



Gesellschaft für Schwerionenforschung mbH  
Planckstrasse 1  
D-64291 Darmstadt  
GERMANY  
www.gsi.de

**01\_ERNI-Connector**

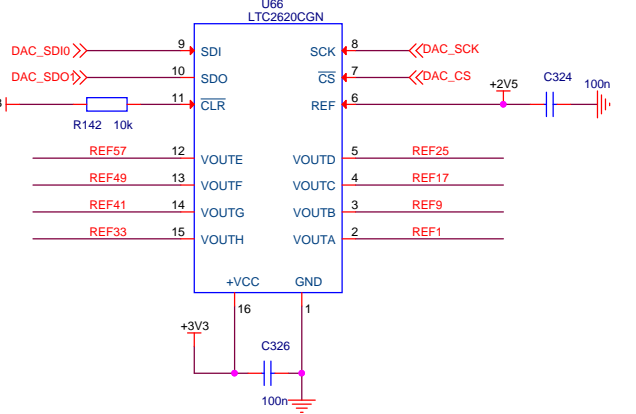
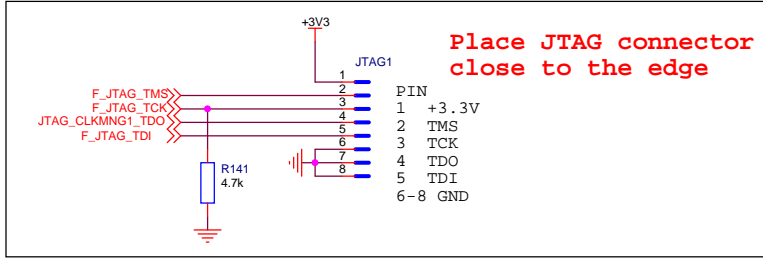
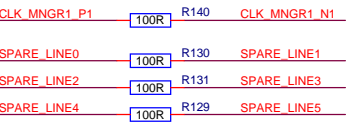
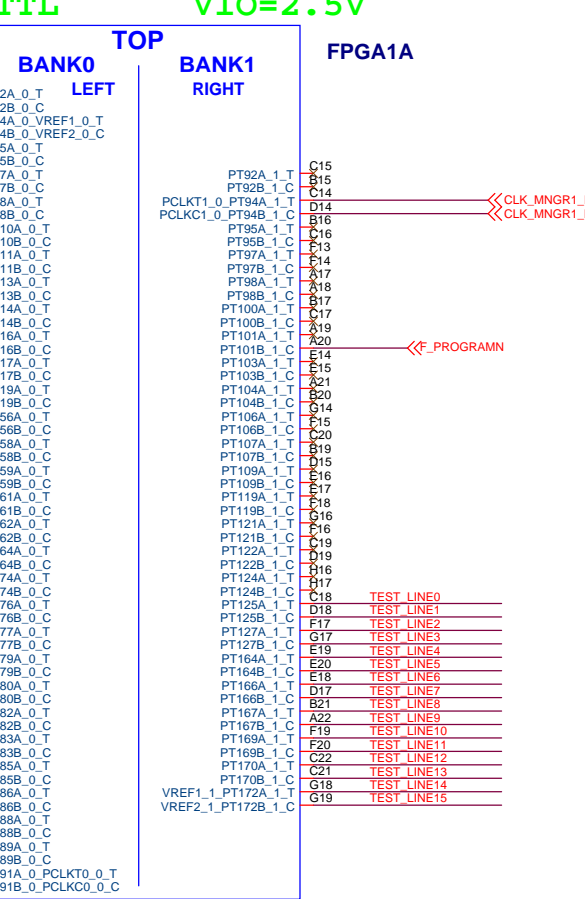
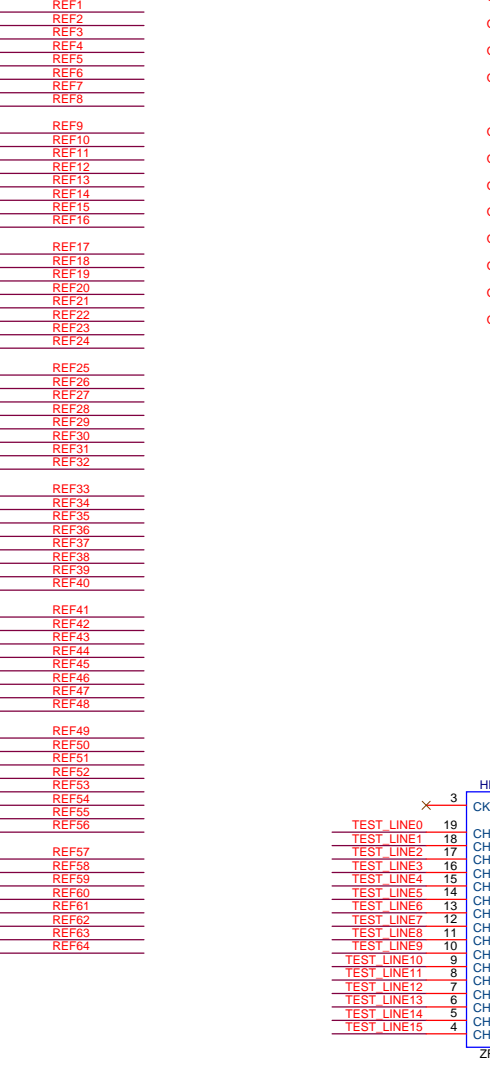
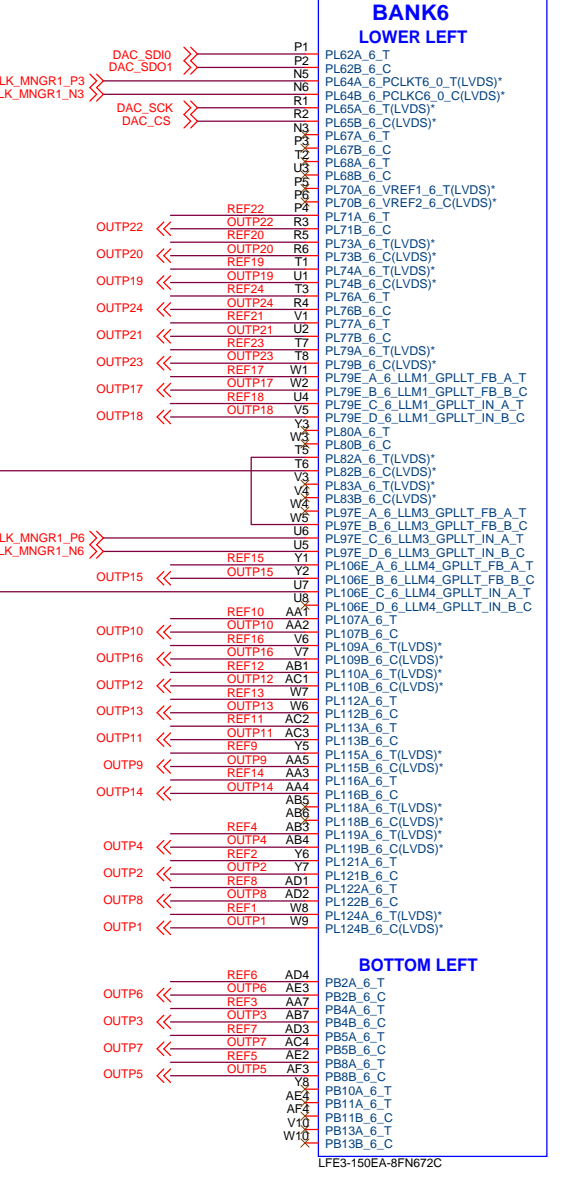
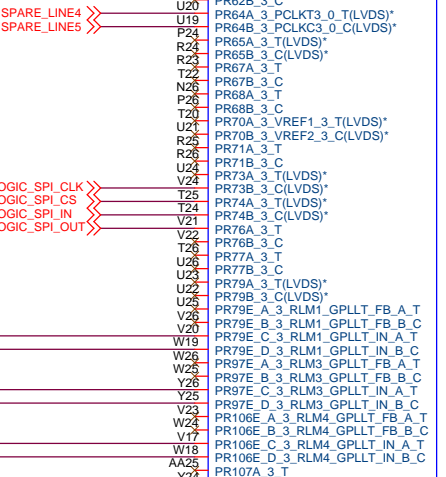
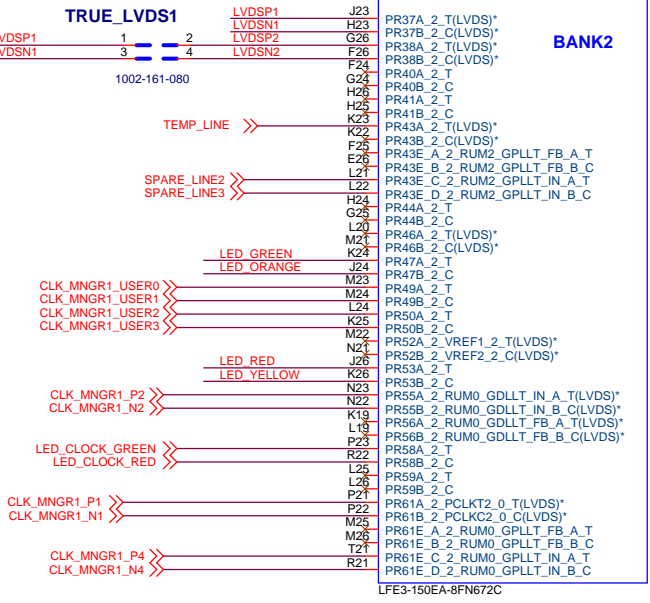
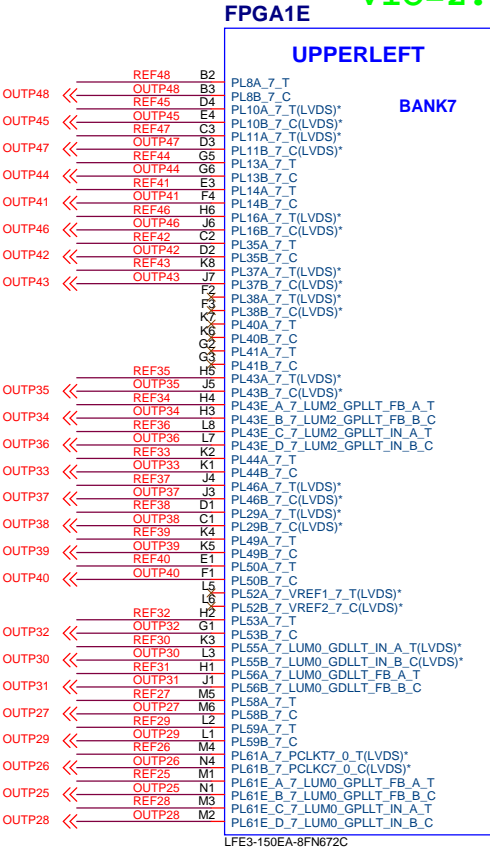
Design: K:\GSIJOB\COME AND KISS\CBM-RICH-FEE\CBM-RICH-FEE\1\CBM-R	Size: A3	Page: 1 / 7
Modified: Tuesday, April 03, 2012	Designer: M. Traxler	Layouter: S. Voltz

VIO=2.5V

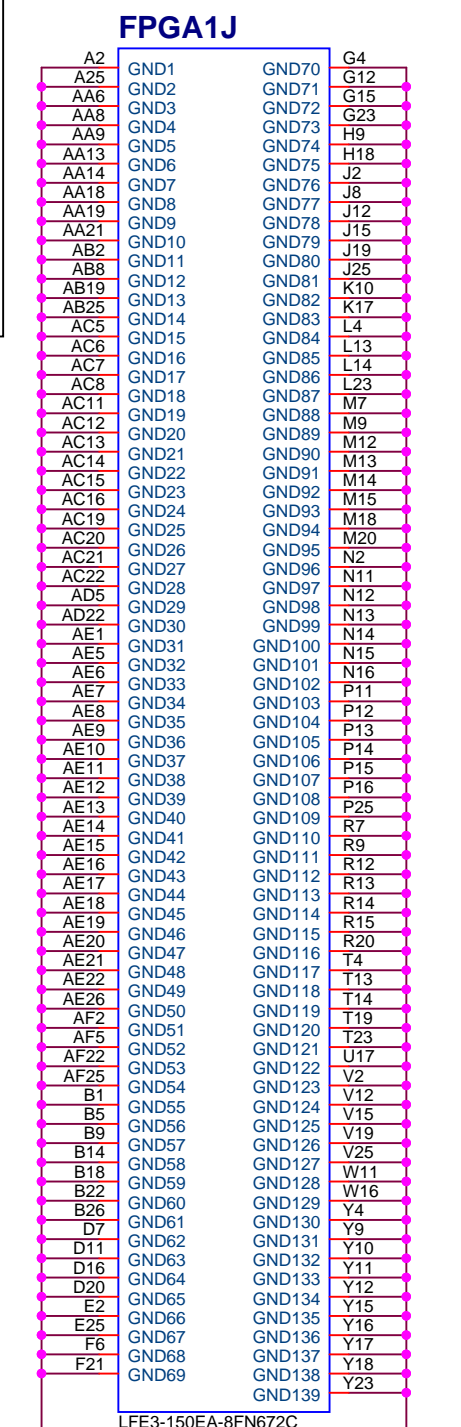
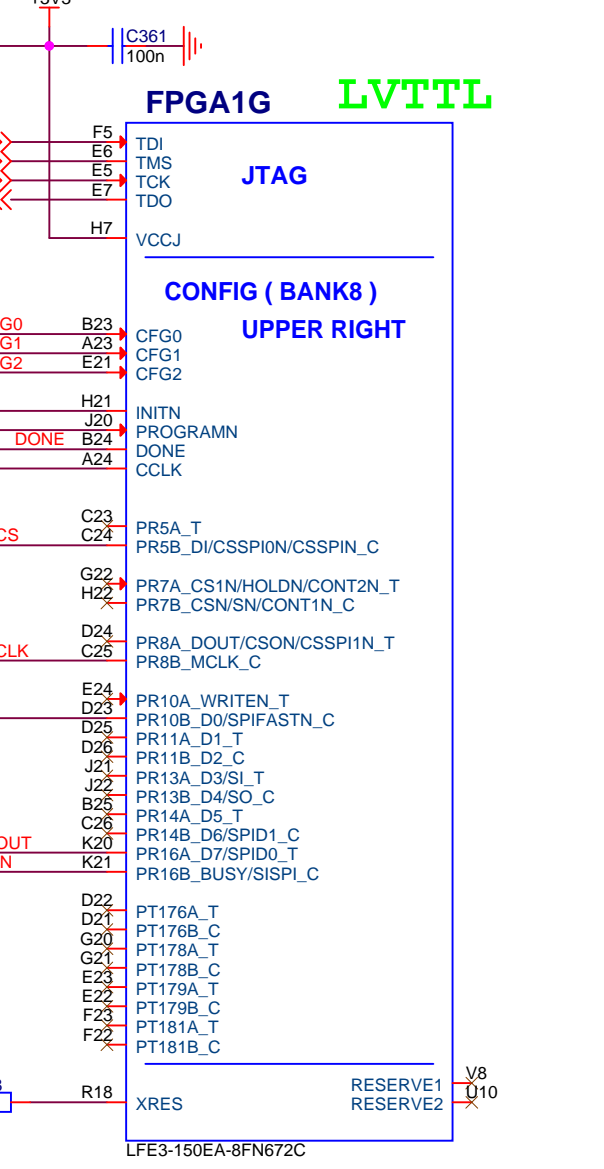
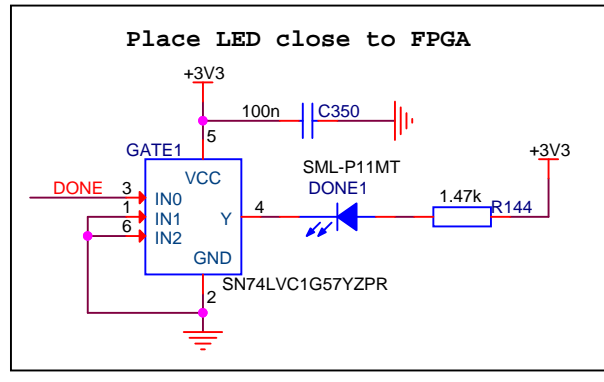
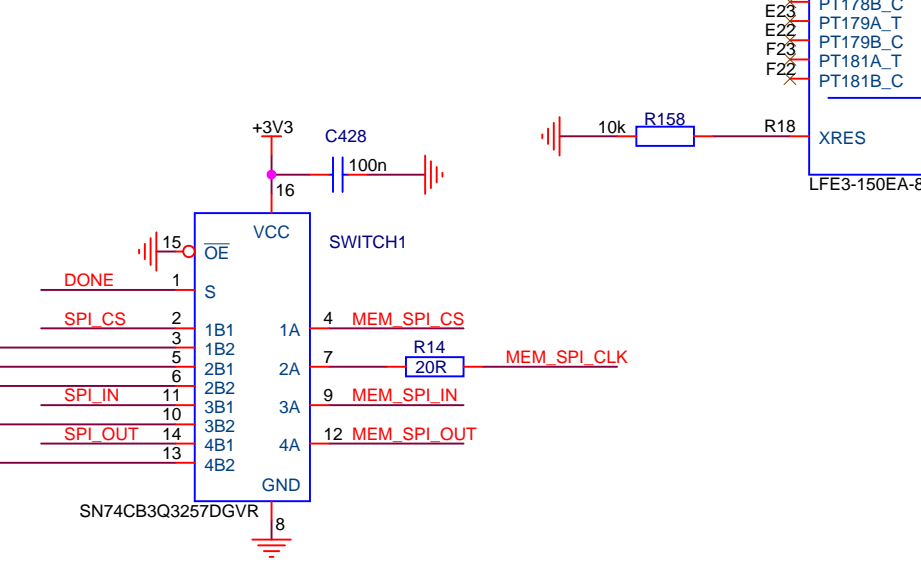
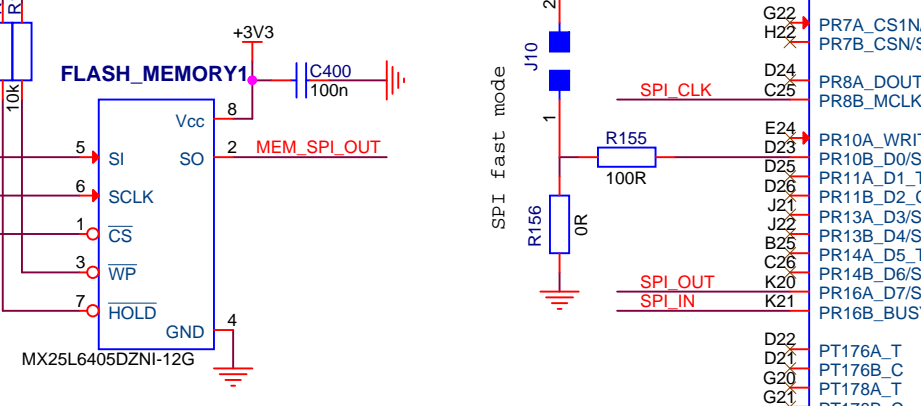
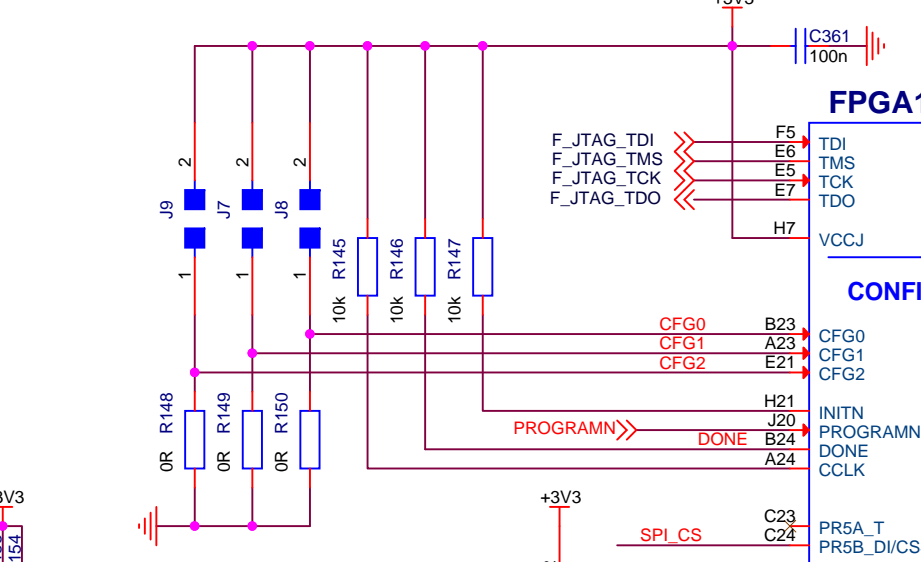
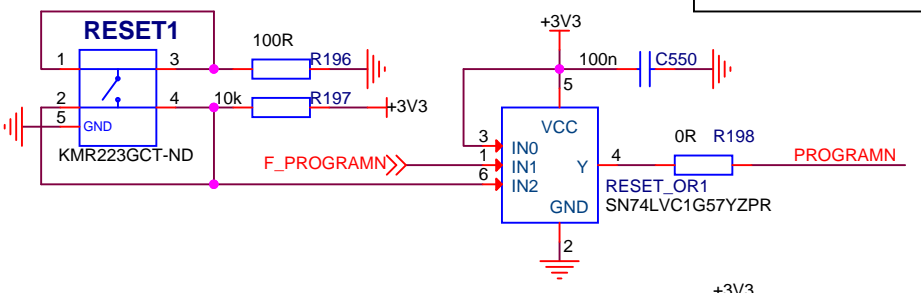
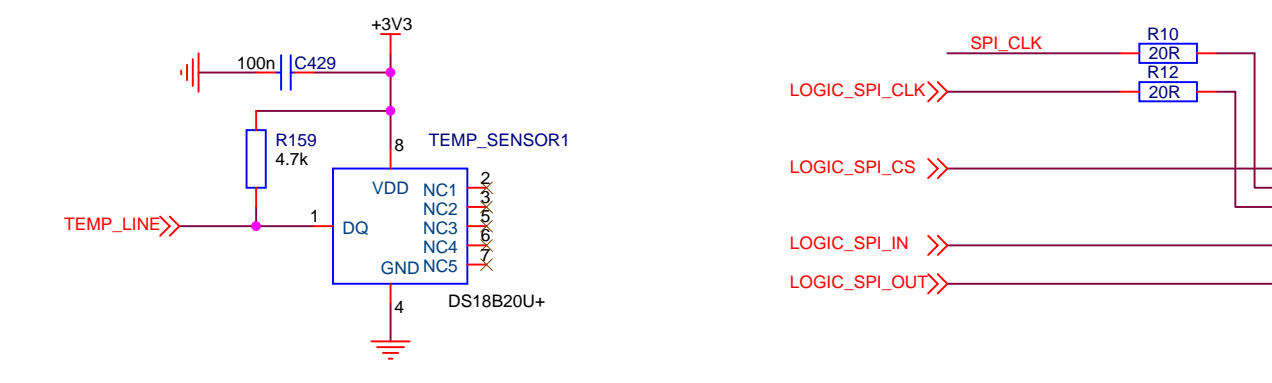
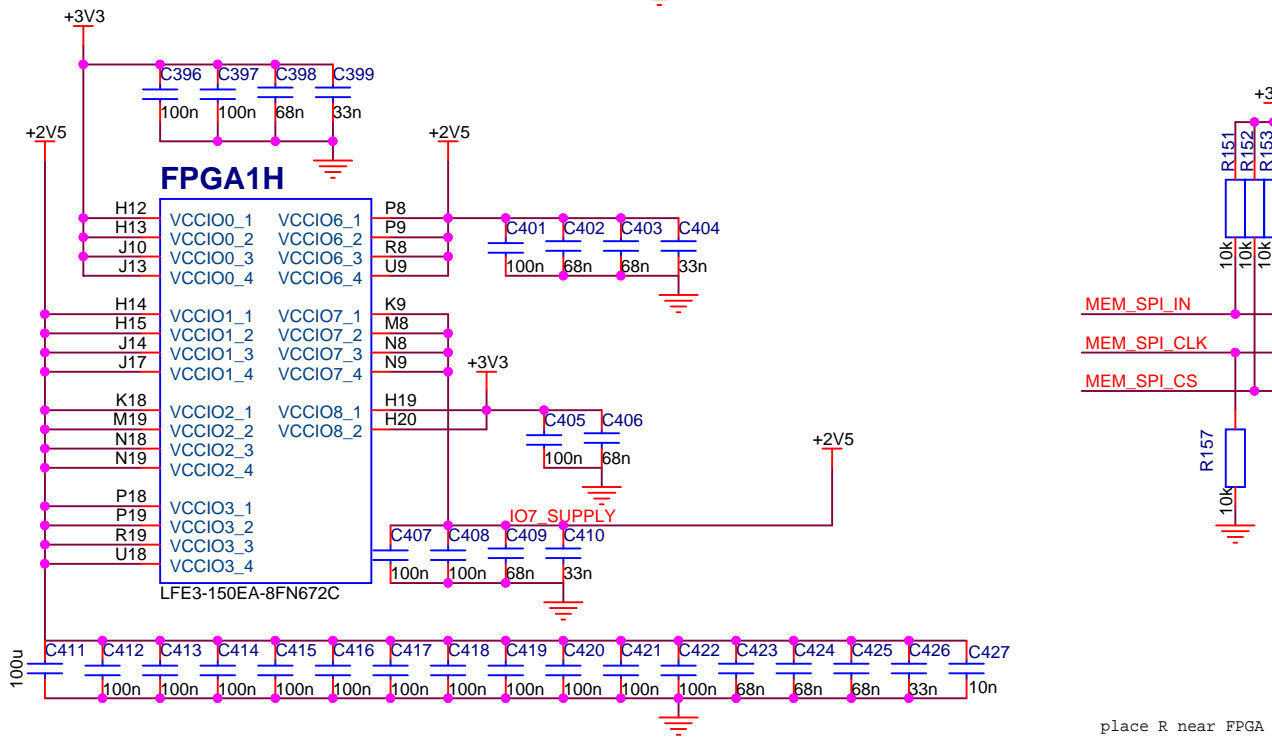
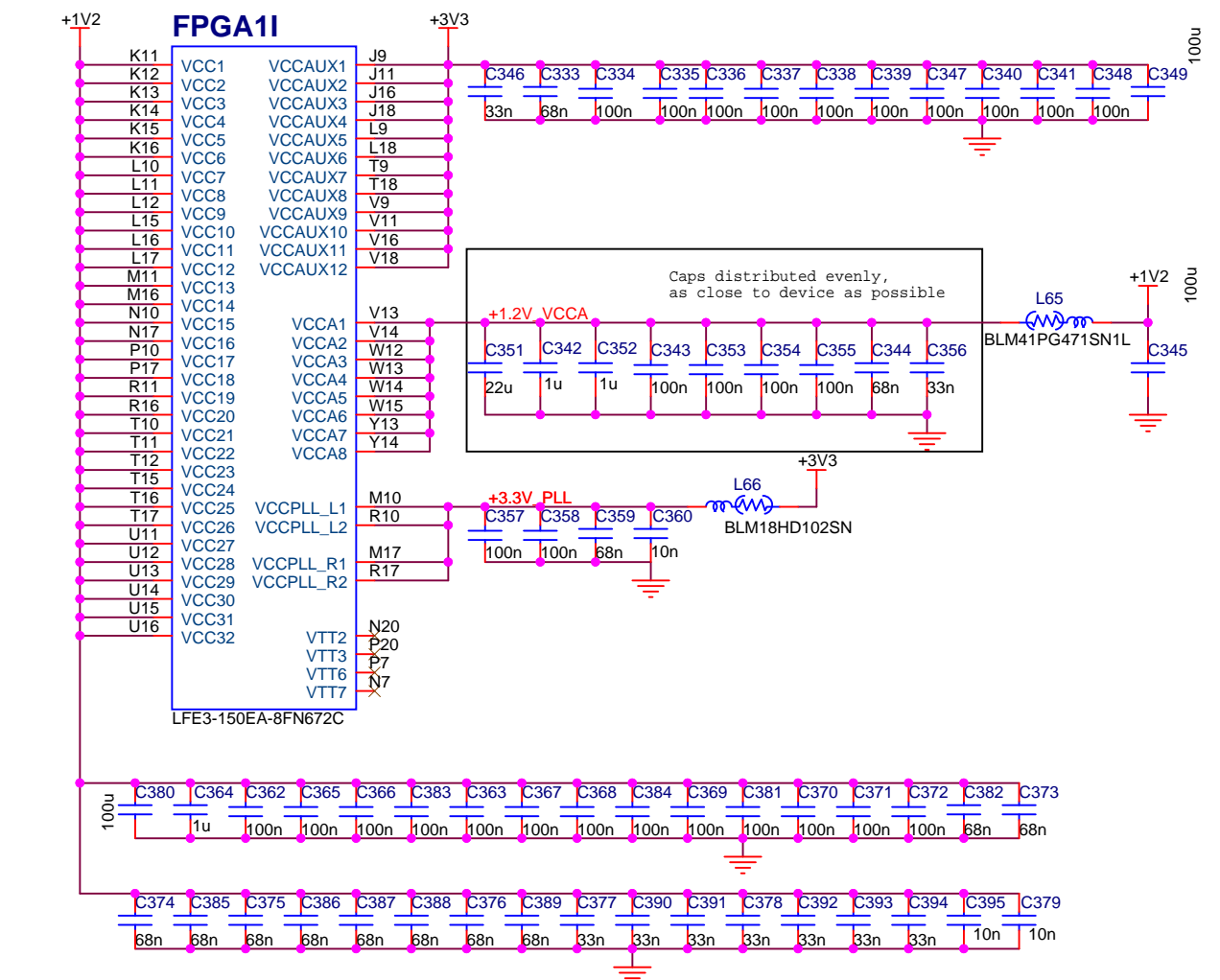
VIO=2.5V

VIO=2.5V

VIO=2.5V



02\_FPGA-Logic



**GSII**

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**03\_FPGA-Power**

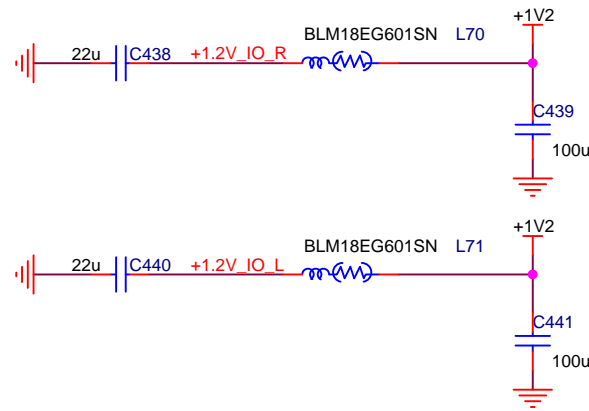
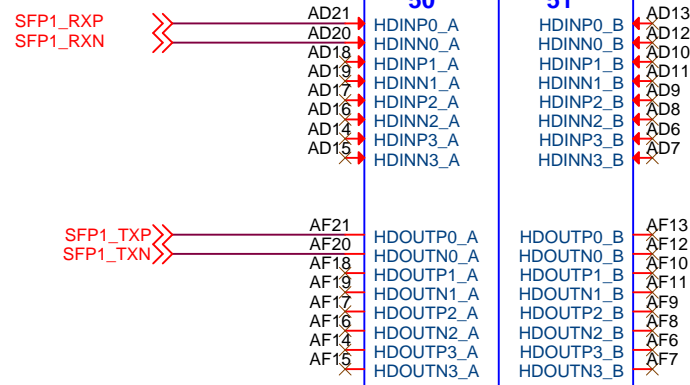
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Modified: Tuesday, April 03, 2012  
Designer: M. Traxler

Size: A3  
Page: 4 / 7  
Layouter: S.Voltz

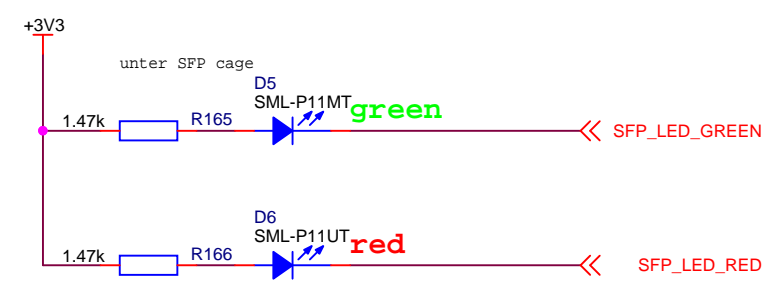
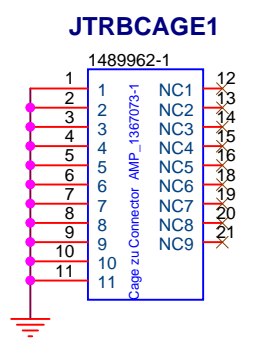
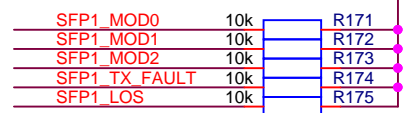
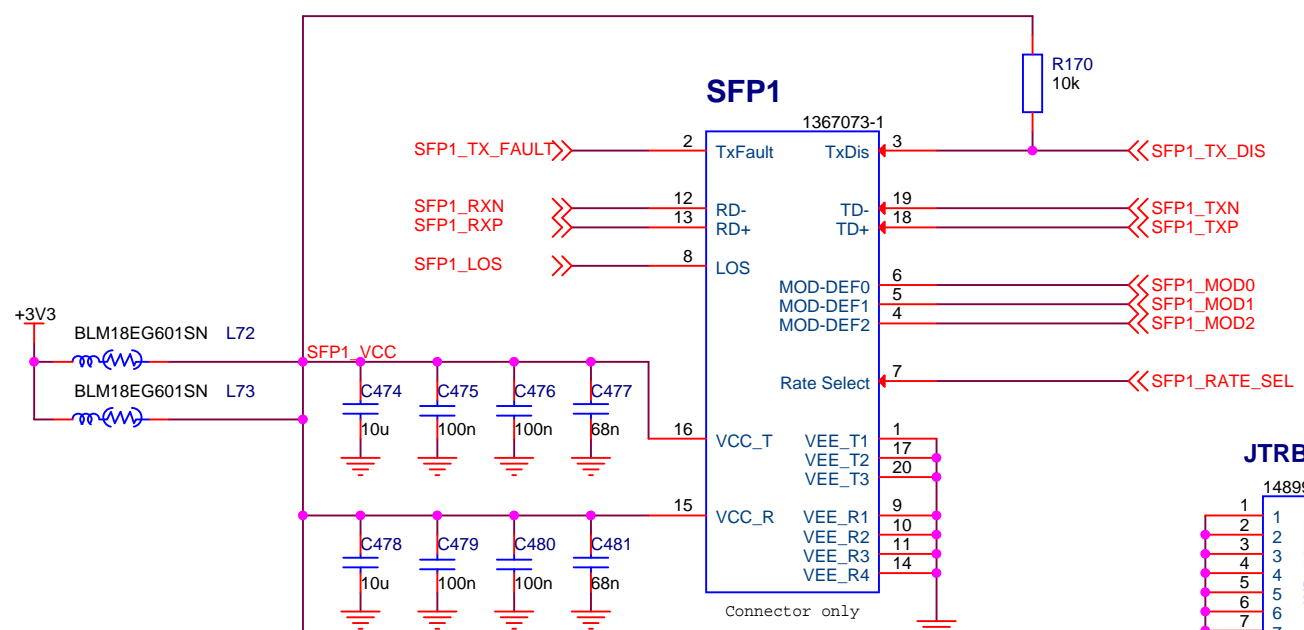
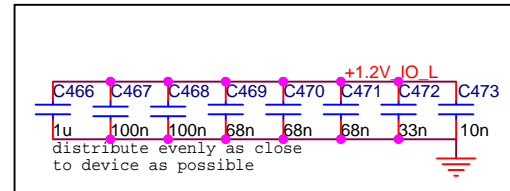
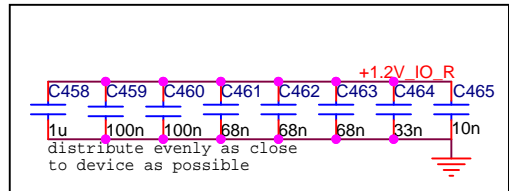
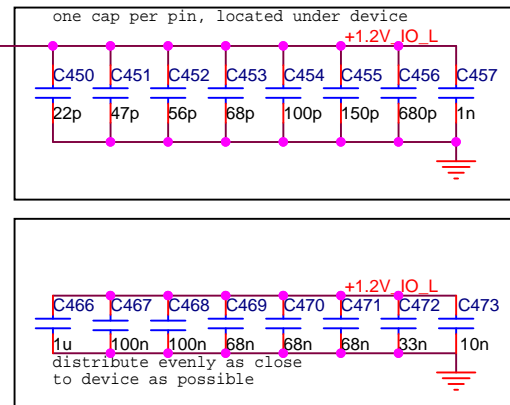
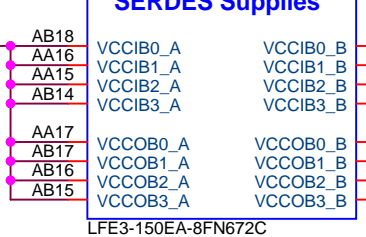
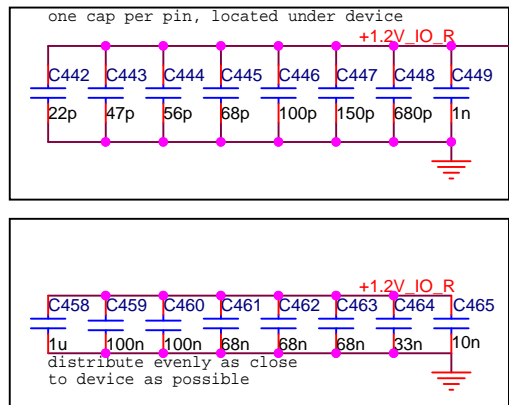
FPGA1F

SERDES  
BOTTOM

RIGHT 50 LEFT 51



100Ohms here?  
offen bitte



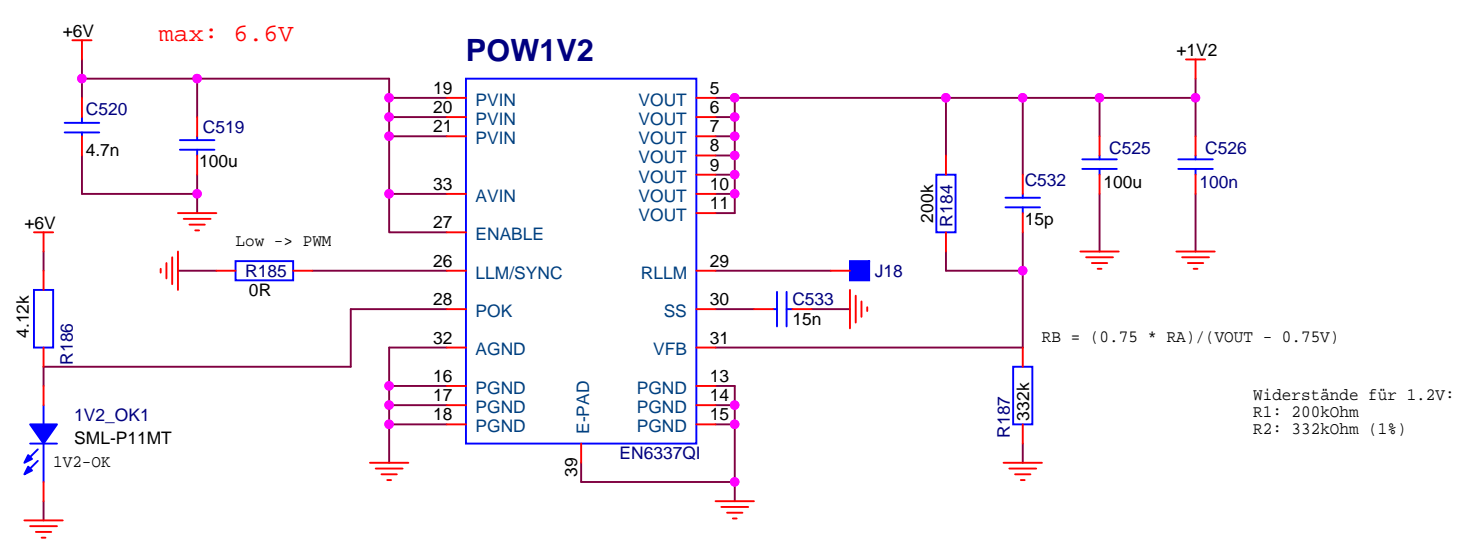
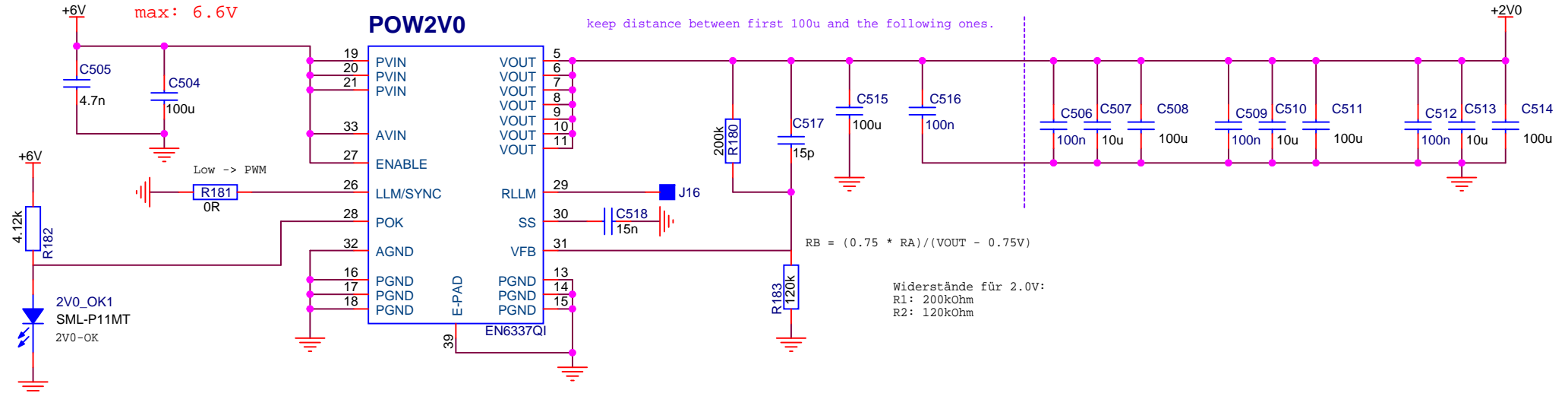
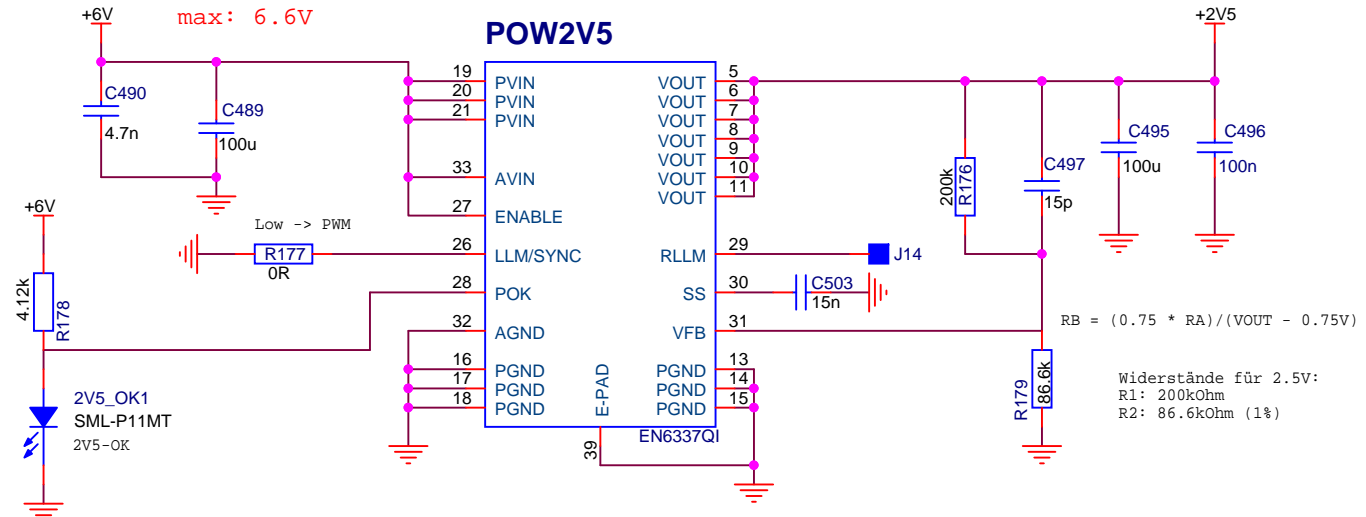
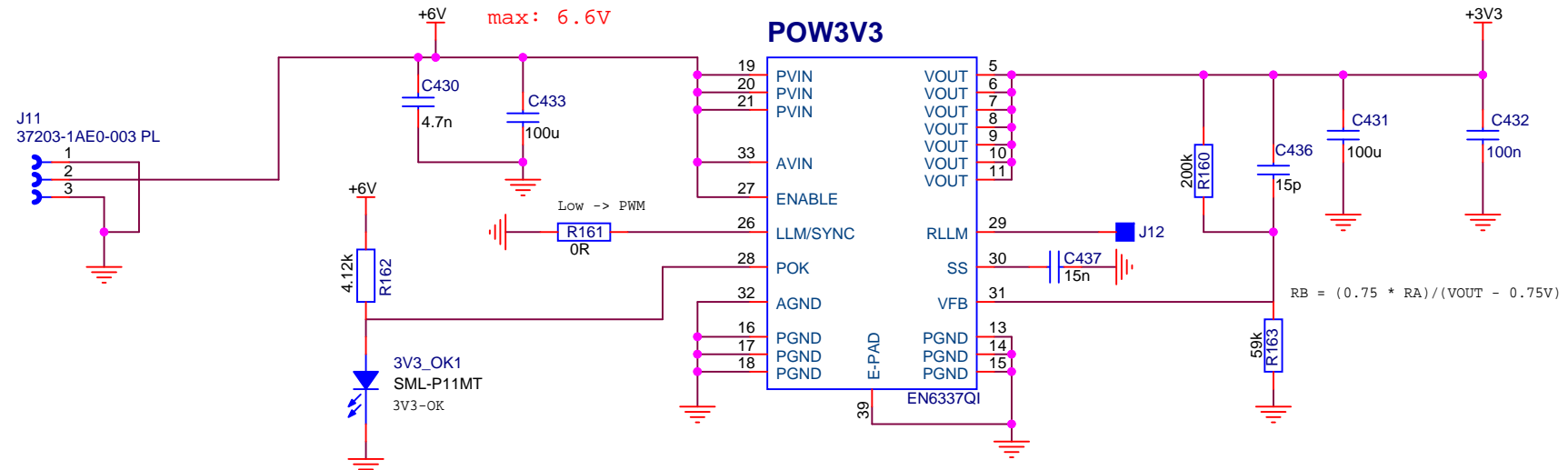
MODDEF0 is grounded by module when inserted

**GSI** Gesellschaft für Schwerionenforschung mbH  
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D-64291 Darmstadt  
GERMANY  
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**04\_SERDES + SFP**

Design: K:\GSI\JOB\COME AND KISS\CBM-RICH-FEE\CBM-RICH-FEE\1CBM-RICH-FEE-04\_SERDES + SFP  
Modified: Tuesday, April 03, 2012  
Designer: M. Traxler

Size: A3  
Page: 5 / 7  
Layouter: S. Voltz



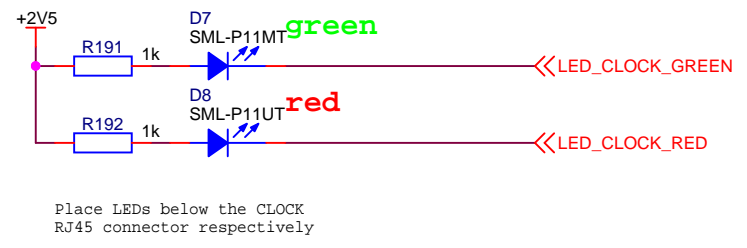
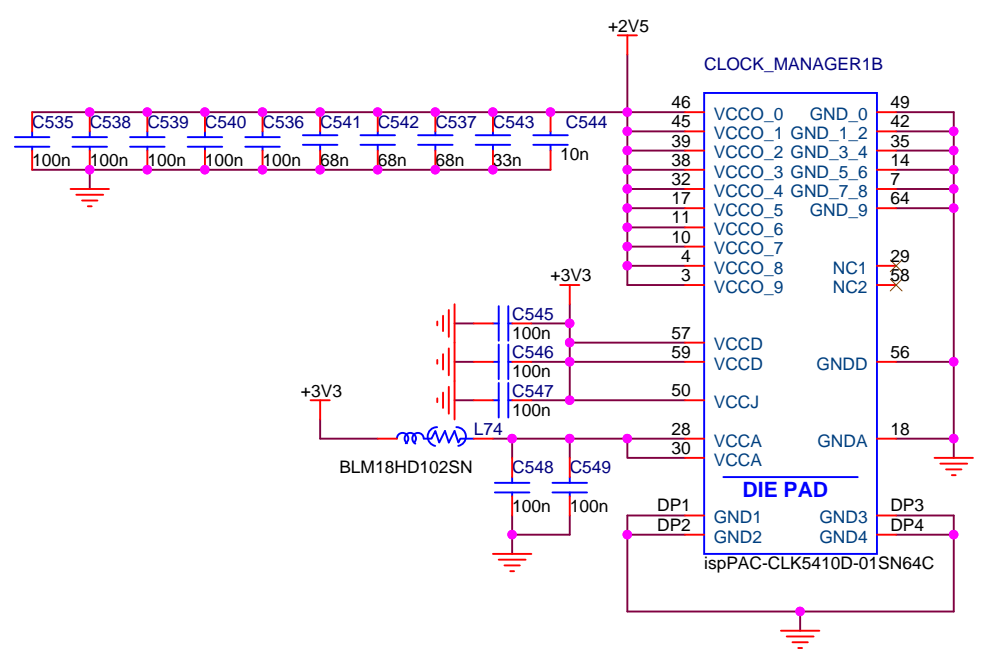
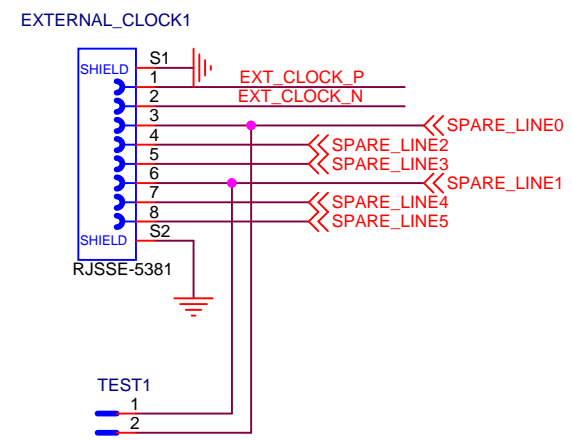
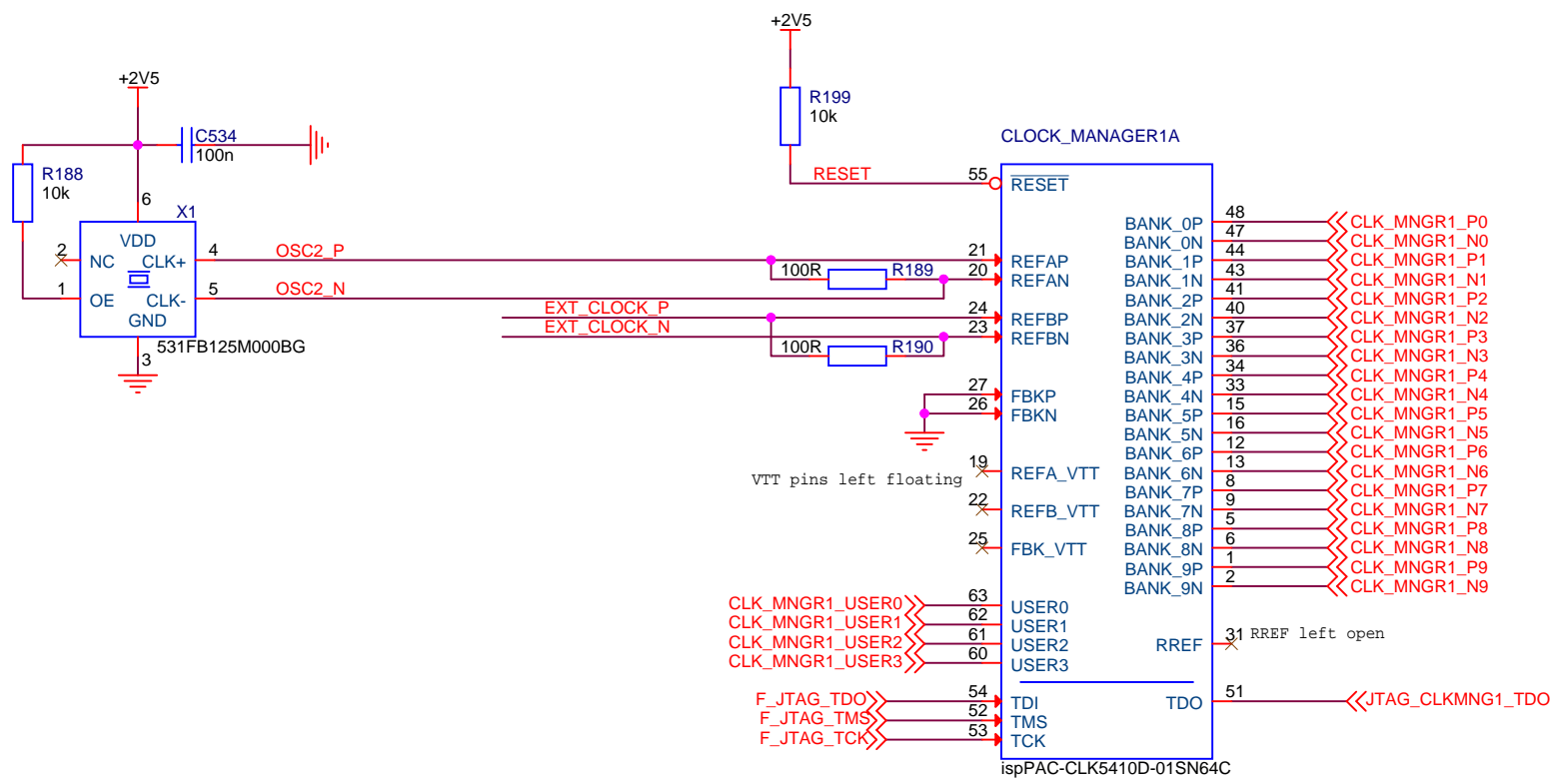
**GSI** Gesellschaft für Schwerionenforschung mbH  
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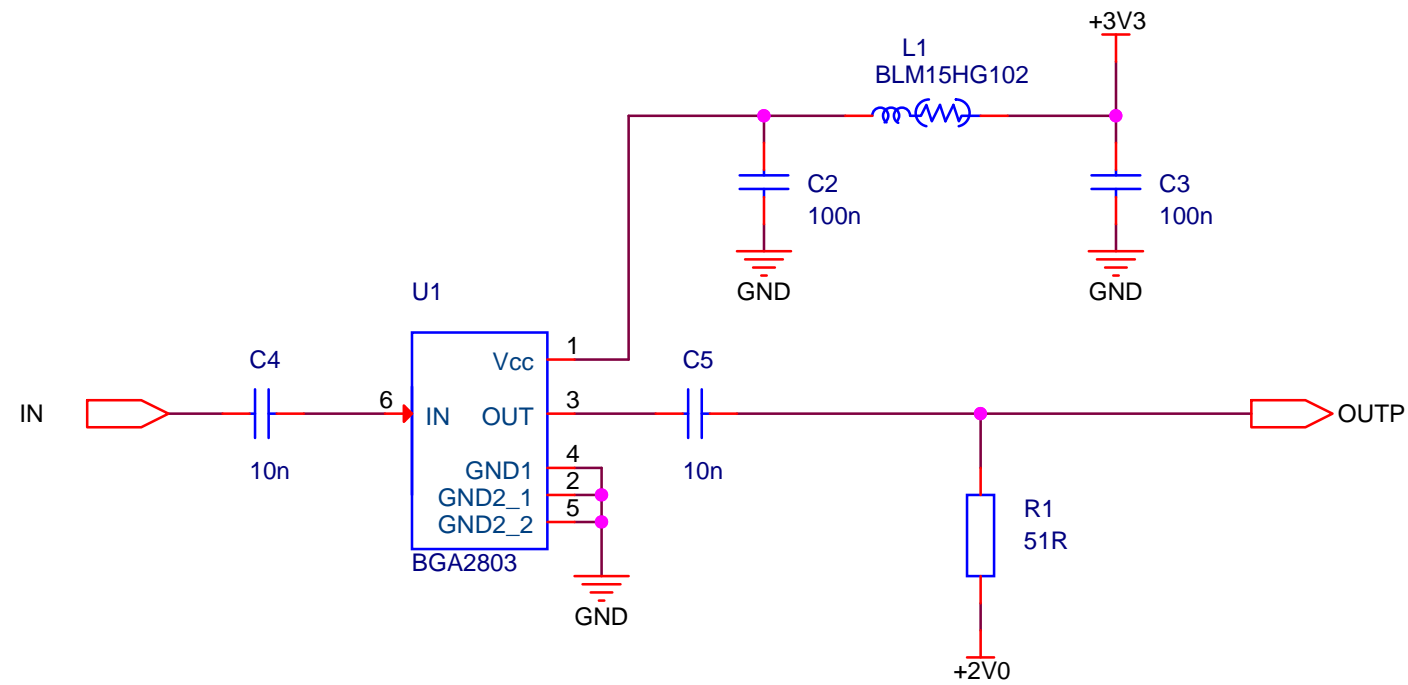
**05\_Power**

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Modified: Tuesday, April 03, 2012  
Designer: M. Traxler

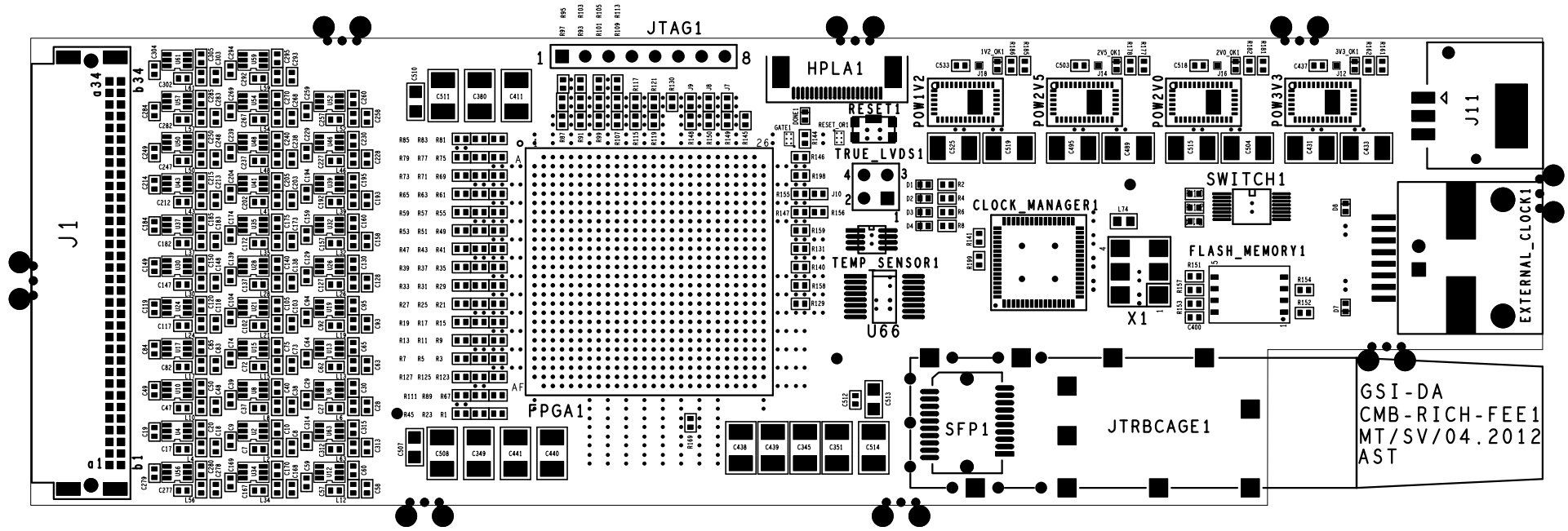
Size: A3  
Page: 6 / 7  
Layouter: S.Voltz







	Gesellschaft für Schwerionenforschung mbH Planckstrasse 1 D-64291 Darmstadt GERMANY <a href="http://www.gsi.de">www.gsi.de</a>	
	<h3>Channel_P</h3>	
Design: K:\GSIJOB\COME_AND_KISS\CBM-RICH-FEE\CBM-RICH-FEE1\CBM-RICH-FEE1		
Modified: Tuesday, April 03, 2012		Size: A4      Page: 8 / 71
Designer: M.Traxler		Layouter: S.Voltz



Jobname  
CBM-RICH-FEE1

Date  
04.2012

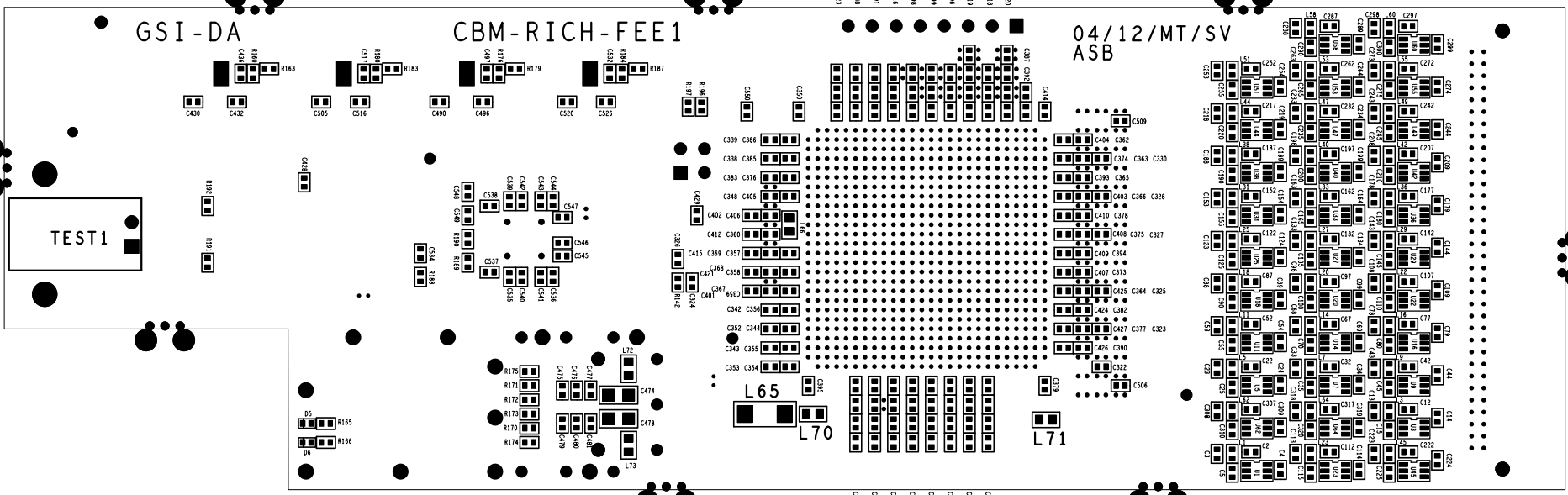
Designer  
M.Traxler

Layouter  
S.Voltz

Layer Nickname

Ast





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04/12/MT/SV  
 ASB

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Asp

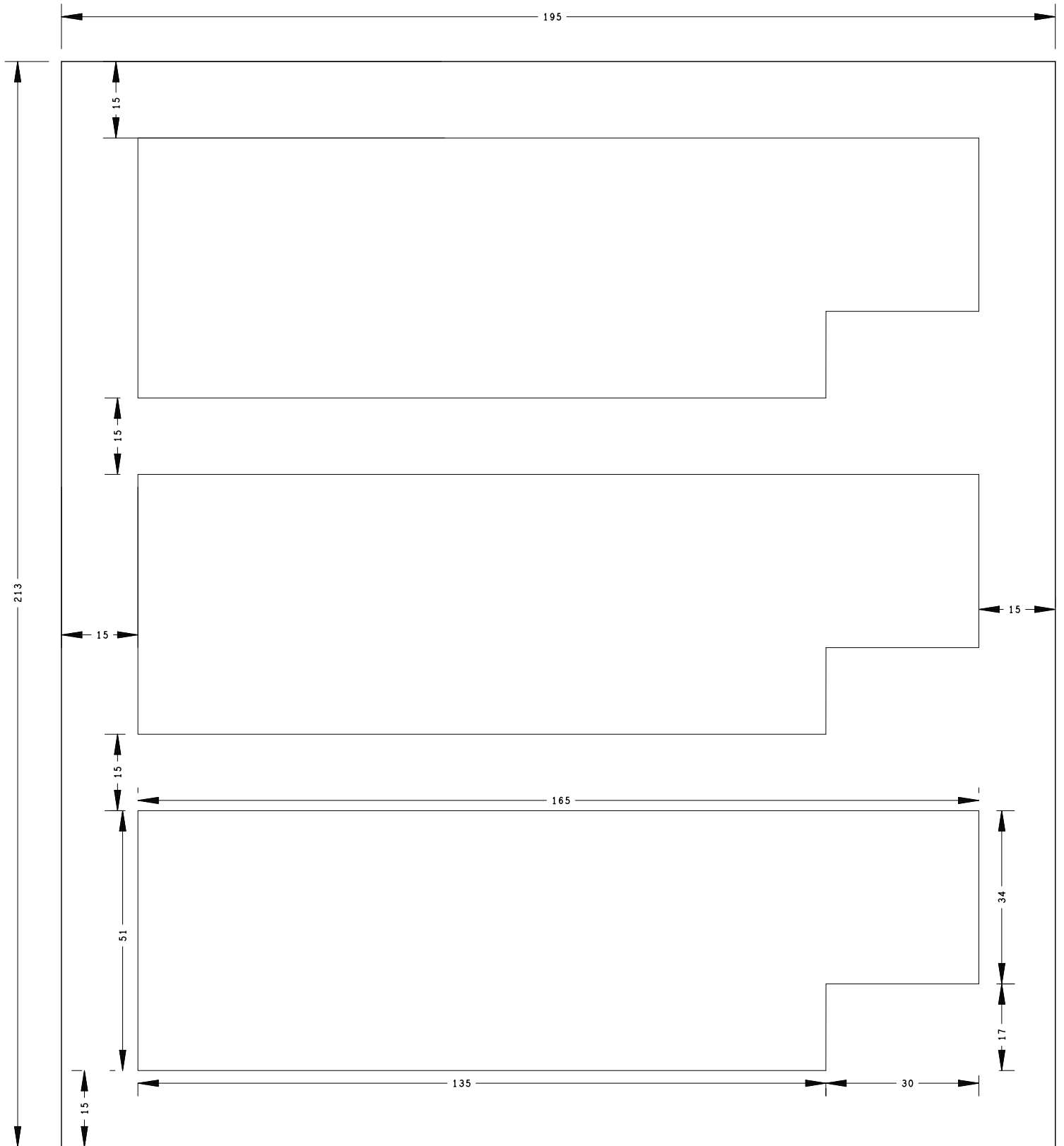
Layer Name

CBM-RICH-FEE1

Date 04.2015

Designer M.Trautler

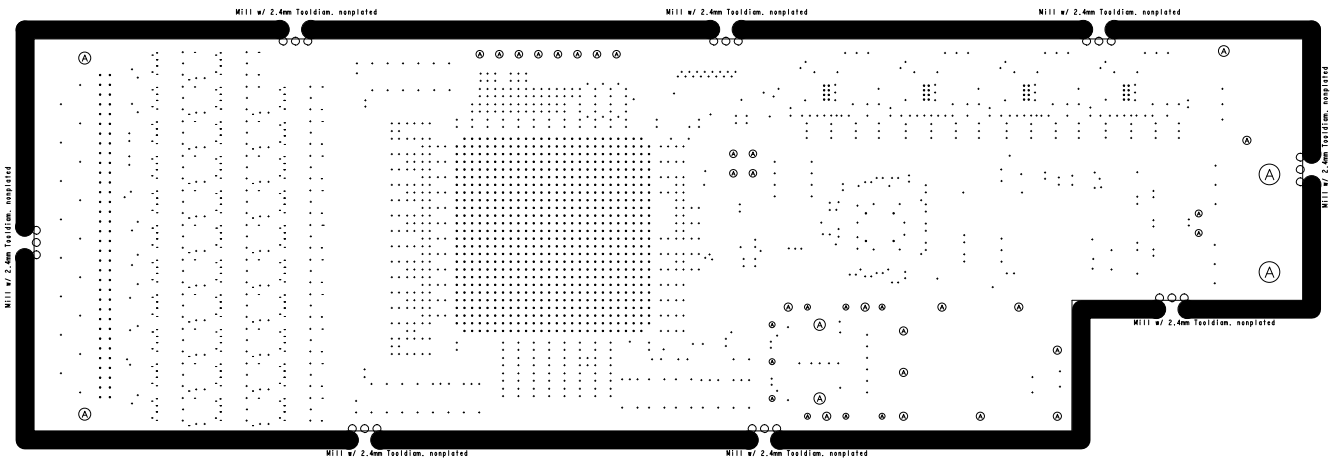
Layouter S.Voltz



Jobname	Date	Designer	Layouter
CBM-RICH-FEE1	04.2012	M.Traxler	S.Voltz

Layer Nickname

Fab



DRILL CHART: TOP to BOTTOM

ALL UNITS ARE IN MILLIMETERS

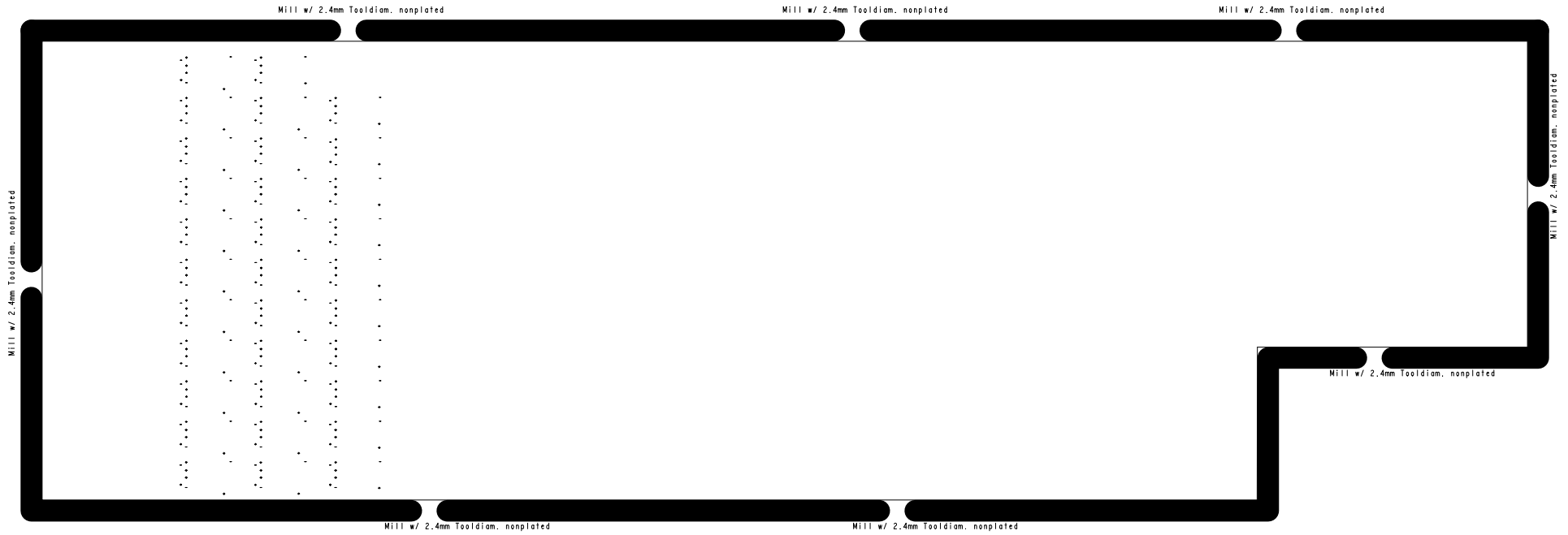
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.	0.2	PLATED	1008
◦	0.4	PLATED	1
⊙	0.8	PLATED	9
⊙	0.9	PLATED	2
⊙	1.0	PLATED	12
⊙	1.1	PLATED	11
○	1.0	NON-PLATED	24
⊙	1.1	NON-PLATED	1
⊙	1.4	NON-PLATED	1
⊙	1.5	NON-PLATED	2
⊙	1.6	NON-PLATED	2
○	2.4	NON-PLATED	16
Ⓐ	2.7	NON-PLATED	2

TOTAL HOLES: 1867



Jobname                      Date                      Designer                      Layouter  
 CBM-RICH-FEE1              04.2012                      M.Traxler                      S.Voltz

Layer Nickname                      Drd



DRILL CHART: TOP to INNER1			
ALL UNITS ARE IN MILLIMETERS			
FIGURE	SIZE	PLATED	QTY
.	0.2	PLATED	160

TOTAL HOLES: 160

Jobname  
CBM-RICH-FEE1

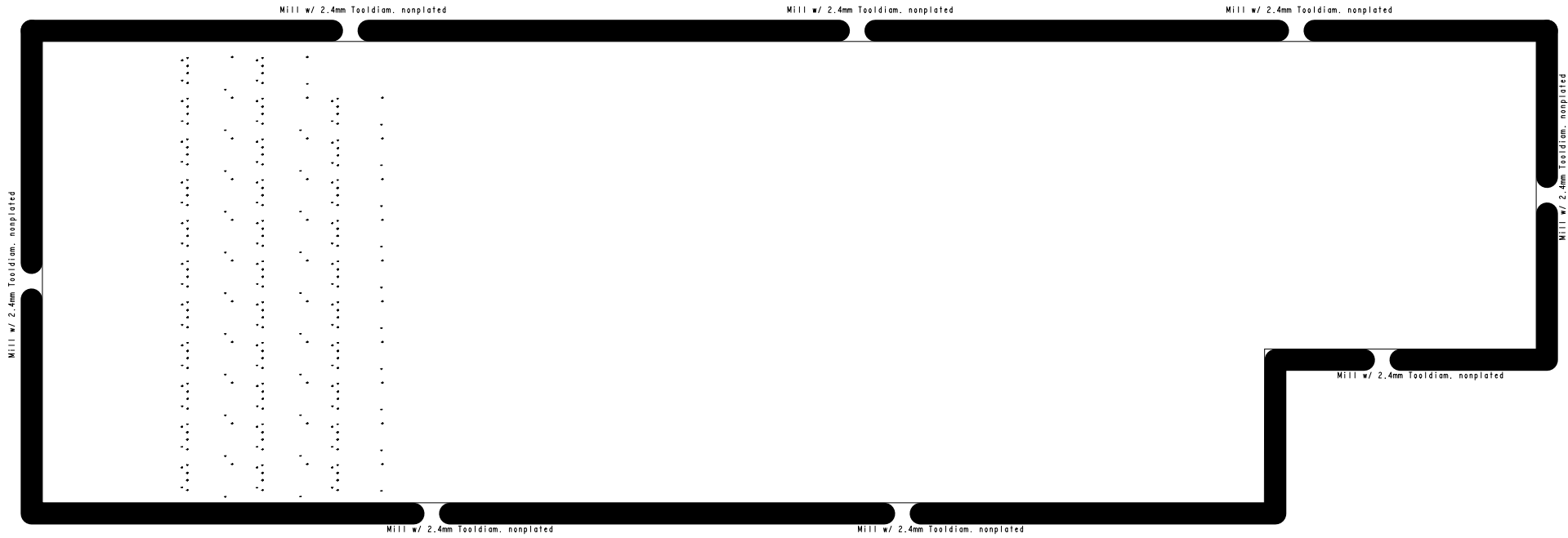
Date  
04.2012

Designer  
M.Traxler

Layouter  
S.Voltz

Layer Nickname

Drd



DRILL CHART: INNER10 to BOTTOM			
ALL UNITS ARE IN MILLIMETERS			
FIGURE	SIZE	PLATED	QTY
.	0.2	PLATED	160
TOTAL HOLES:			160

Jobname  
CBM-RICH-FEE1

Date  
04.2012

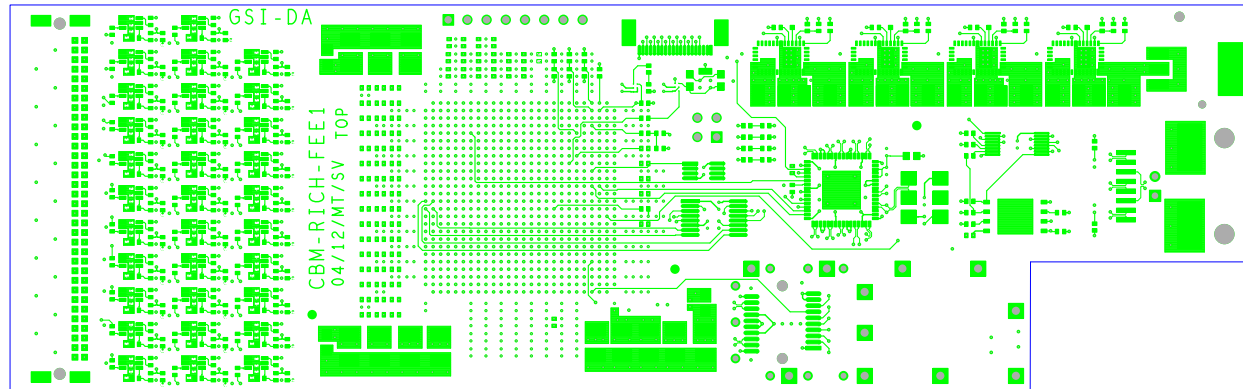
Designer  
M.Traxler

Layouter  
S.Voltz

Layer Nickname

Drd

# TOP- Signals

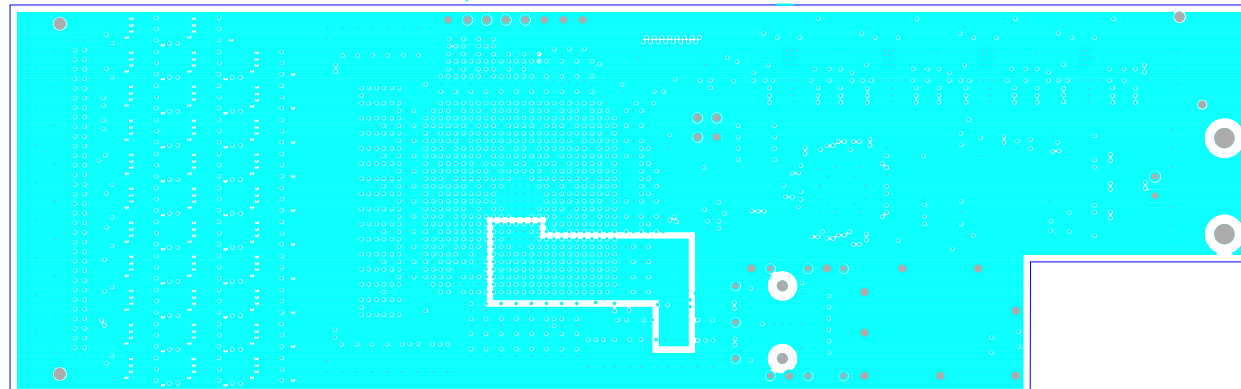


Jobname	Date	Designer	Layouter
CBM-RICH-FEE1	04.2012	M.Traxler	S.Voltz

name



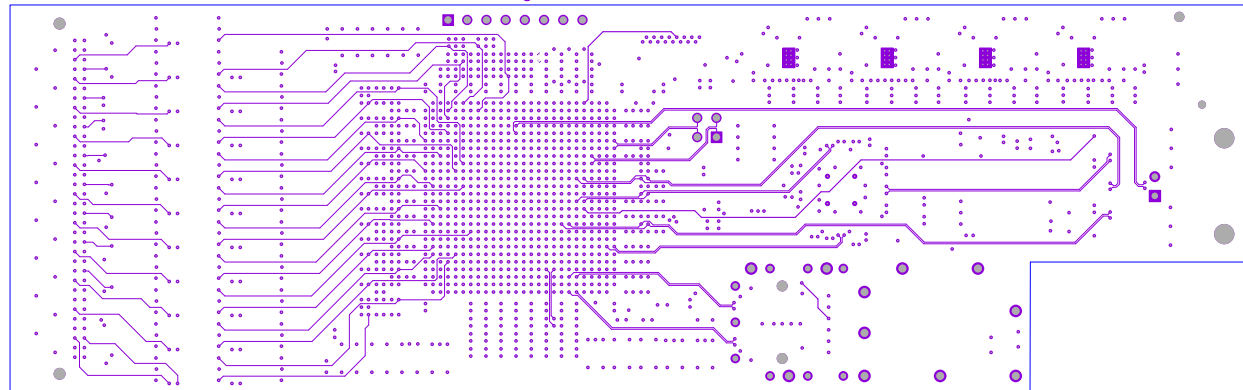
IN1- GND-Plane, Planes: +1.2V VCCA



Jobname	Date	Designer	Layouter
CBM-RICH-FEE1	04.2012	M.Traxler	S.Voltz

name

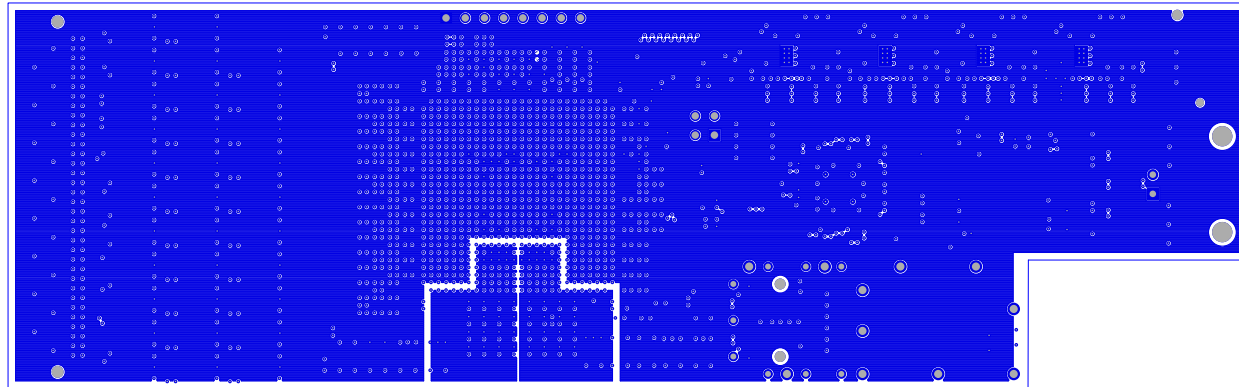
# IN2- 500hm single ended, Diff. Pairs



Jobname	Date	Designer	Layouter
CBM-RICH-FEE1	04.2012	M.Traxler	S.Voltz

name

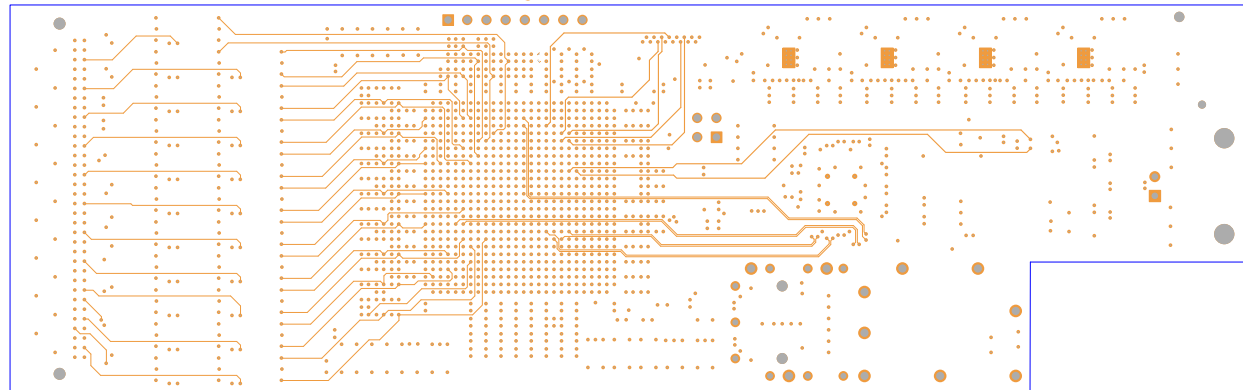
IN3- Planes: +3V3,+1.2V\_lo\_L, +1.2V\_lo\_R



Jobname	Date	Designer	Layouter
CBM-RICH-FEE1	04.2012	M.Traxler	S.Voltz

name

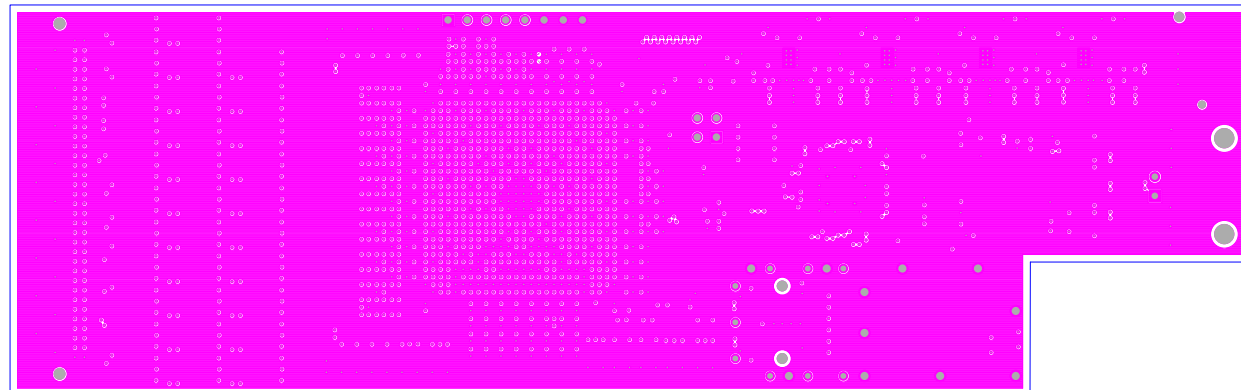
IN4- 500hm single ended, Diff. Pairs



Jobname	Date	Designer	Layouter
CBM-RICH-FEE1	04.2012	M.Traxler	S.Voltz

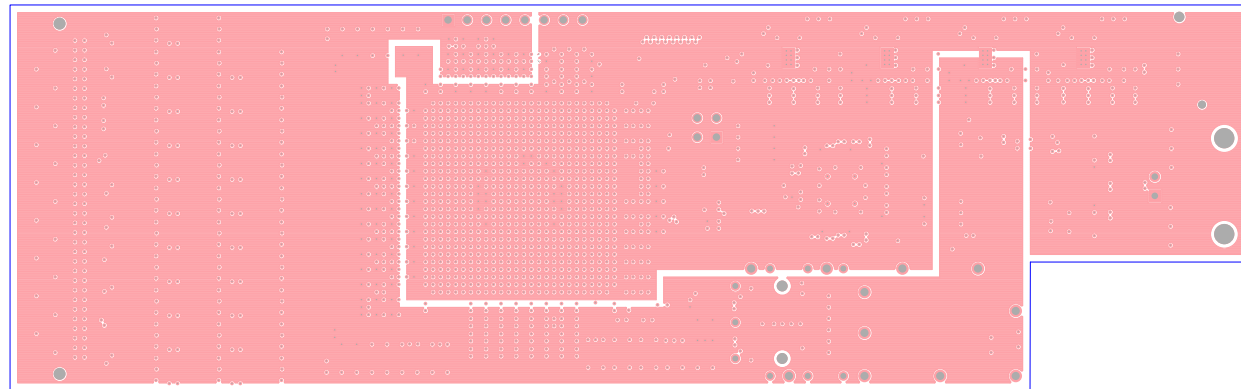
n ame

## IN5- GND-Plane



Jobname	Date	Designer	Layouter
CBM-RICH-FEE1	04.2012	M.Traxler	S.Voltz
name			

IN6- Planes: +2V0,+2V5

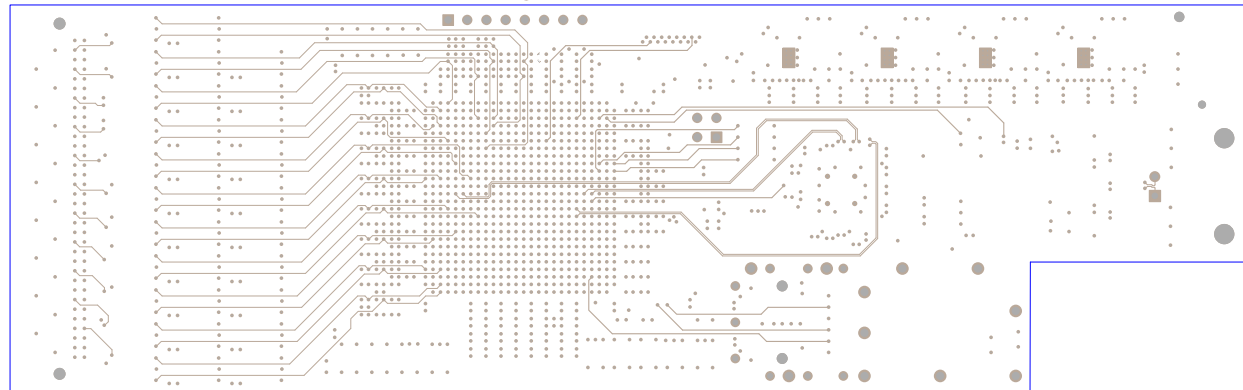


Jobname	Date	Designer	Layouter
CBM-RICH-FEE1	04.2012	M.Traxler	S.Voltz

n  
a  
m  
e



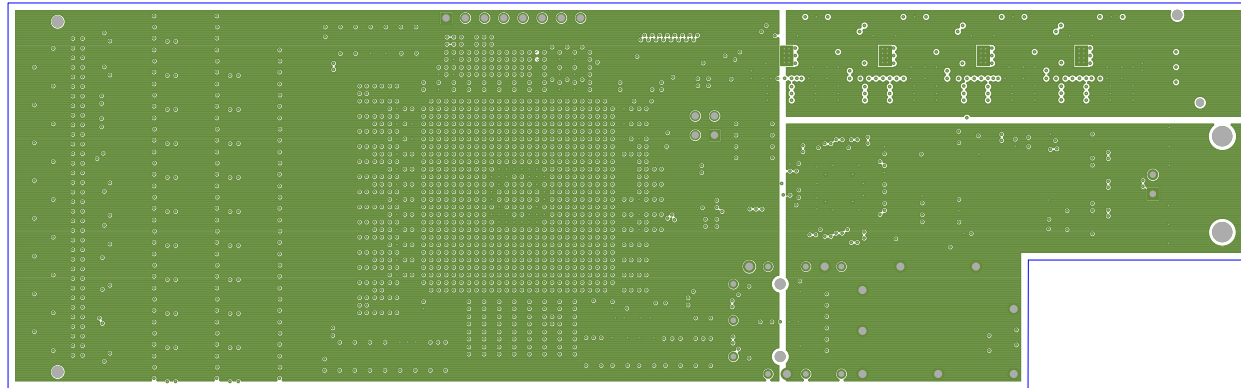
IN7- 500hm single ended, Diff. Pairs



Jobname	Date	Designer	Layouter
CBM-RICH-FEE1	04.2012	M.Traxler	S.Voltz

n a m e

IN8- Planes: +1V2,+6V,GND



Jobname  
CBM-RICH-FEE1

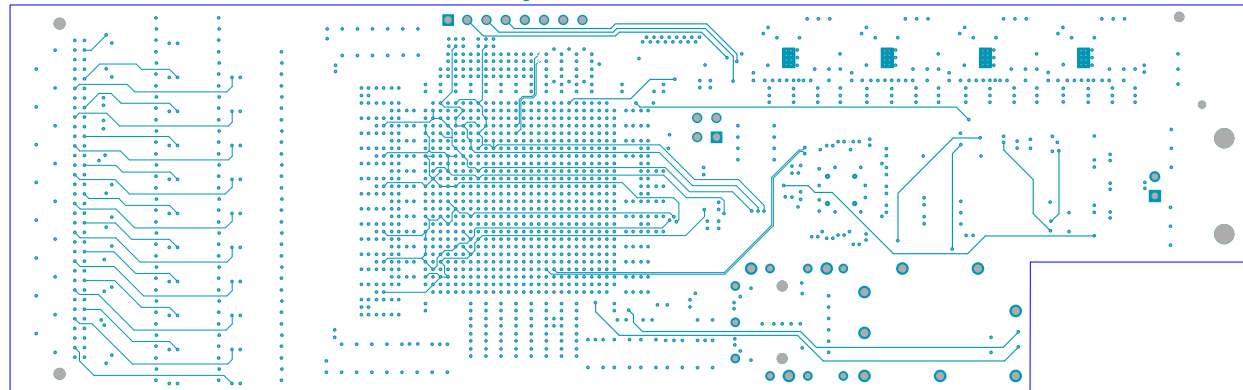
Date  
04.2012

Designer  
M.Traxler

Layouter  
S.Voltz

name

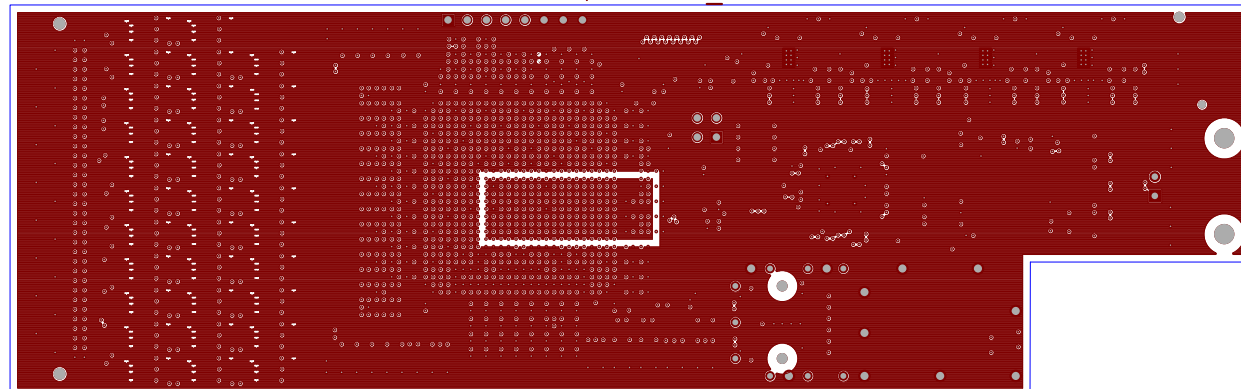
IN9- 500hm single ended, Diff. Pairs



Jobname	Date	Designer	Layouter
CBM-RICH-FEE1	04.2012	M.Traxler	S.Voltz

n ame

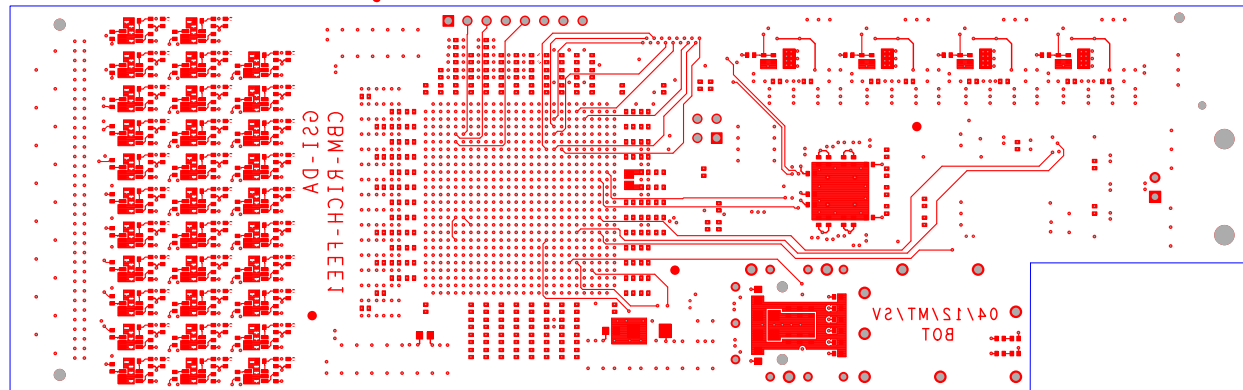
# IN10- GND-Plane, +3.3V\_PLL



Jobname	Date	Designer	Layouter
CBM-RICH-FEE1	04.2012	M.Traxler	S.Voltz

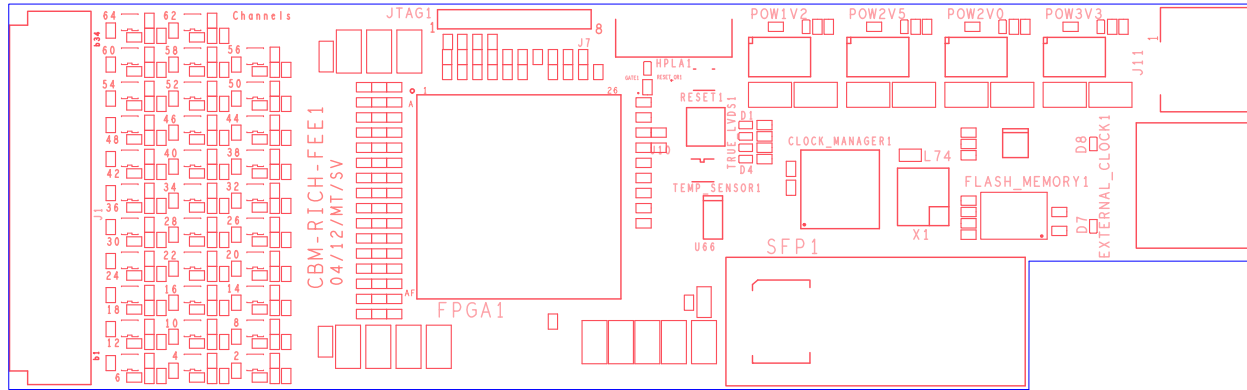
name

# BOT- Signals



Jobname	Date	Designer	Layouter
CBM-RICH-FEE1	04.2012	M.Traxler	S.Voltz

name

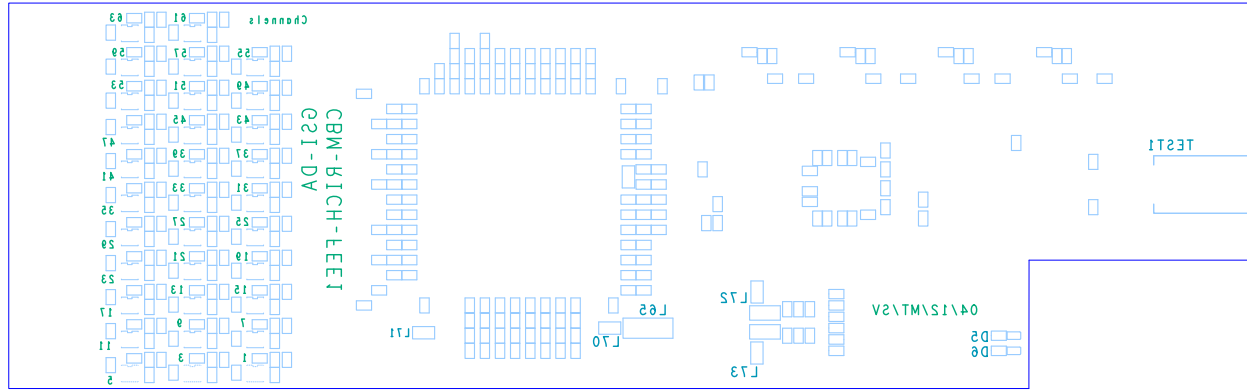


<b>Jobname</b>	<b>Date</b>	<b>Designer</b>	<b>Layouter</b>
CBM-RICH-FEE1	04.2012	M.Traxler	S.Voltz

Layer Nickname

Sst





	Jobname	Date	Designer	Layouter
	CBM-RICH-FEE1	04.2012	M.Traxler	S.Voltz
Layer	Nickname			
	Ssb			

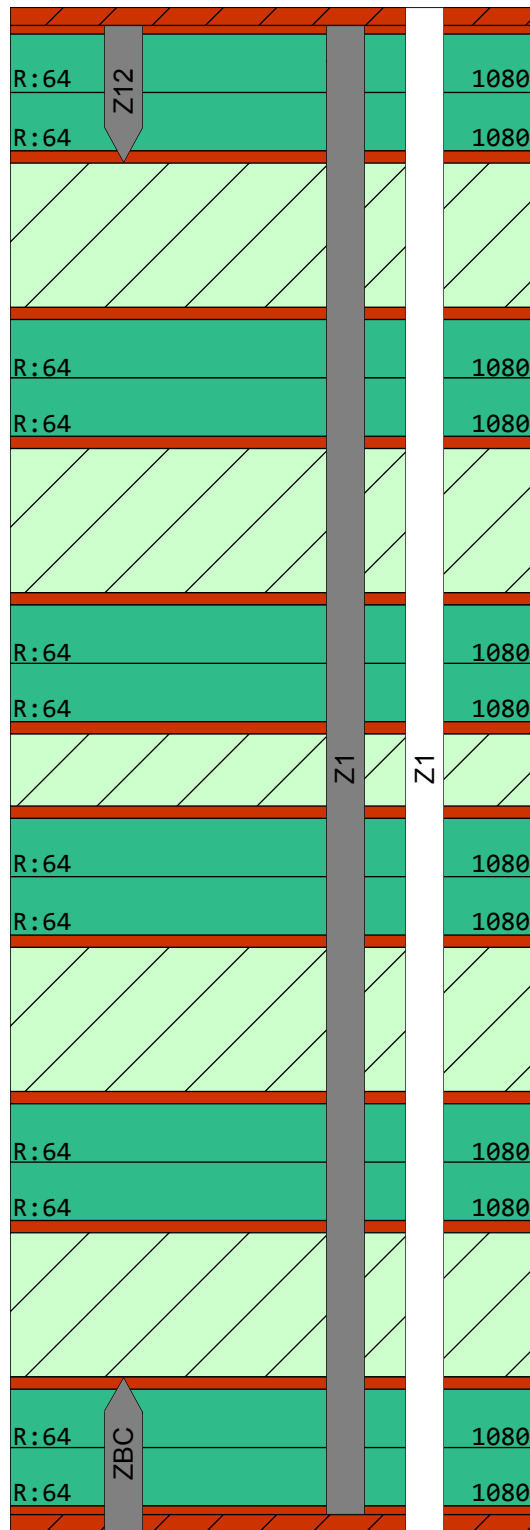
Material (µm)

Stack up

File

Assembly

25 Galvanic Cu  
 12 Copper  
 75 NP-155F-B  
 64 NP-155F-B  
 17 Copper  
 200 NP-155F-TL  
 17 Copper  
 64 NP-155F-B  
 64 NP-155F-B  
 17 Copper  
 200 NP-155F-TL  
 17 Copper  
 64 NP-155F-B  
 64 NP-155F-B  
 17 Copper  
 100 NP-155F-TL  
 17 Copper  
 64 NP-155F-B  
 64 NP-155F-B  
 17 Copper  
 200 NP-155F-TL  
 17 Copper  
 64 NP-155F-B  
 64 NP-155F-B  
 17 Copper  
 200 NP-155F-TL  
 17 Copper  
 64 NP-155F-B  
 75 NP-155F-B  
 12 Copper  
 25 Galvanic Cu



BS

I2

I3

I4

I5

I6

I7

I8

I9

I10

I11

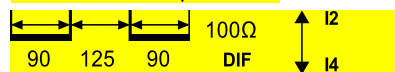
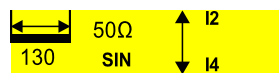
LS

A1

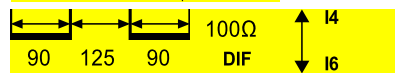
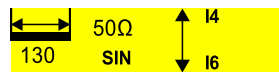
Pressed thickness 1.88 mm

Date 28.03.2012  
 Generated by gbiernat

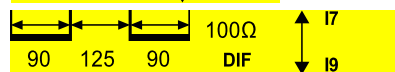
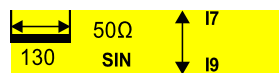
## i3



## i5



## i8



## 10

