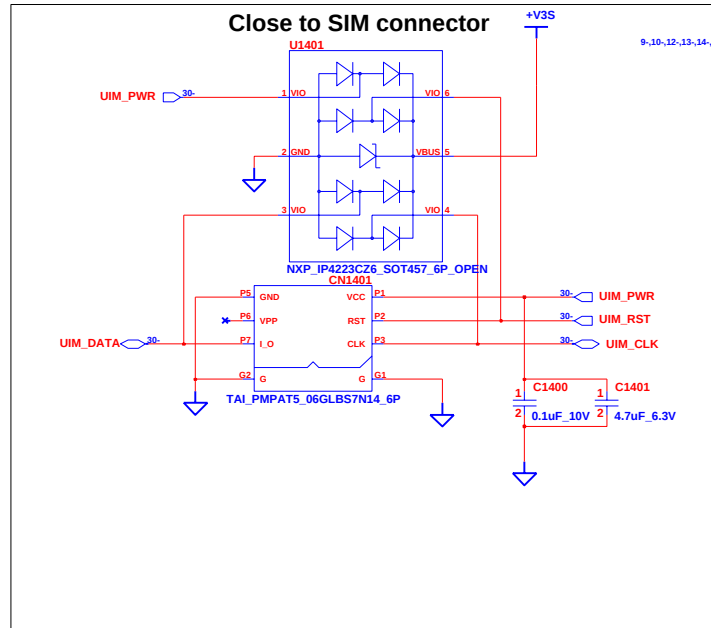
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TITLE Bremen10G			
WLAN			
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CHANGE by **Loren** 2-Nov-2009

8

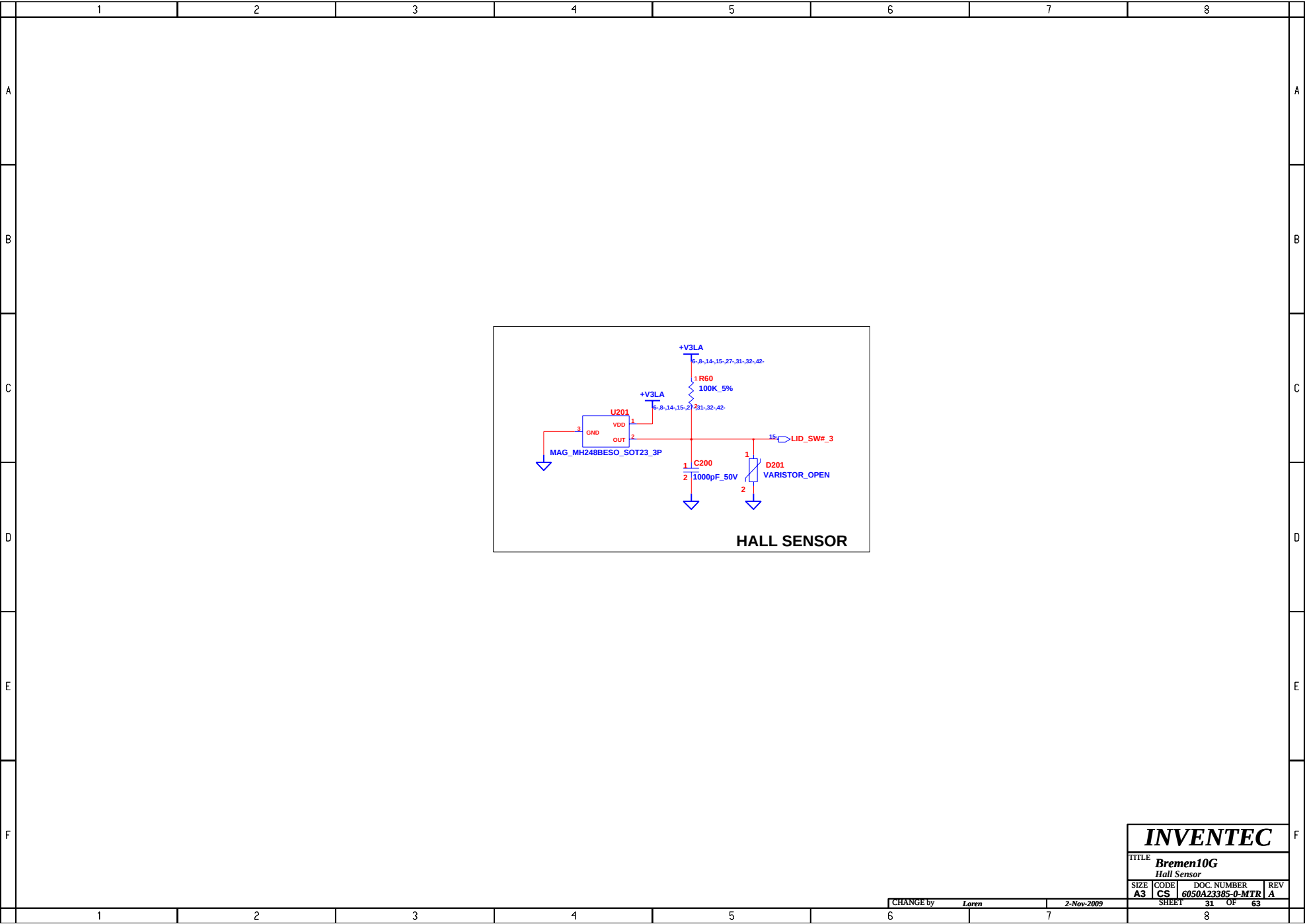
3G



INVENTEC

TITLE			
Bremen10G			
3G			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	6050A23385-0-MTR	A
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CHANGE by Loren 2-Nov-2009



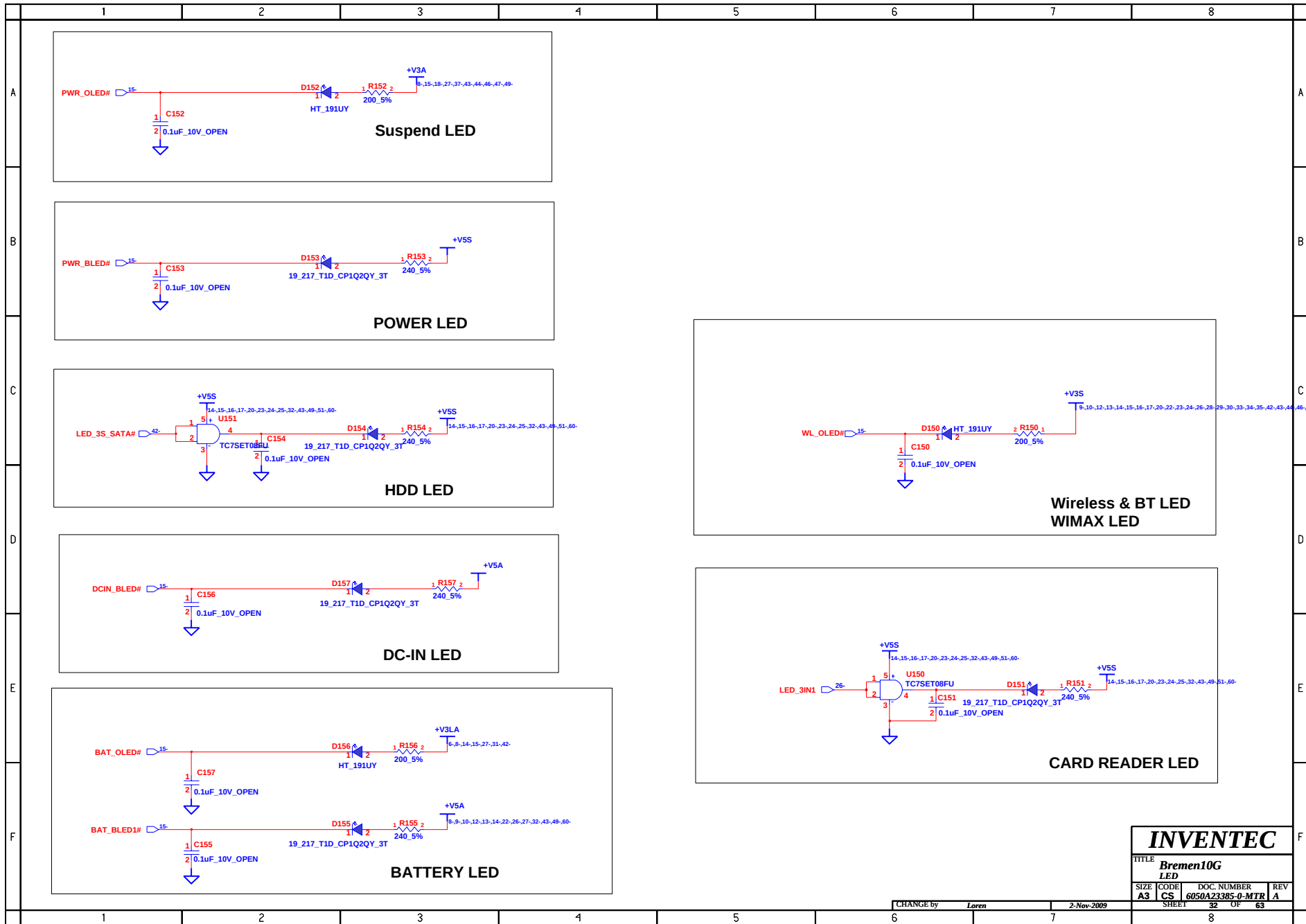
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TITLE
Bremen10G
Hall Sensor

SIZE CODE DOC. NUMBER REV

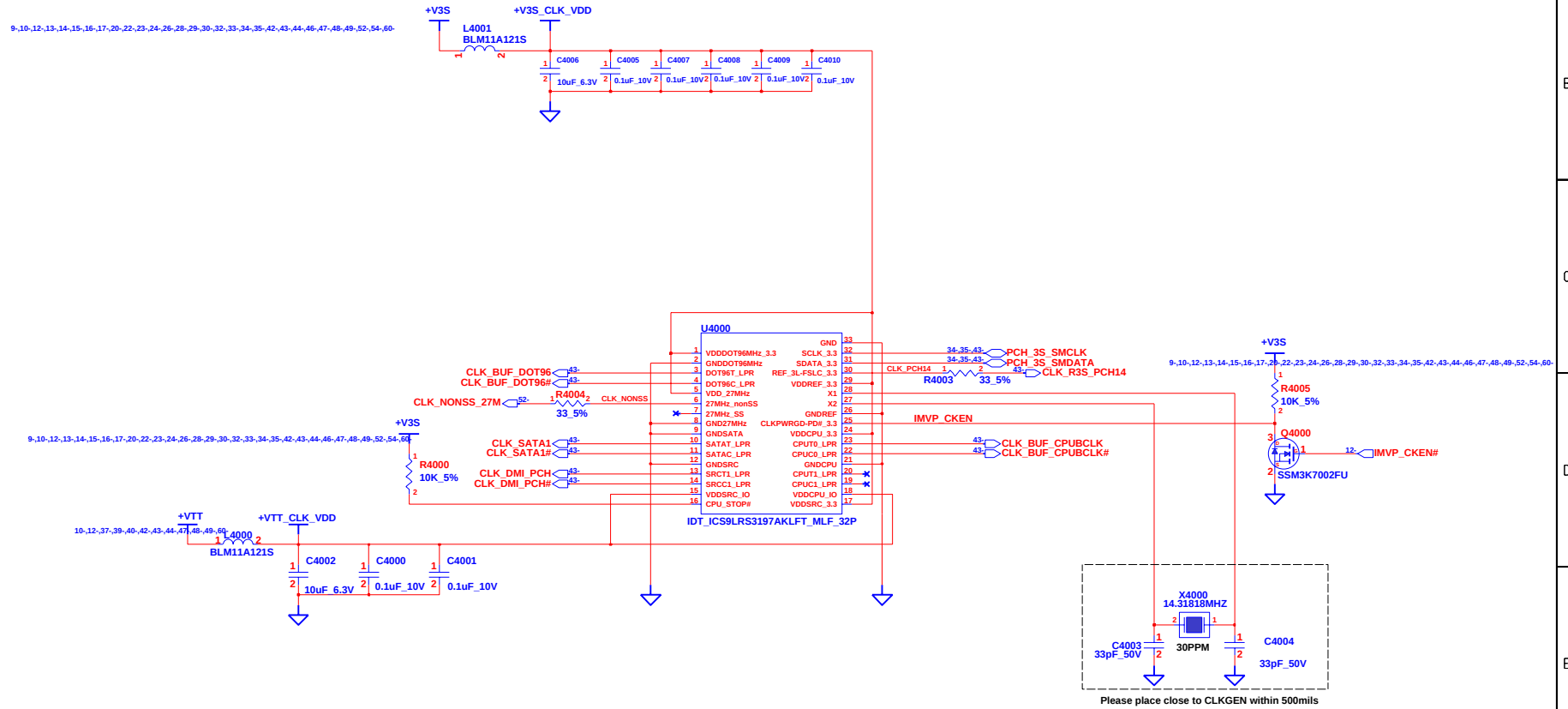
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SHEET 31 OF 63



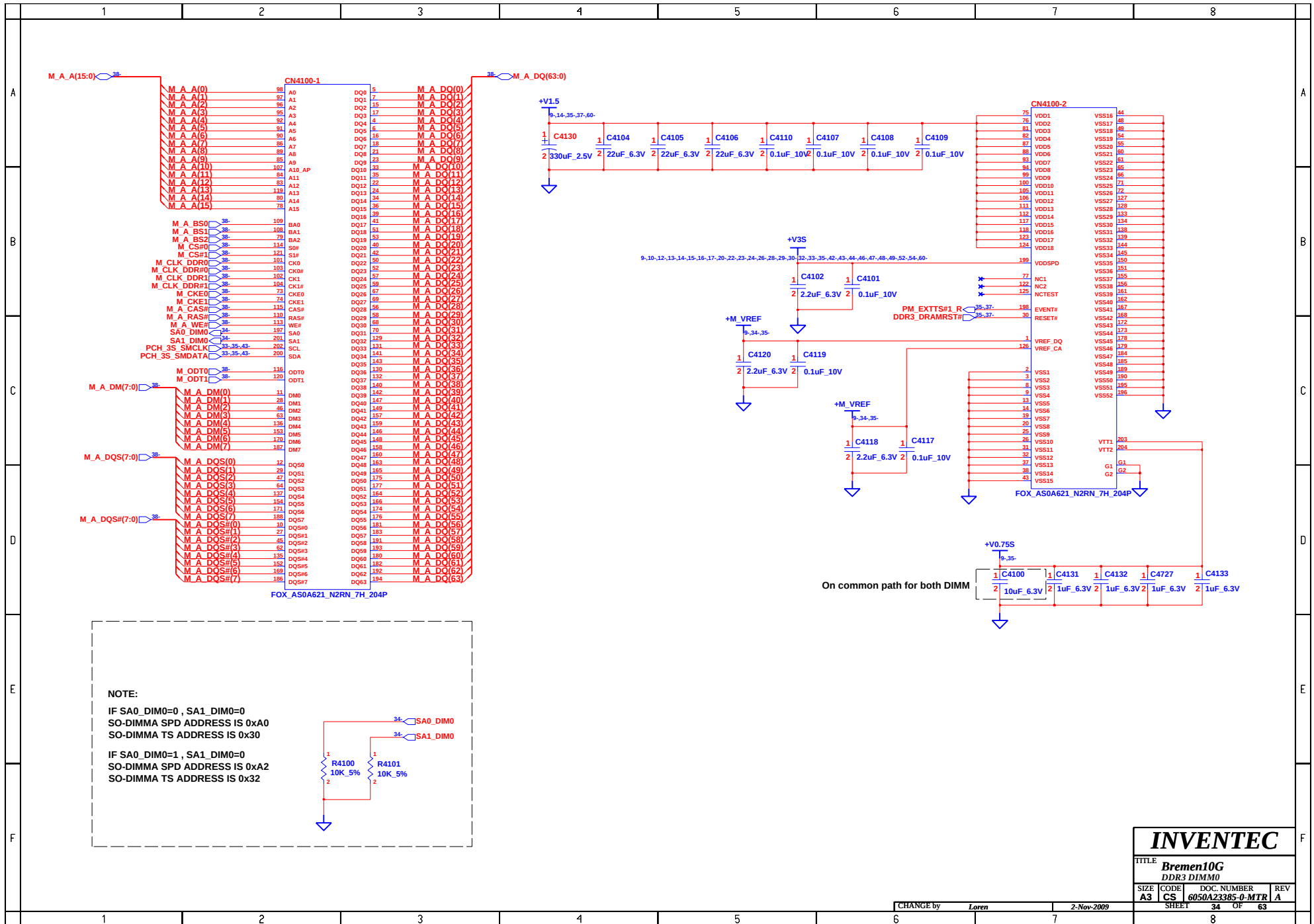
INVENTEC				
TITLE Bremen10G LED				
SIZE A3	CODE CS	DOC. NUMBER 6050A23385-0-MTR	REV A	
SHEET 32		OF 63		

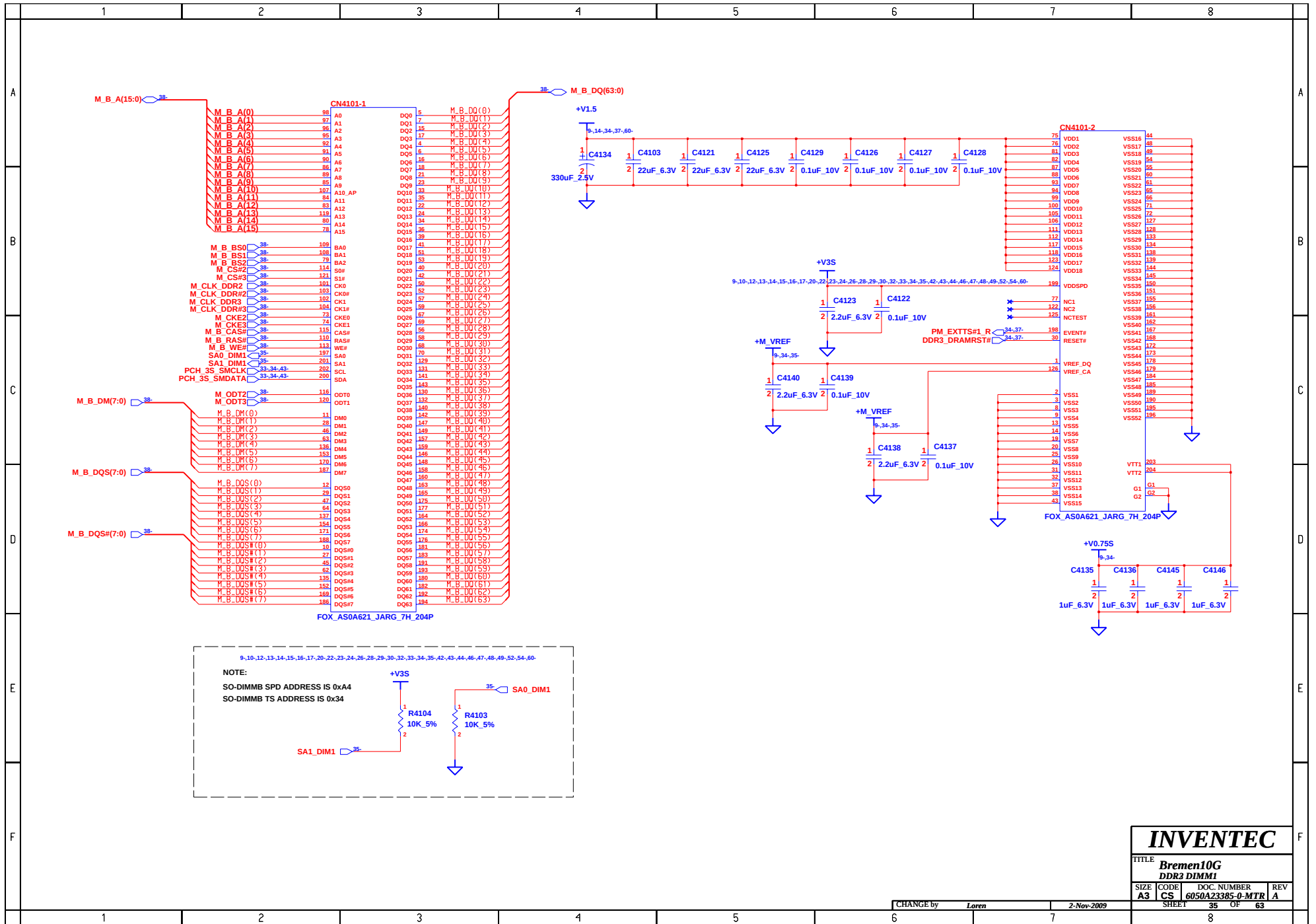
CHANGE by *Loren* 2-Nov-2009

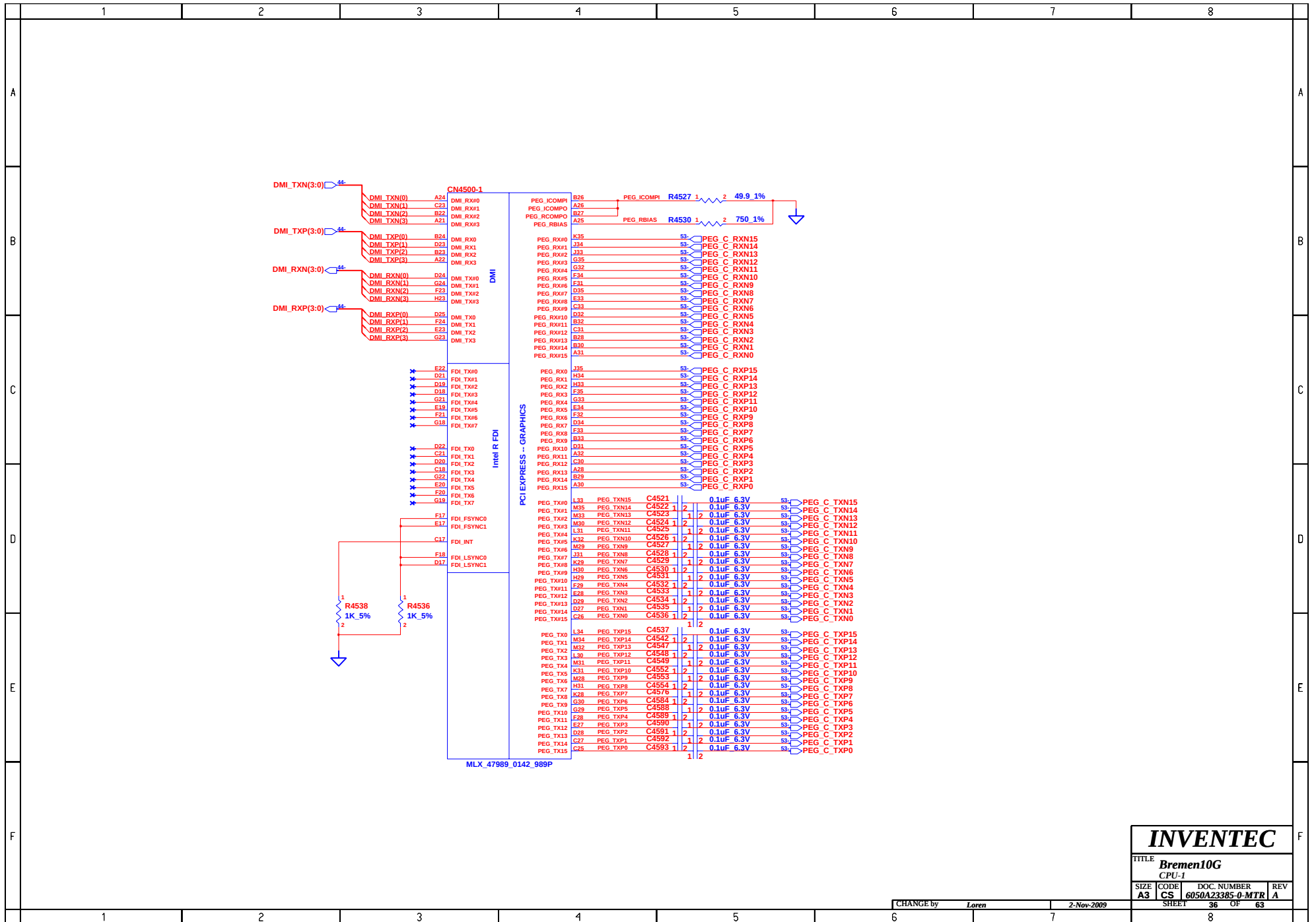


Please place close to CLKGEN within 500mils

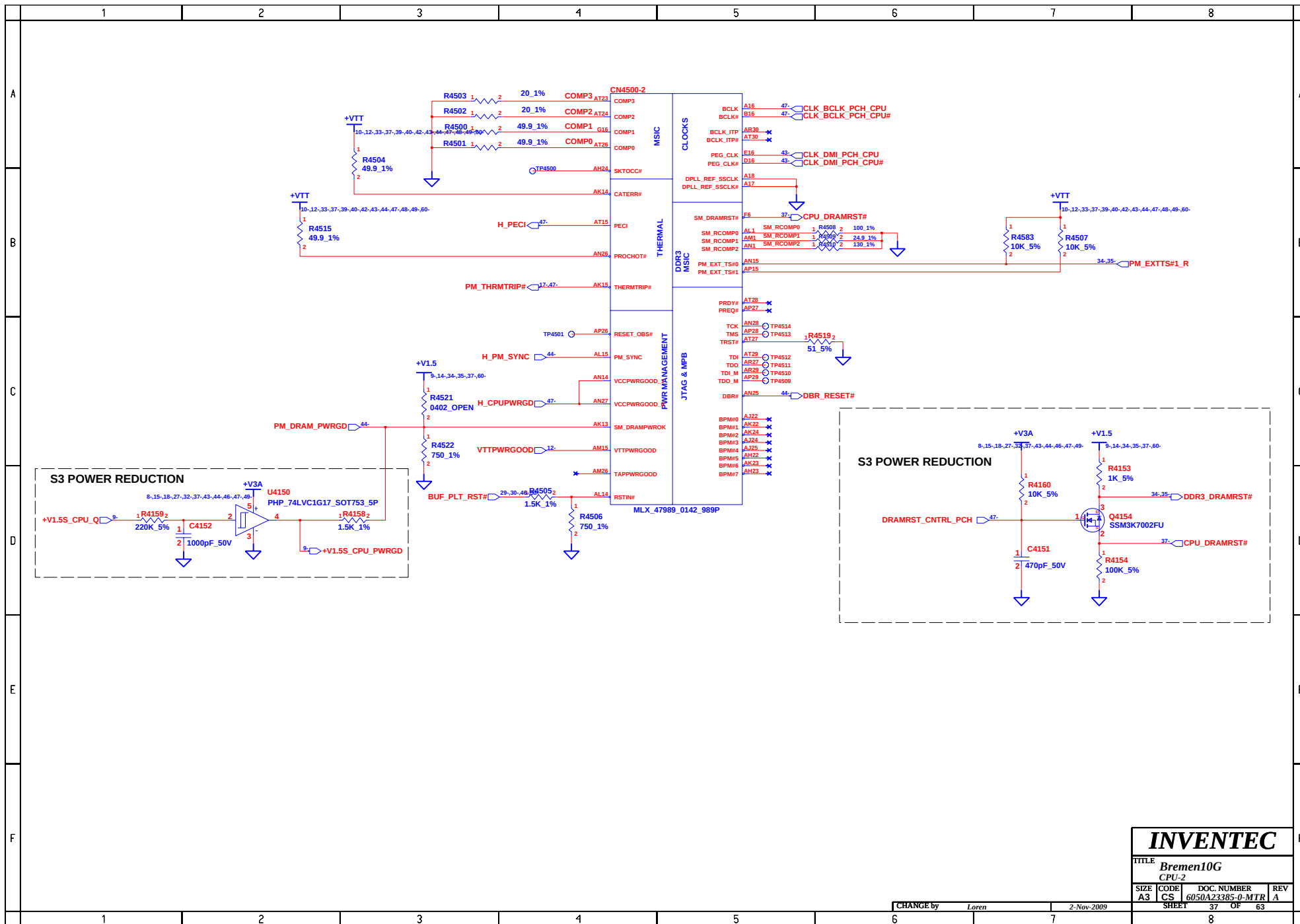
INVENTEC			
TITLE Bremen10G Clock Generator			
SIZE A3	CODE CS	DOC. NUMBER 6050A23385-0-MTR	REV A
CHANGE by Loren		2-Nov-2009	
SHEET 33		OF 63	

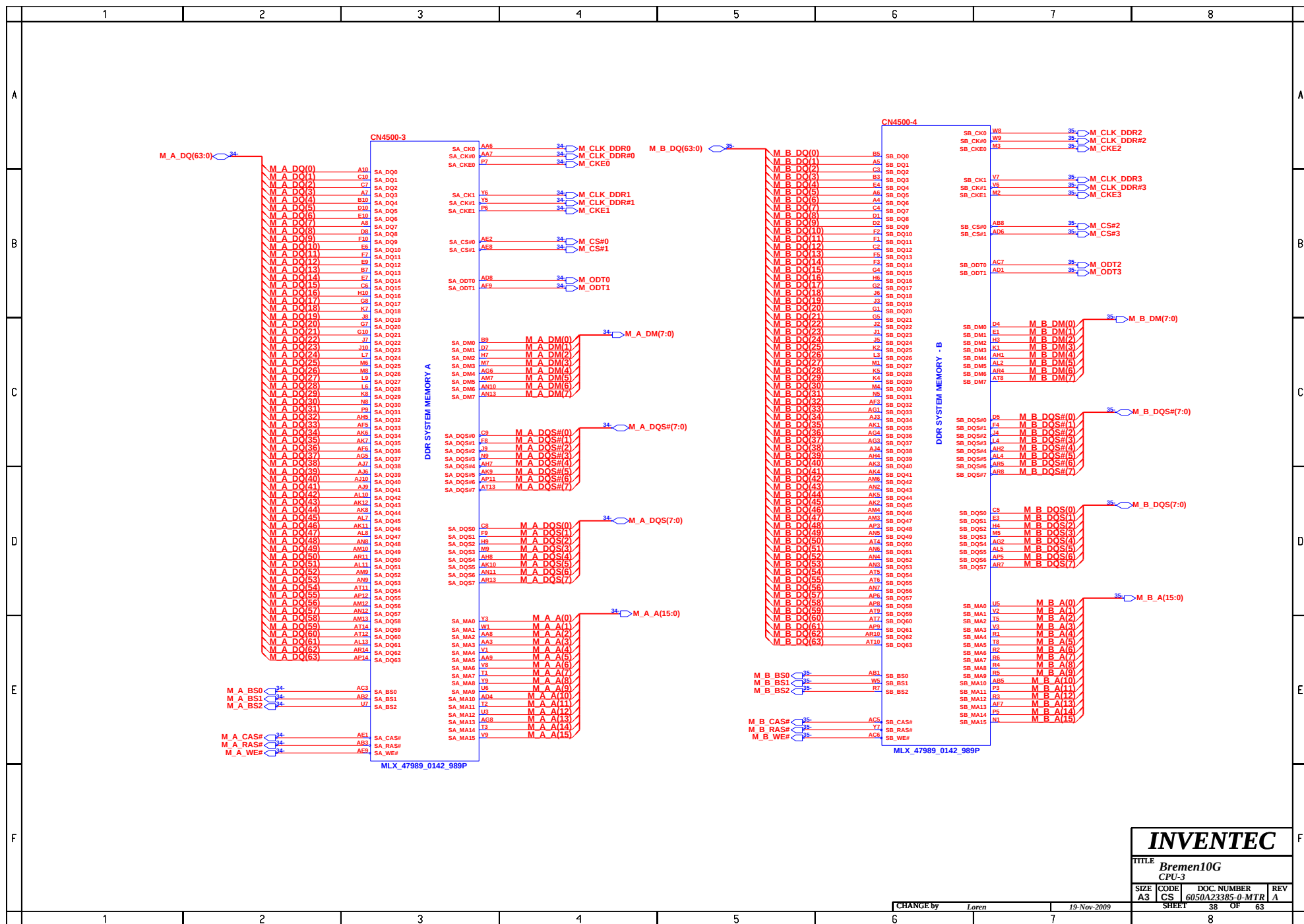


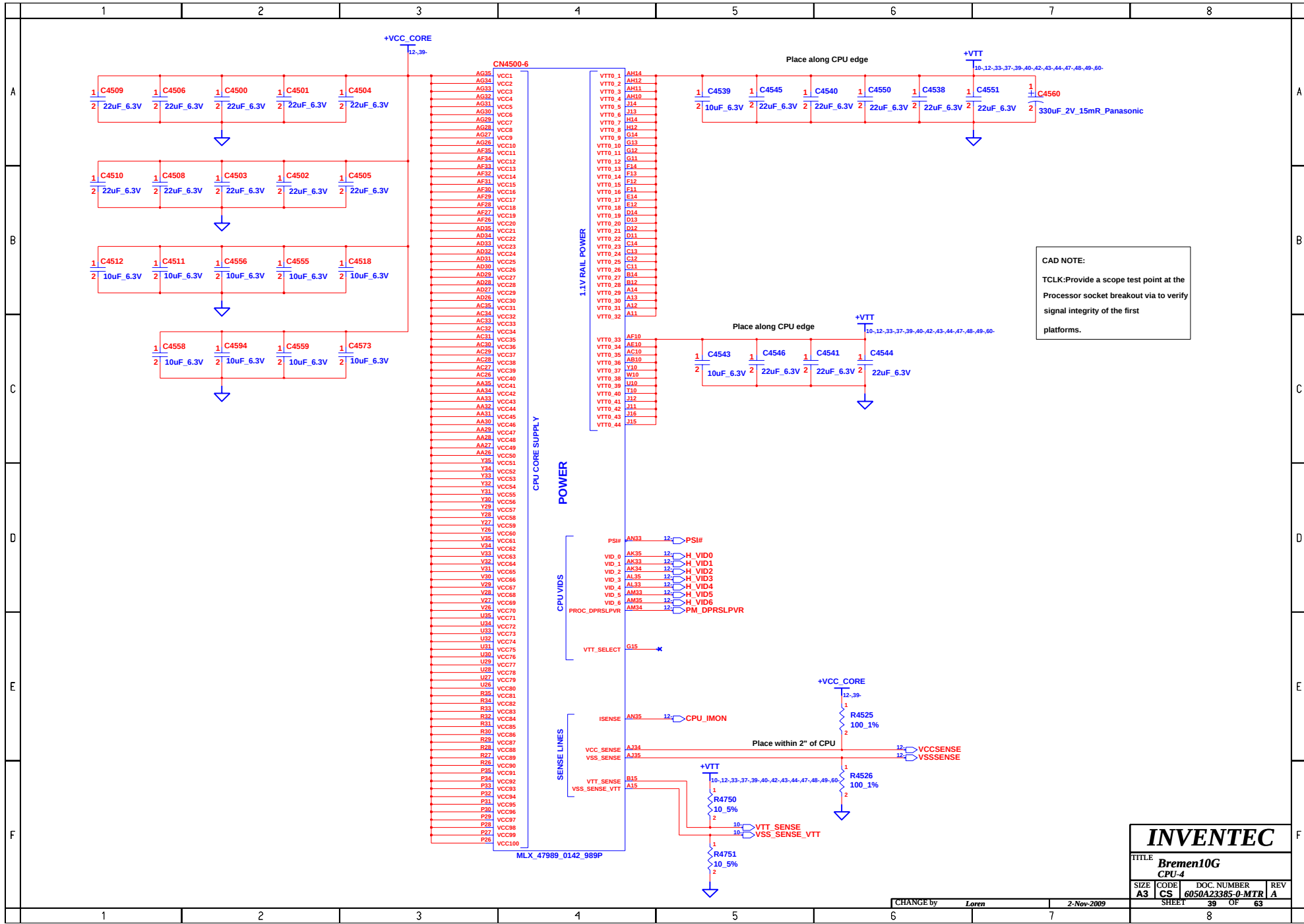




INVENTEC			
TITLE Bremen10G CPU-1			
SIZE A3	CODE CS	DOC. NUMBER 6050A23385-0-MTR	REV A
CHANGE by Loren		2-Nov-2009	
SHEET 36		OF 63	







CAD NOTE:
TCLK:Provide a scope test point at the Processor socket breakout via to verify signal integrity of the first platforms.

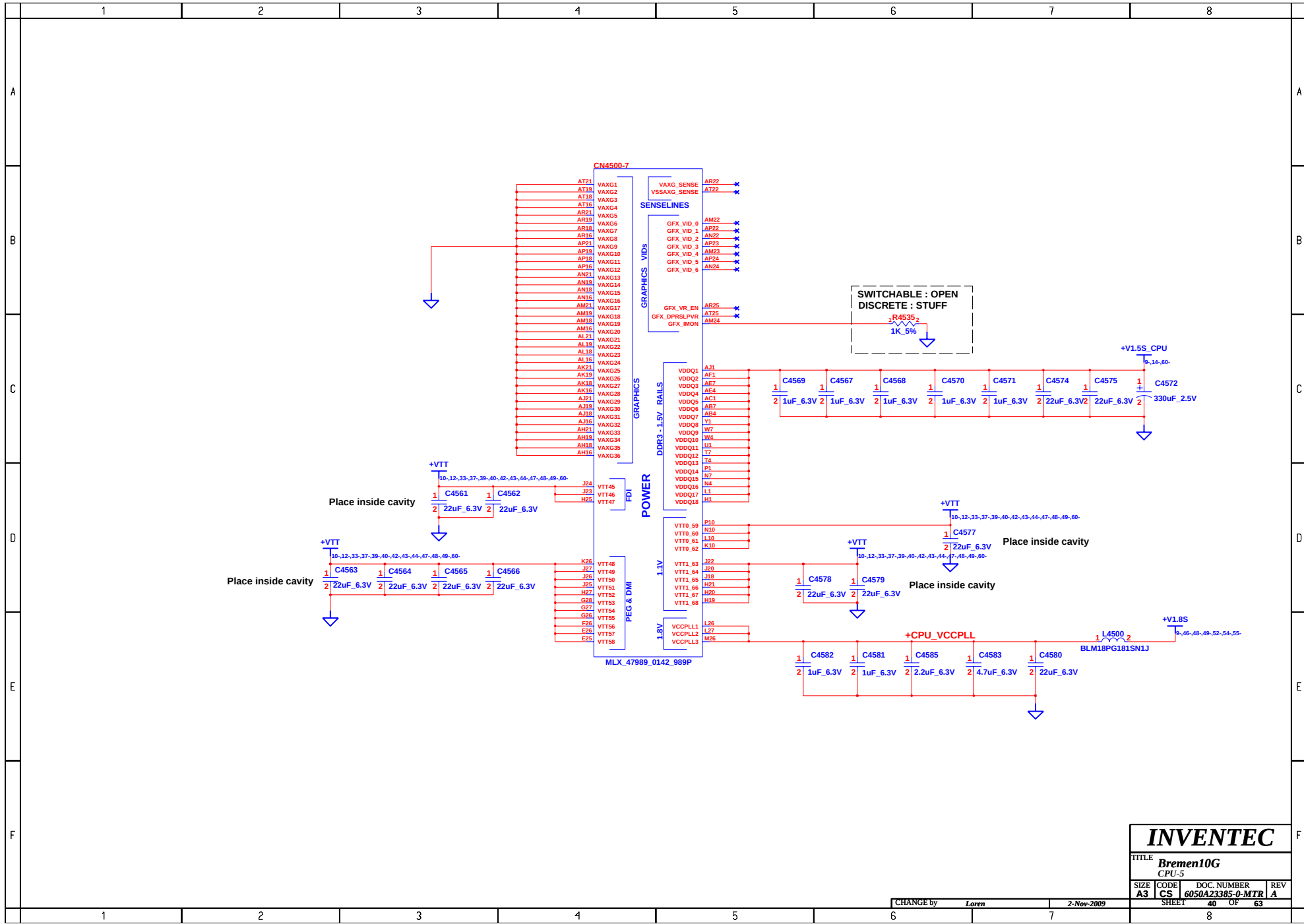
INVENTEC

TITLE
Bremen10G CPU-4

SIZE	CODE	DOC. NUMBER	REV
A3	CS	6050A23385-0-MTR	A

CHANGE by **Loren** 2-Nov-2009

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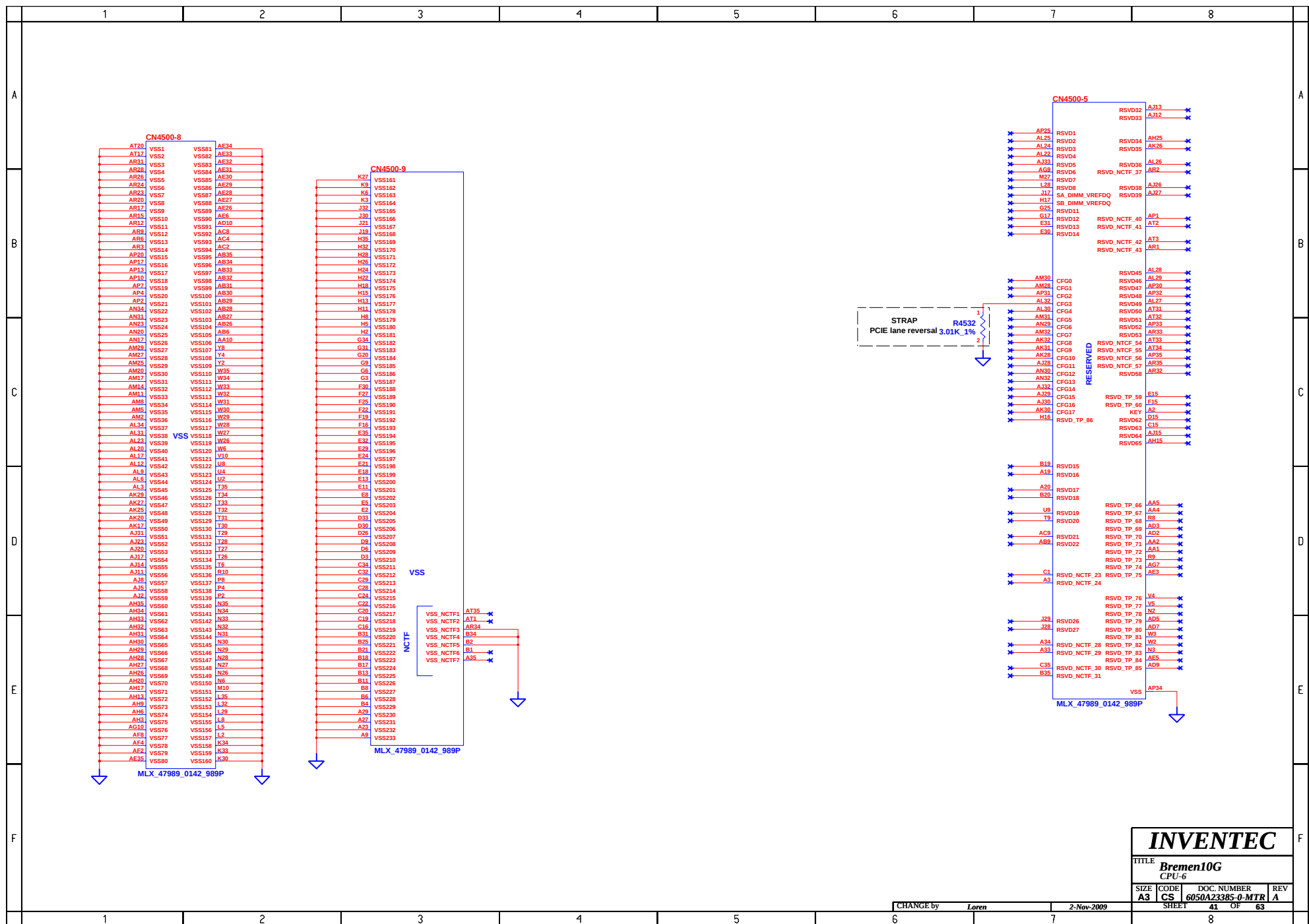
INVENTEC

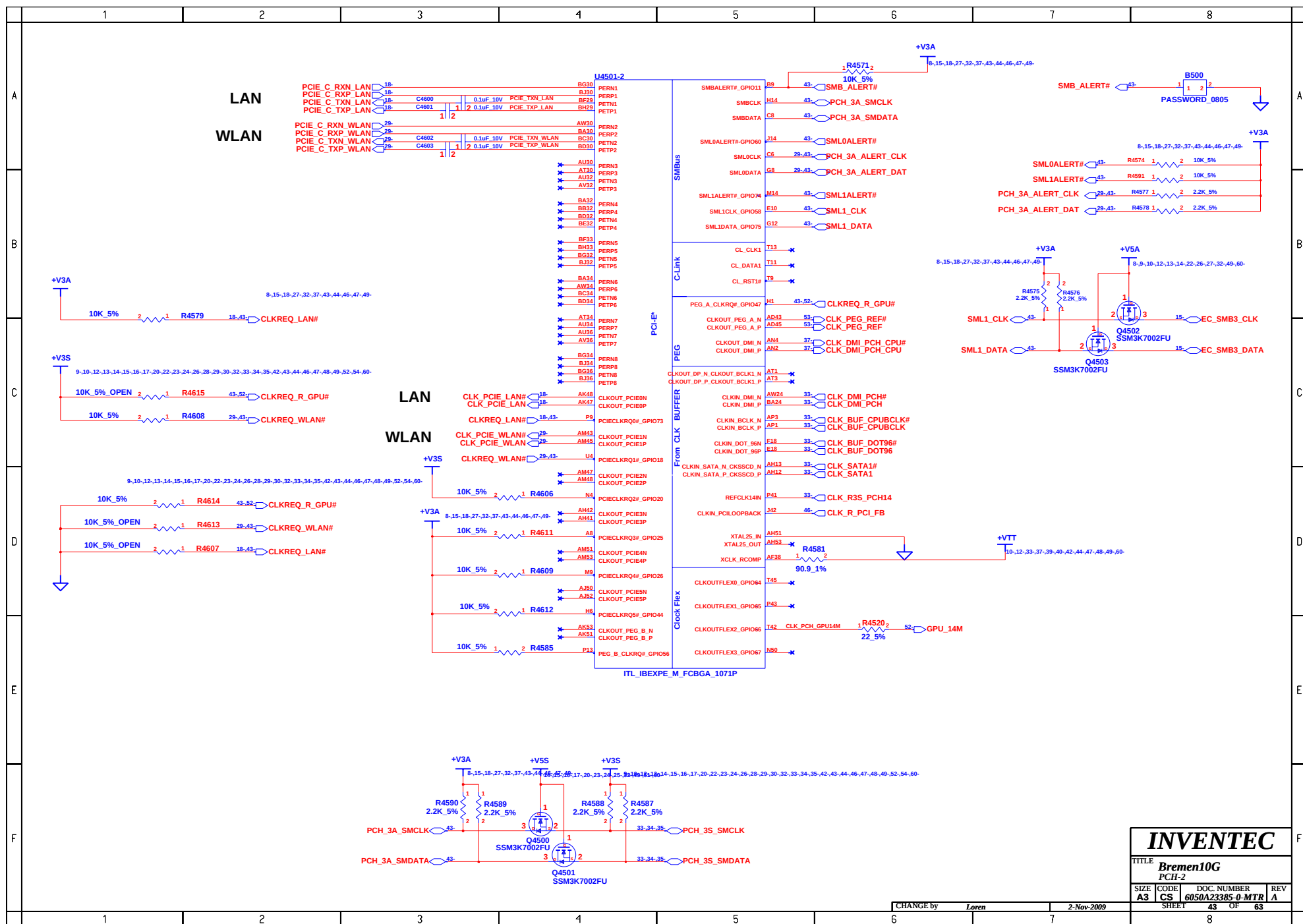
TITLE
Bremen10G
CPU-5

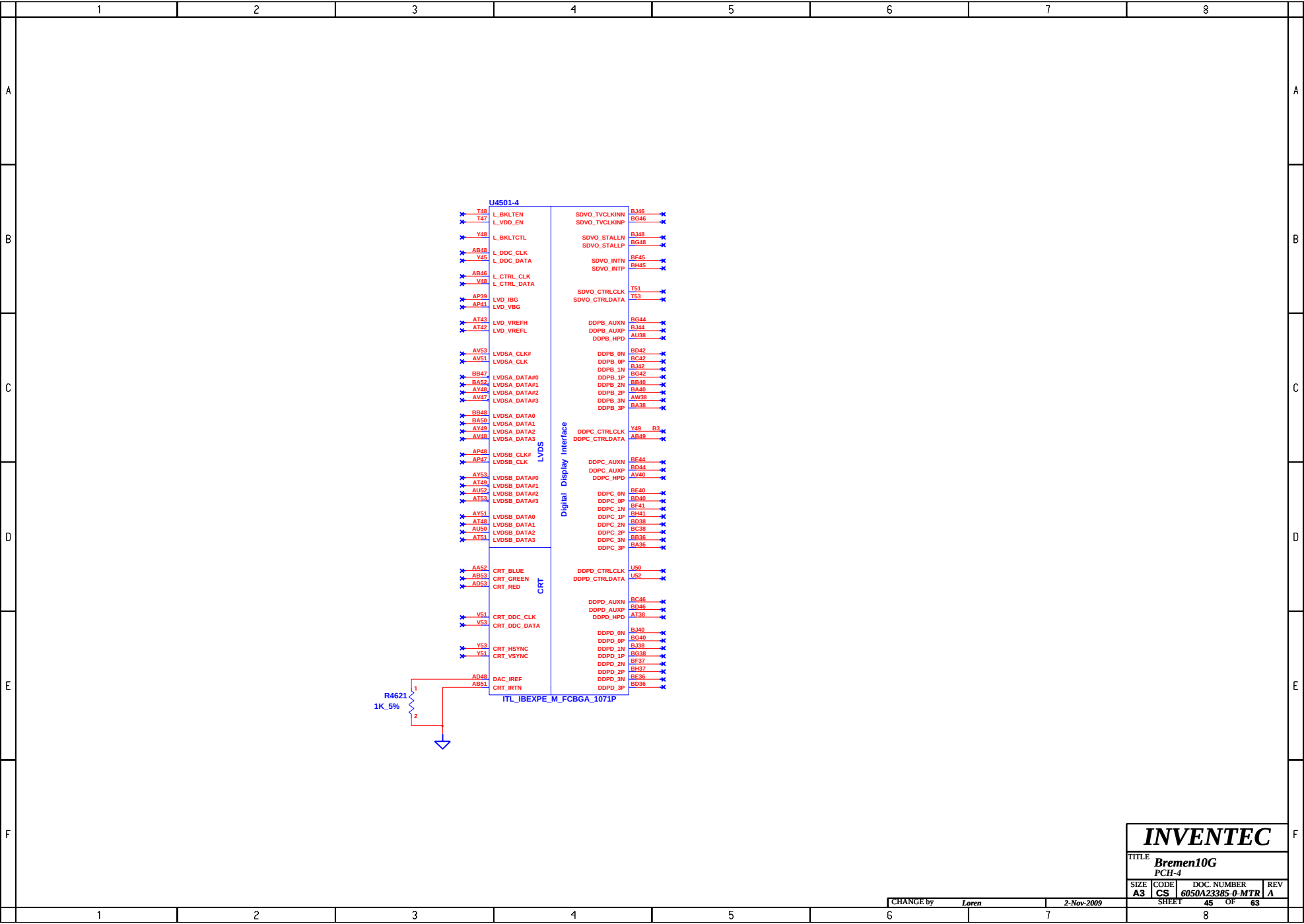
SIZE A3	CODE CS	DOC. NUMBER 6050A23385-0-MTR	REV A
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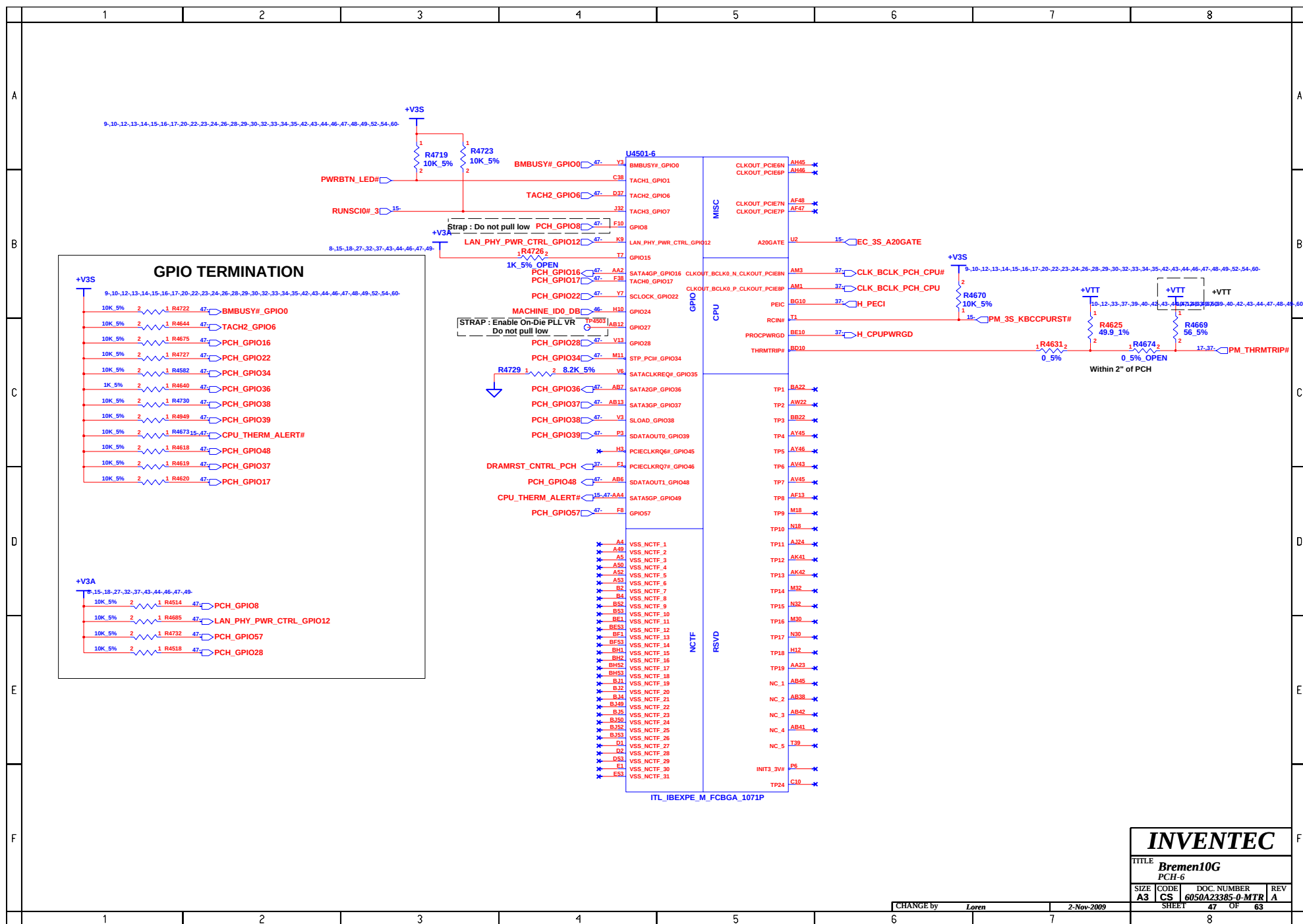
CHANGE by *Loren* 2-Nov-2009

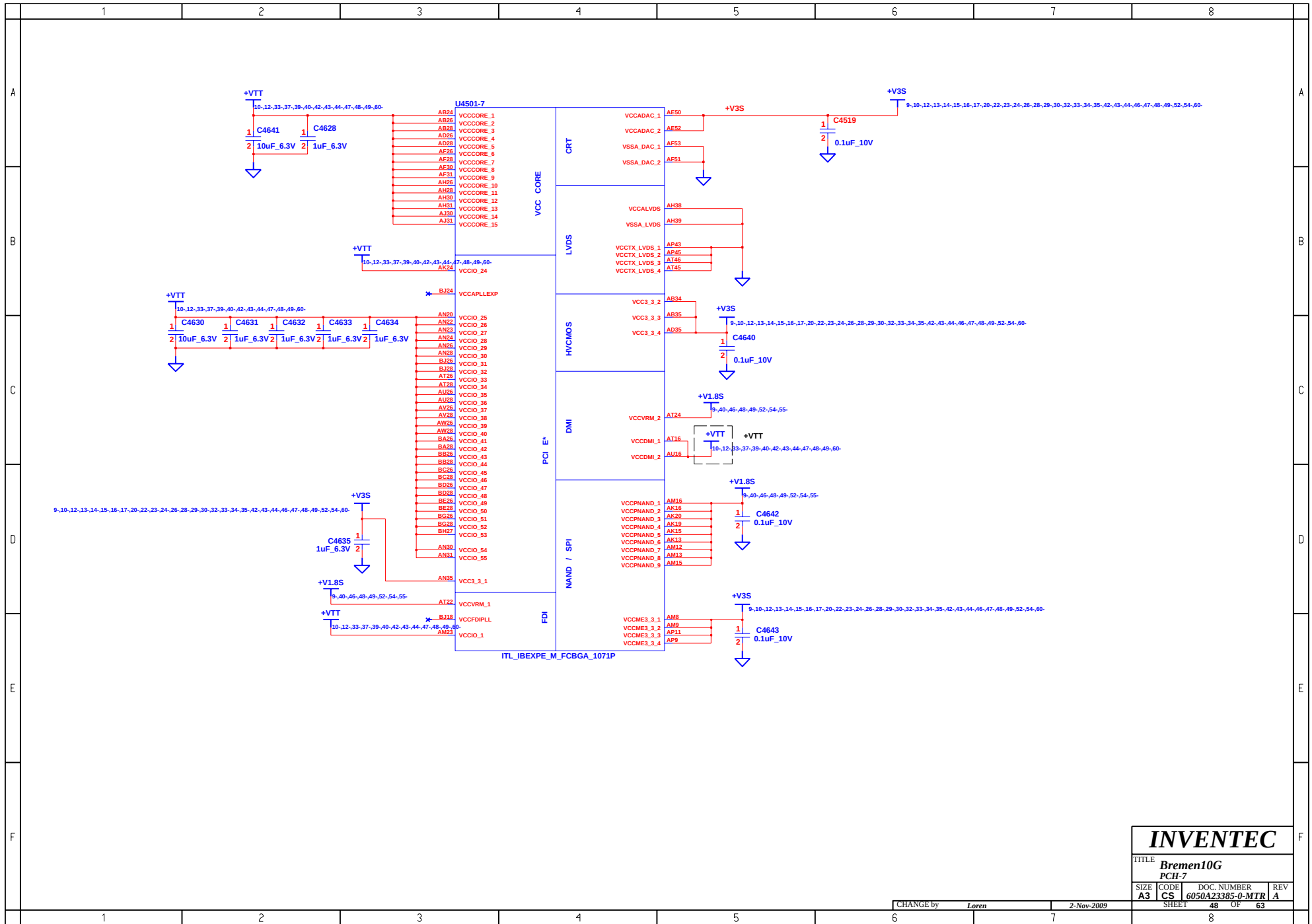
SHEET 40 OF 63





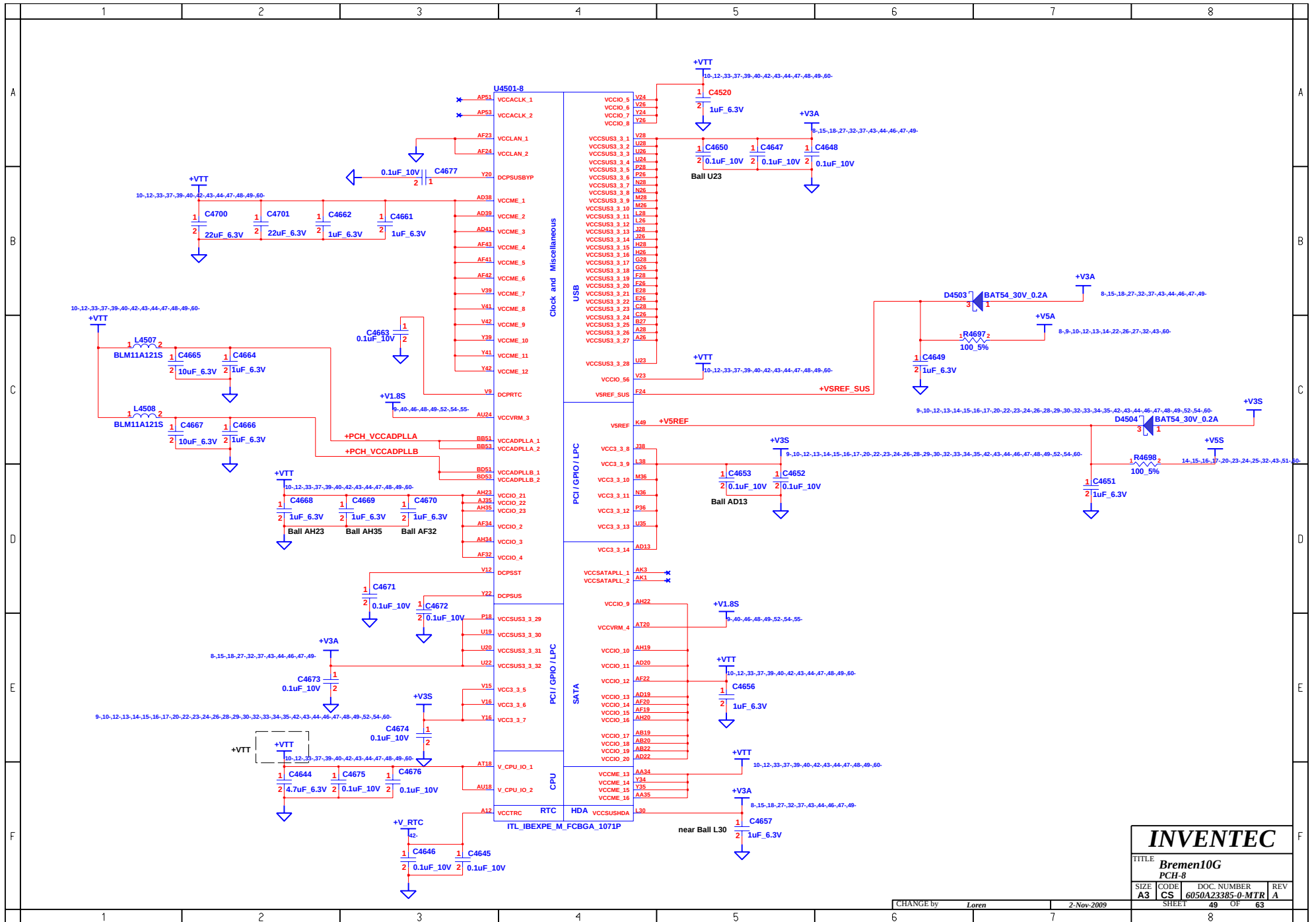






INVENTEC

TITLE			
Bremen10G			
PCH-7			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	6050A23385-0-MTR	A
SHEET		48	OF 63

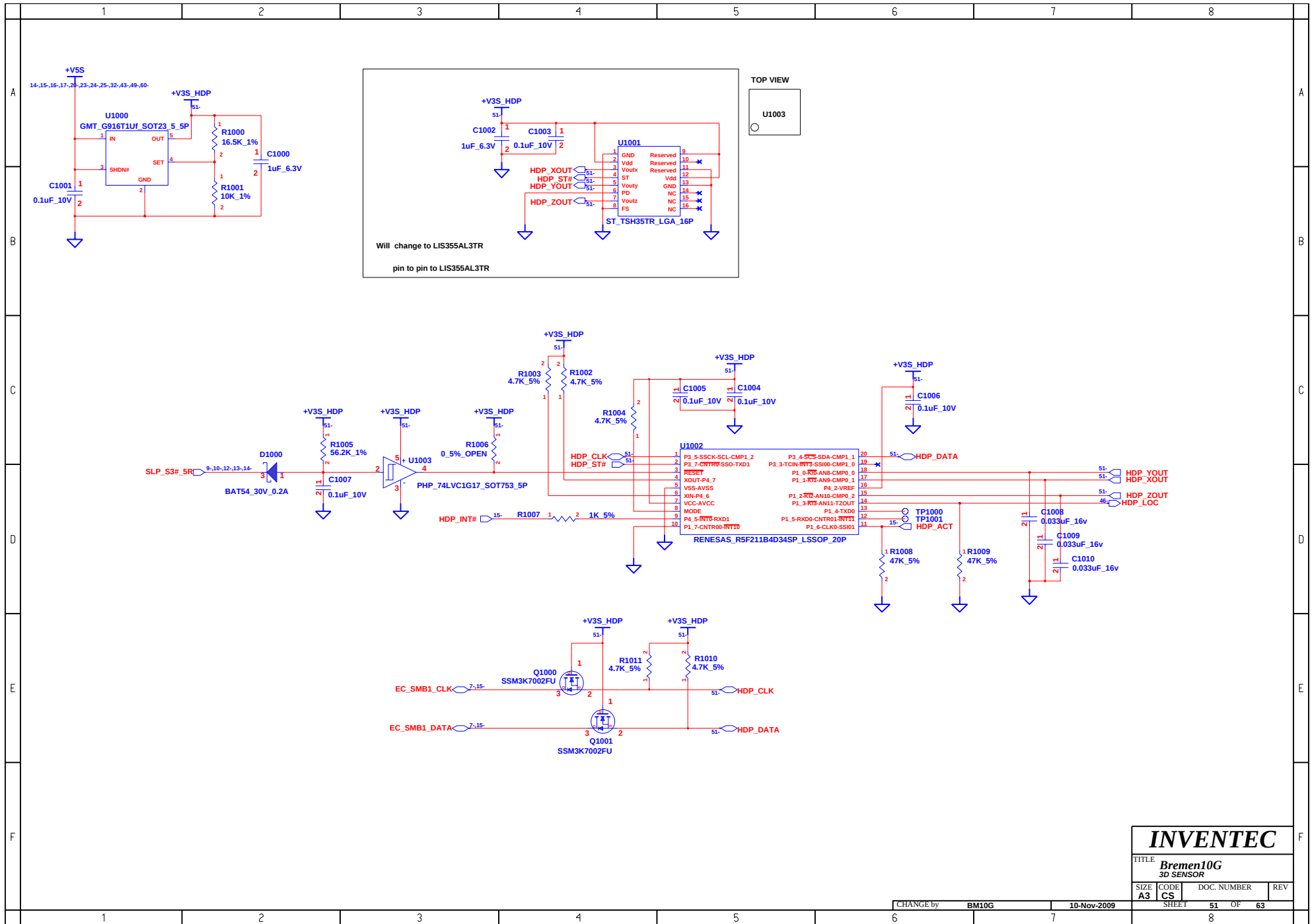


INVENTEC

TITLE			
Bremen10G			
PCH-8			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	6050A23385-0-MTR	A
SHEET		49	OF 63

CHANGE by Loren 2-Nov-2009

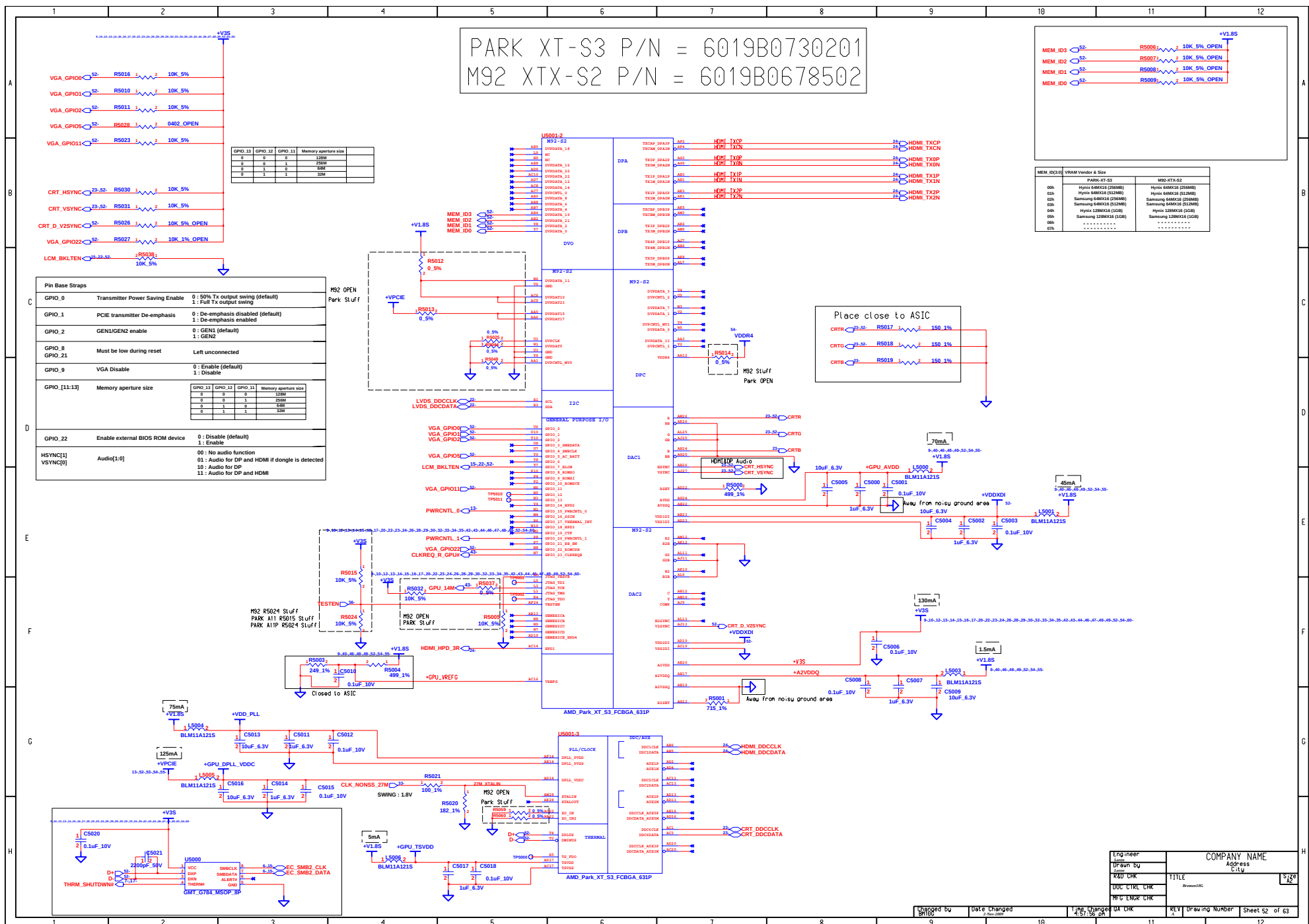
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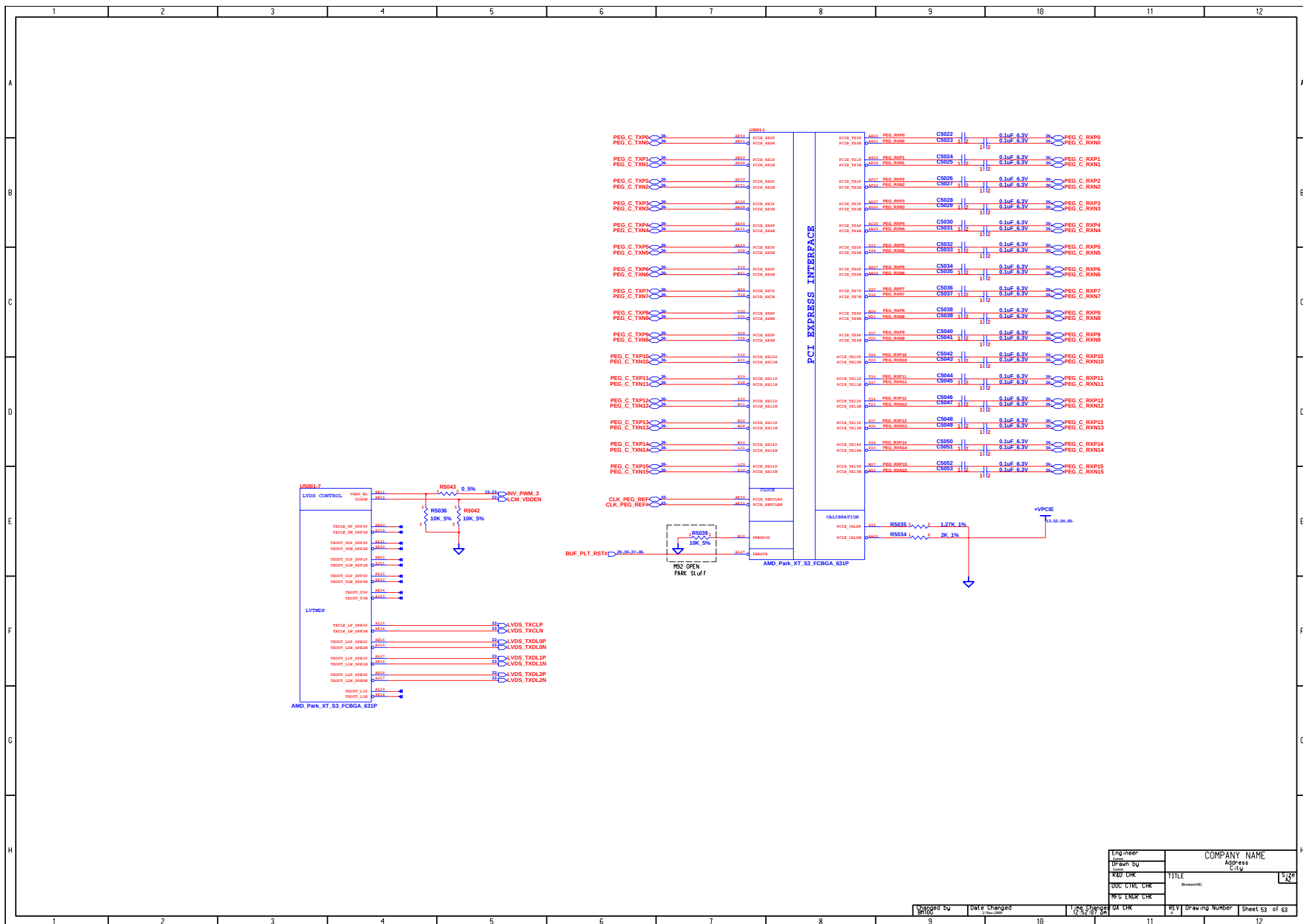


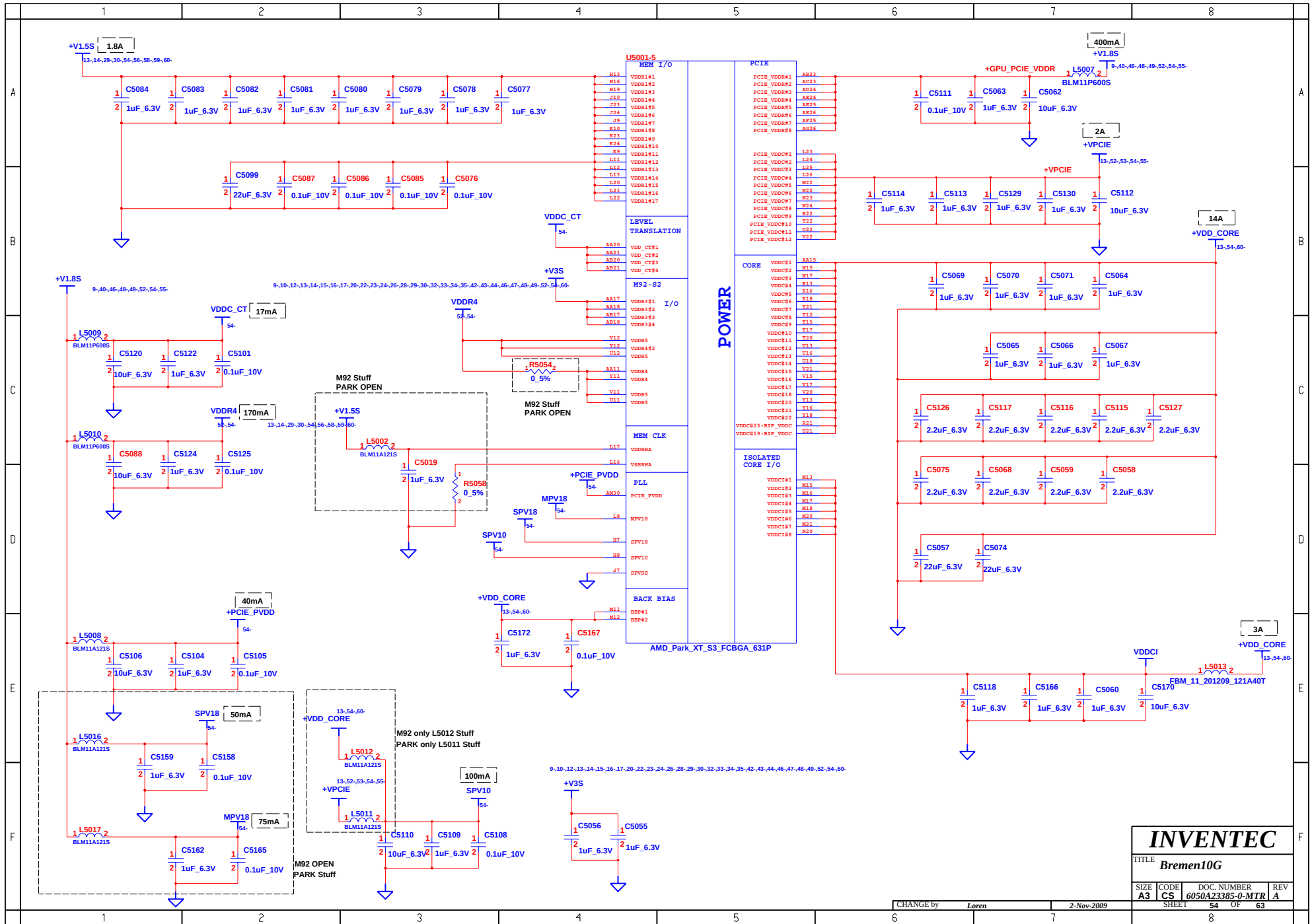
INVENTEC

TITLE Bremen10G 3D SENSOR			
SIZE A3	CODE CS	DOC. NUMBER	REV
SHEET		51	OF 63

CHANGE by **BM10G** 10-Nov-2009





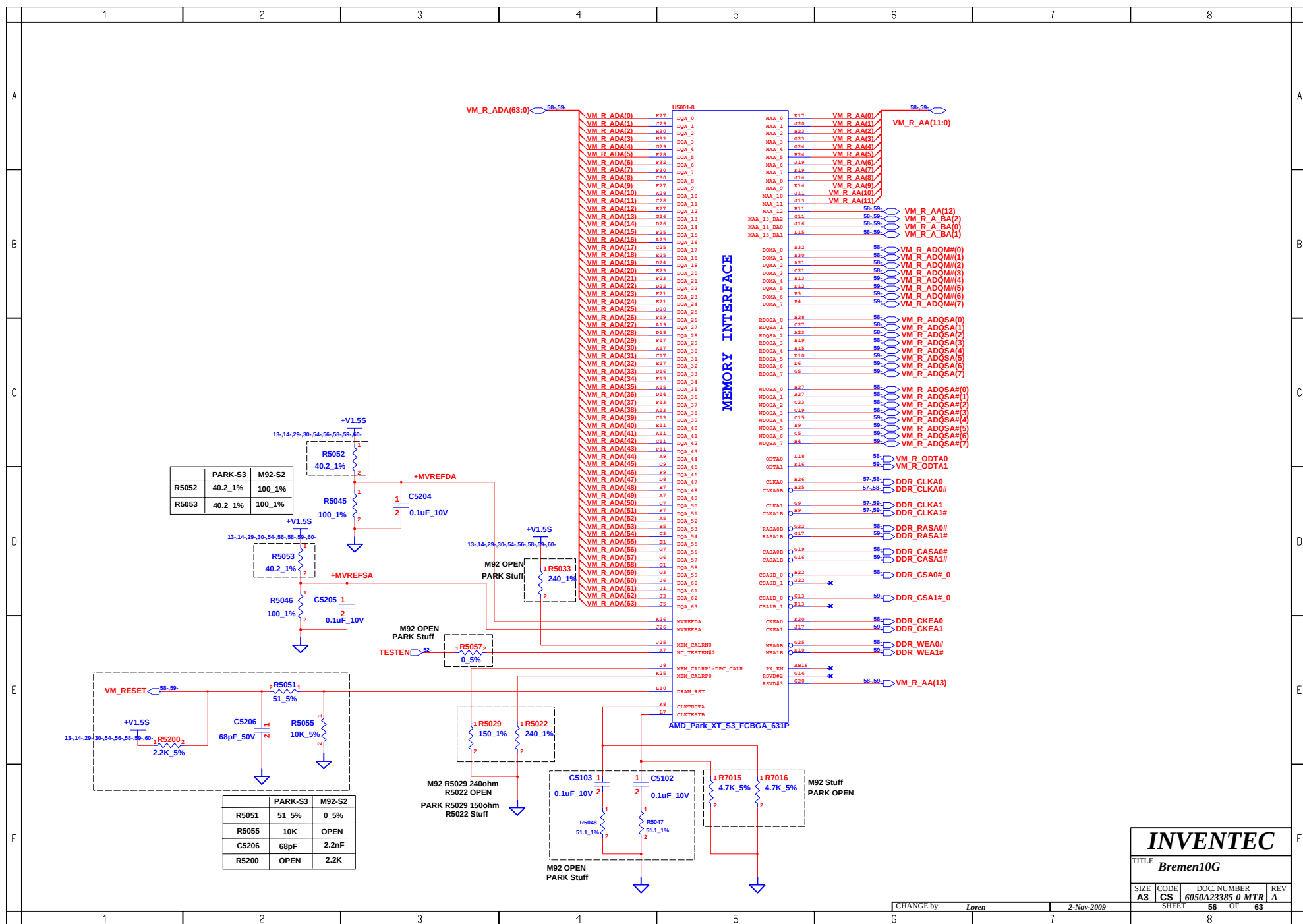


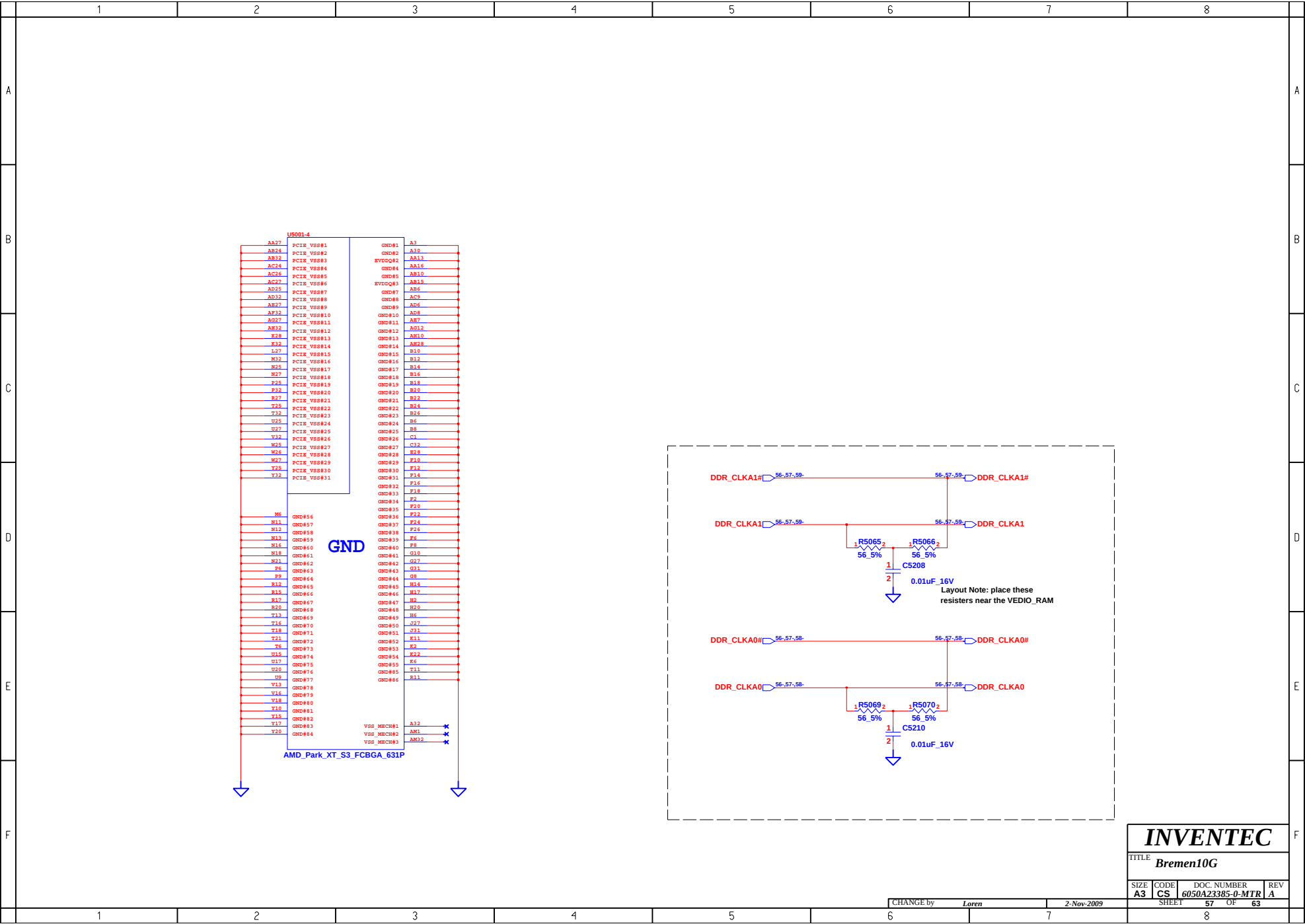
INVENTEC

TITLE **Bremen10G**

SIZE	CODE	DOC. NUMBER	REV
A3	CS	6050A23385-0-MTR	A

SHEET 54 OF 63





PARK Use channel A

The diagram illustrates the electrical connections for the PARK Use channel A, showing two PCB layouts (left and right) with component footprints, pin connections, and power planes.

Left Layout (SAM K4B1G1646D HCF7 FBGA 100P):

- Power Planes:** +V1.5S (13, 14, 29, 30, 54, 56, 58, 59, 60).
- Resistors:** R5509 (243.1%), R5500 (4.99K_1%), R5501 (4.99K_1%), R5502 (4.99K_1%), R5503 (4.99K_1%).
- Capacitors:** C5501 (1uF_6.3V), C5505 (1uF_6.3V), C5506 (1uF_6.3V), C5507 (1uF_6.3V), C5508 (1uF_6.3V), C5509 (2.2uF_6.3V), C5510 (10uF_6.3V), C5511 (10uF_6.3V).
- Pin Connections:** VREFC_A(0), VREFD_A(3), VREFC_A(2), VREFD_A(1).

Right Layout (SAM K4B1G1646D HCF7 FBGA 100P):

- Power Planes:** +V1.5S (13, 14, 29, 30, 54, 56, 58, 59, 60).
- Resistors:** R5508 (243.1%), R5504 (4.99K_1%), R5505 (4.99K_1%), R5506 (4.99K_1%), R5507 (4.99K_1%).
- Capacitors:** C5501 (1uF_6.3V), C5512 (1uF_6.3V), C5513 (1uF_6.3V), C5514 (1uF_6.3V), C5515 (1uF_6.3V), C5516 (1uF_6.3V), C5517 (10uF_6.3V), C5518 (10uF_6.3V).
- Pin Connections:** VREFC_A(2), VREFD_A(1).

INVENTEC

ITEM Bremen10G

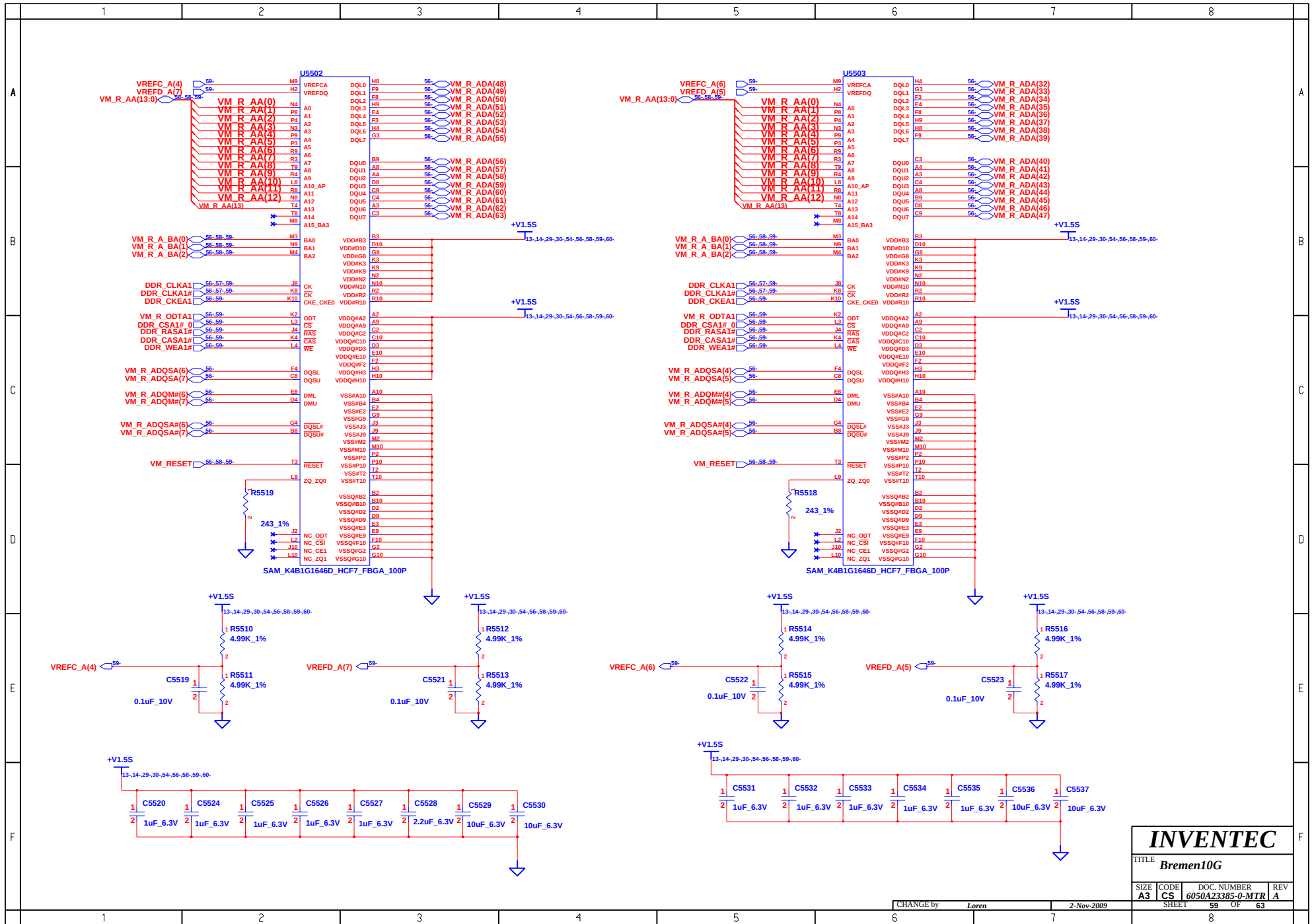
SIZE A3 **CODE** CS **DOC. NUMBER** 6050A23385-0-MTR **REV** A

SHEET 58 **OF** 63

CHANGE by Loren **DATE** 2-Nov-2009

SIZE A3	CODE CS	DOC. NUMBER 6050A23385-0-MTR	REV A
SHEET		58	OF 63

CHANGE by	<i>Loren</i>	2-Nov-2009
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INVENTEC

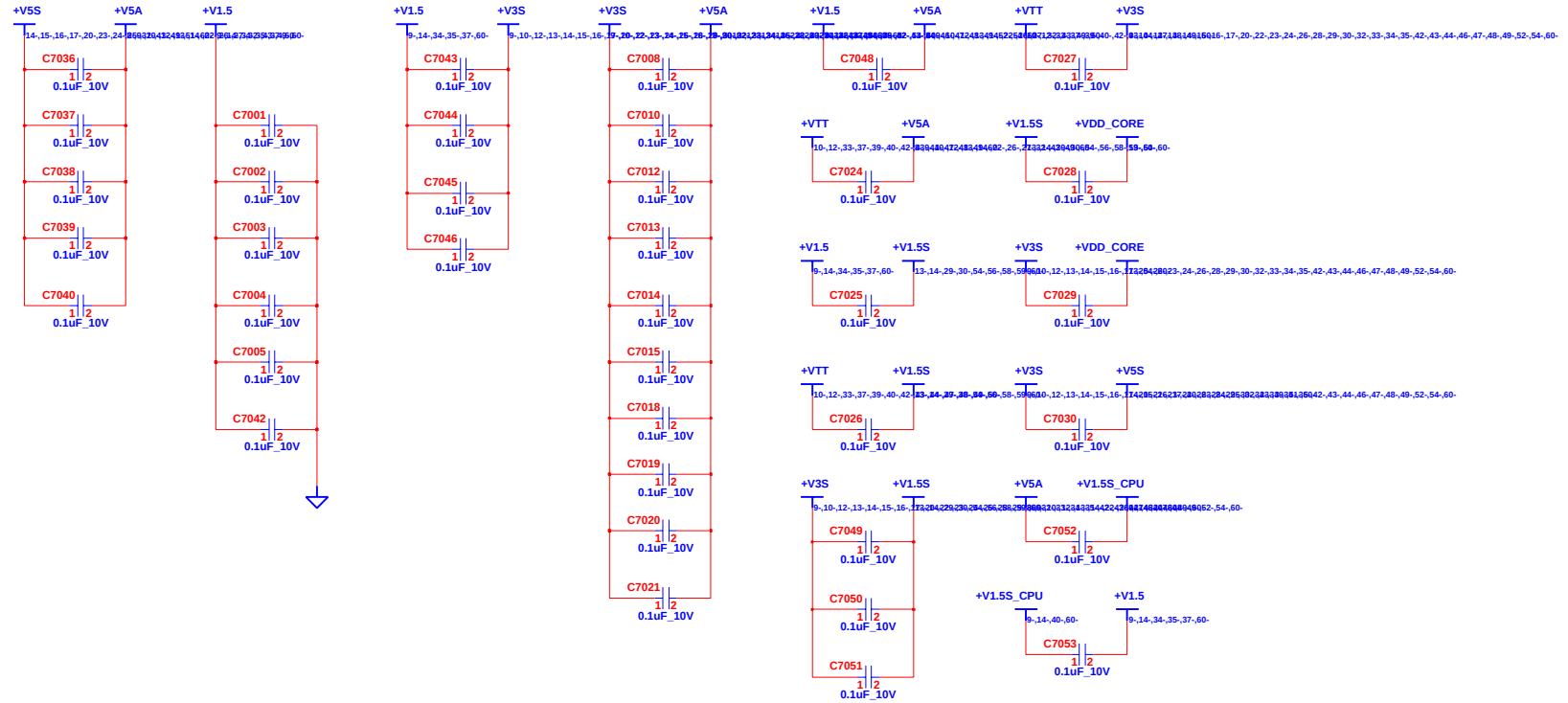
TITLE
Bremen10G

SIZE A3	CODE CS	DOC. NUMBER 6050A23385-0-MTR	REV A
SHEET 59		OF 63	

CHANGE by **Loren** 2-Nov-2009

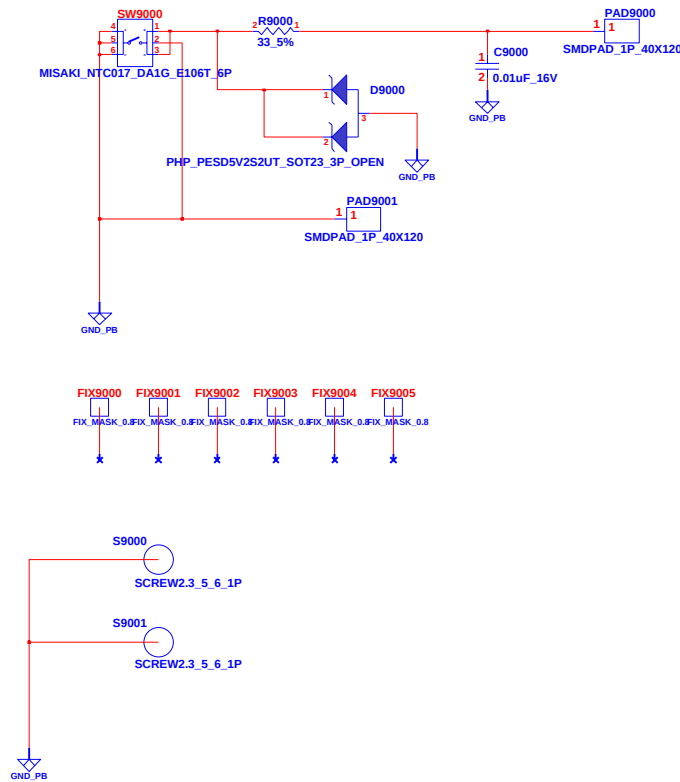
8

EMI



INVENTEC			
TITLE Bremen10G EMI			
SIZE A3	CODE CS	DOC. NUMBER 6050A23385-0-MTR	REV A
CHANGE by Loren		14-Nov-2009	
SHEET 60		OF 63	

TOUCHPAD SWITCH BOARD

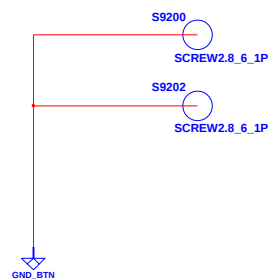
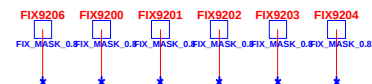
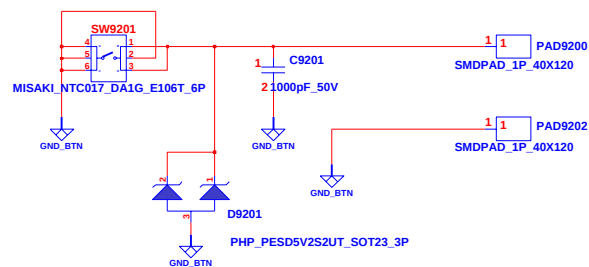


INVENTEC

TITLE Bremen10G Touch board			
SIZE A3	CODE CS	DOC. NUMBER 6050A23385-0-MTR	REV A
SHEET		61	OF 63

CHANGE by *Loren* 8-Jan-2010

POWER BOARD



INVENTEC			
TITLE Bremen10G Power board			
SIZE A3	CODE CS	DOC. NUMBER 6050A23385-0-MTR	REV A
SHEET		62	OF 63

CHANGE by Loren 1-Mar-2010

