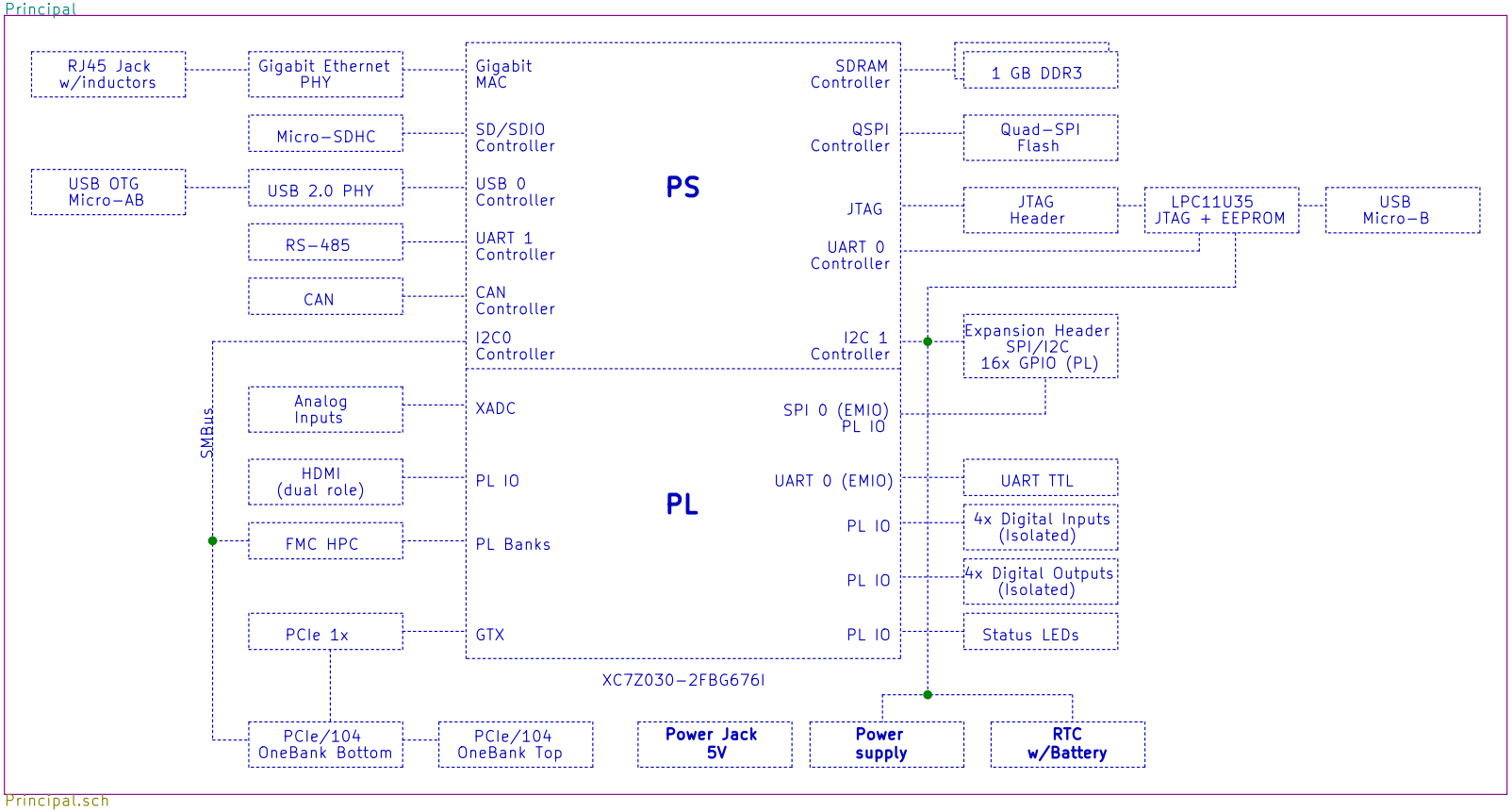
# Computadora Industrial Abierta Argentina
# CIAA–ACC
# Xilinx XC7Z030 (2x Cortex A9 + Kintex–7 FPGA)

Principal




Principal.sch

INTI

open source hardware

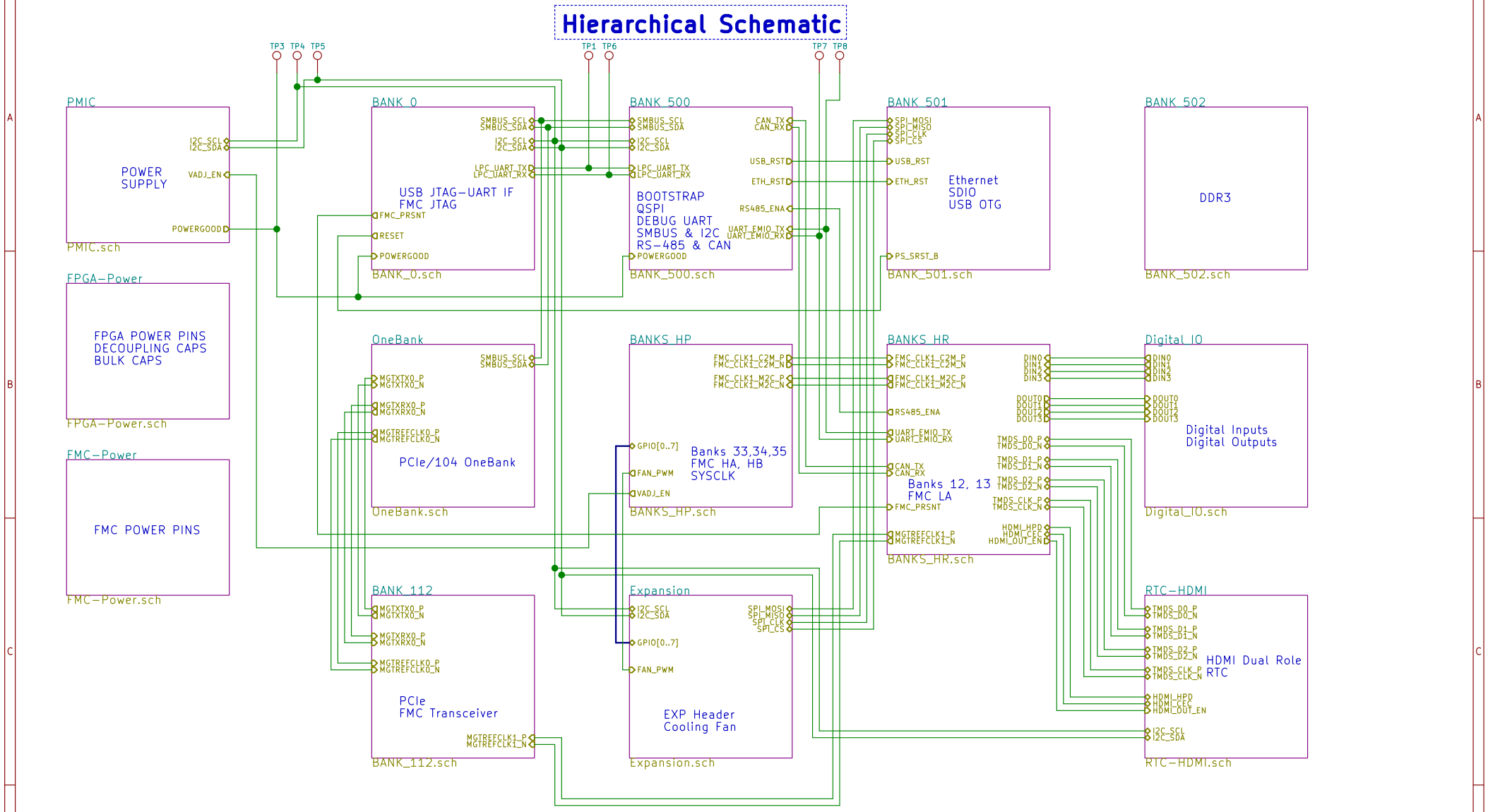
Authors: See 'doc/CHANGES.txt' file. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.

**COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA–ACC (HPC)**

Sheet: /
File: ciaa_acc.sch

***Title: CIAA–ACC Block Diagram***

| Size: A4 | Date: 2016–10–17 | **Rev: V1.1** |
|---|---|---|
| KiCad E.D.A. kicad 4.0.7 | | Id: 1/16 |




## FMC COMPATIBILITY NOTE:

Currents:
3.3V: 3A
VADJ: 2A
12V: Not implemented

VIO_B_M2C: Not implemented
VADJ: Powers the LA bank only
Banks HA & HB: 1.5/1.8V only, selectable by switch

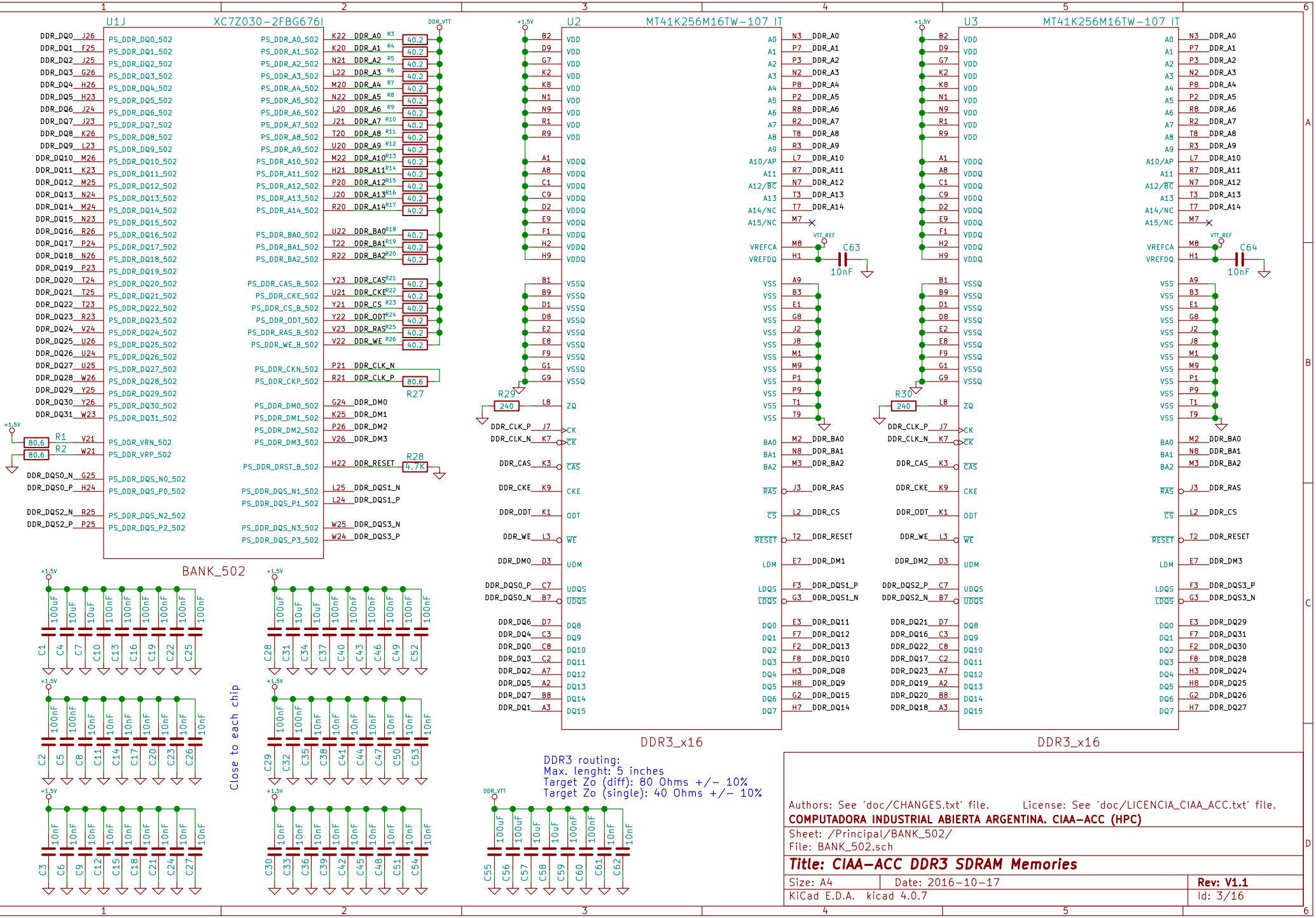
Authors: See 'doc/CHANGES.txt' file.


**COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)**

Sheet: /Principal/
File: Principal.sch

***Title: CIAA-ACC Hierarchical schematic***

| | | |
|---|---|---|
| Size: A4 | Date: 2016-10-17 | **Rev: V1.1** |
| KiCad E.D.A. kicad 4.0.7 | | Id: 2/16 |




Authors: See 'doc/CHANGES.txt' file. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.

**COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)**

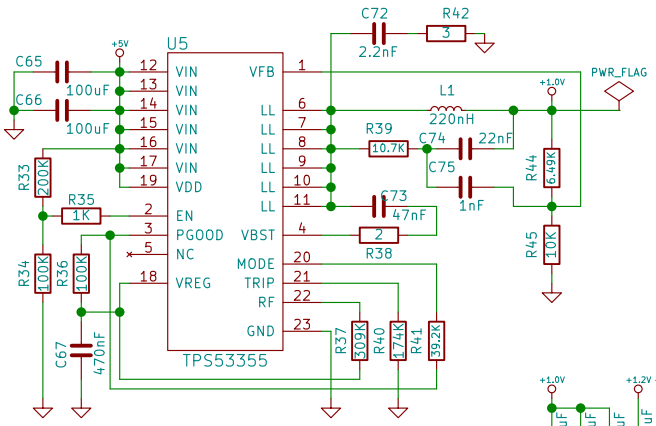
Sheet: /Principal/BANK_502/
File: BANK_502.sch

***Title: CIAA-ACC DDR3 SDRAM Memories***

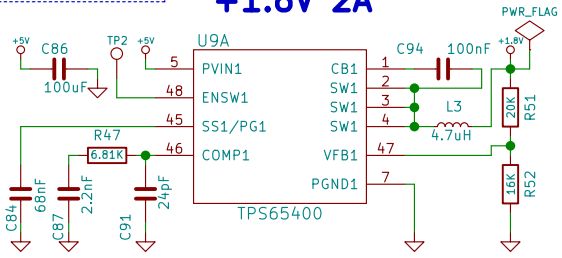
| Size: A4 | Date: 2016-10-17 | **Rev: V1.1** |
|---|---|---|
| KiCad E.D.A. kicad 4.0.7 | | Id: 3/16 |

# Power Supply

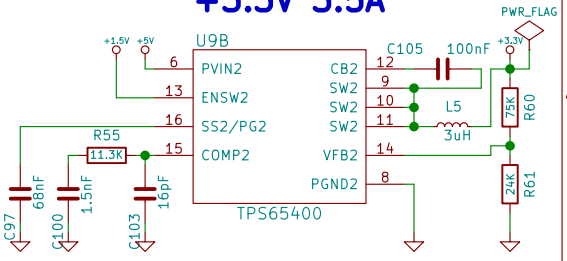
## +1.0V 25A



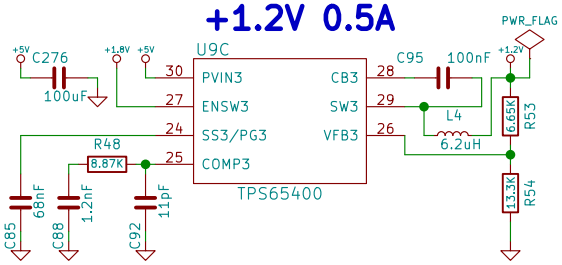

## +1.8V 2A



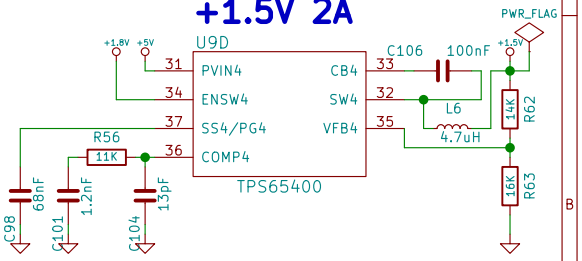

## +3.3V 3.5A



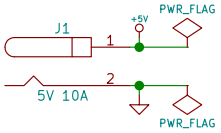

## +1.2V 0.5A

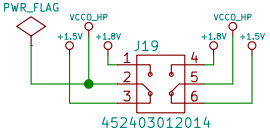


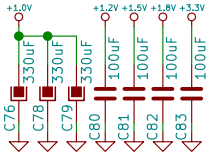

## +1.5V 2A



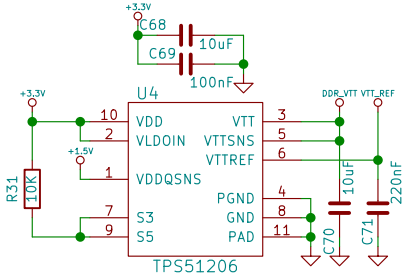

## DC Input +5V 10A



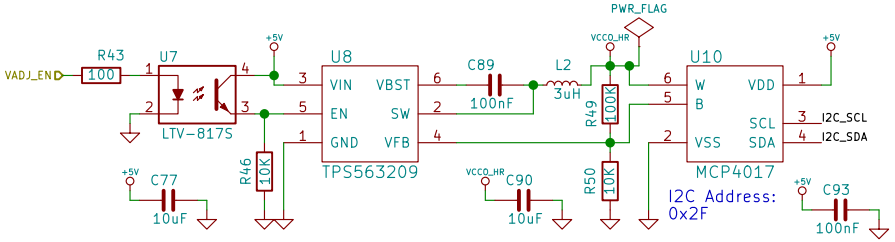



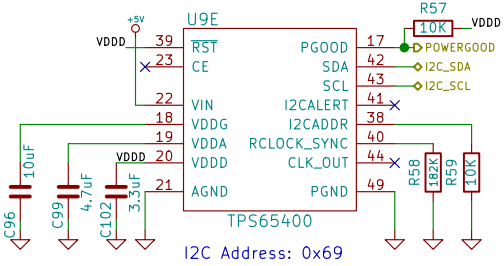

## DDR_VTT +0.75V




## VADJ 2A




"EN" del TPS563209:
Conectado a pines del FPGA para apagar antes de cambiar feedback.
ver si va con 1.5V o poner transistor




Last POWERGOOD signal, when it is active all voltages are in the right level.

| Voltage | Power |
|---|---|
| +1V | 25W |
| +1.2V | 0.6W |
| +1.5V | 3W |
| +1.8V | 3.6W |
| +3.3V | 11.55W |
| VADJ | 6.6W |
| Total | 50W |

Authors: See 'doc/CHANGES.txt' file. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.

**COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)**

Sheet: /Principal/PMIC/
File: PMIC.sch

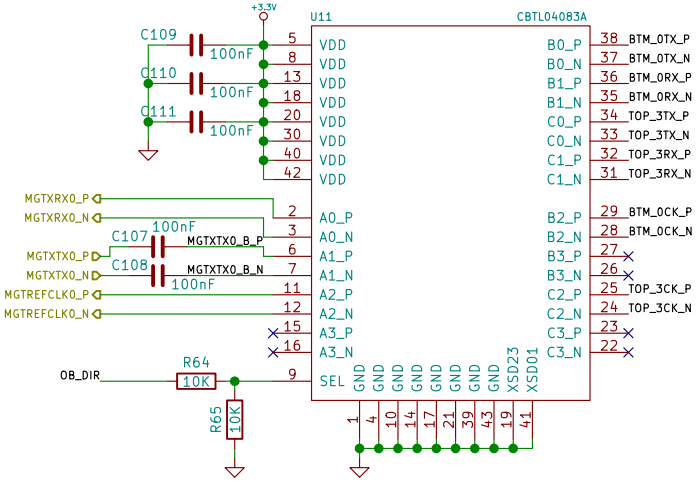
***Title: CIAA-ACC Power supply***

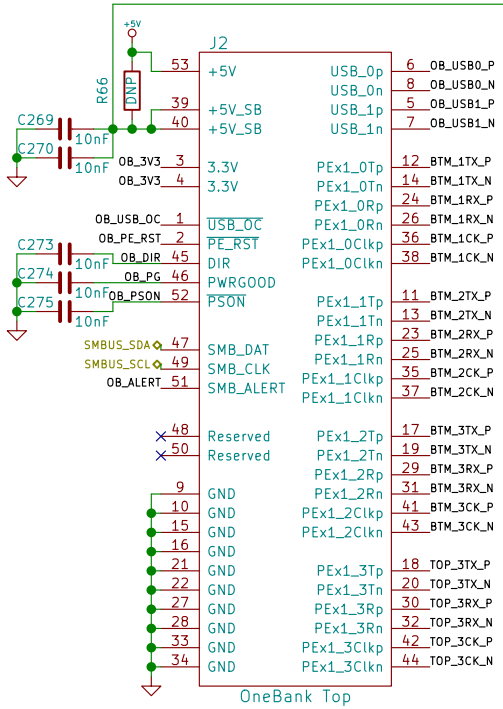
| Size: A4 | Date: 2016-10-17 | **Rev: V1.1** |
|---|---|---|
| KiCad E.D.A. kicad 4.0.7 | | Id: 4/16 |

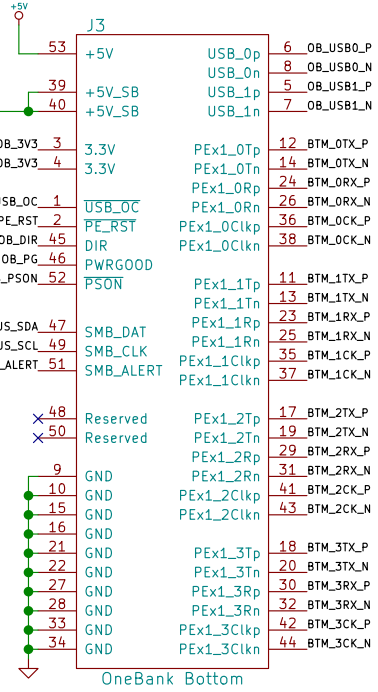
# PCIe/104 OneBank Connector

H1 H3
H2 H4
Holes PCIe 104

## Mux/Demux Switch




PCIe OneBank device routing:
Max. lenght: 4 inches
Target Zo (diff): 85 Ohms +/- 15%
Spacing between links: 20 mils
Matching tolerance (intra-pair): 5 mils
Matching tolerance (inter-pair): Not required


Authors: See 'doc/CHANGES.txt' file.



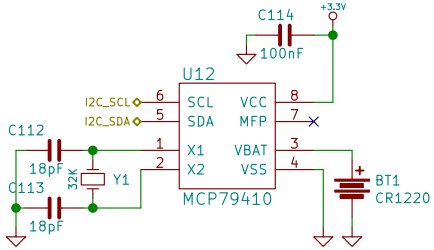
**COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)**

Sheet: /Principal/OneBank/
File: OneBank.sch

***Title: CIAA-ACC PCIe/104 OneBank Connector***

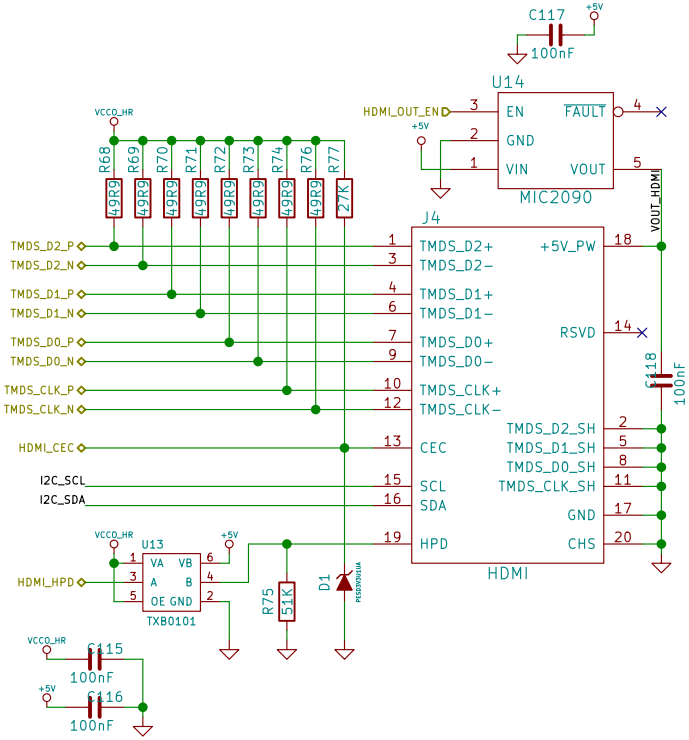
| Size: A4 | Date: 2016-10-17 | **Rev: V1.1** |
|---|---|---|
| KiCad E.D.A. kicad 4.0.7 | | Id: 5/16 |

# HDMI / RTC




I2C Addresses: 0x6F & 0x57

## Real Time Clock




## HDMI DUAL ROLE

Note for HDMI: VCCO_HR must be 3.3V

Authors: See 'doc/CHANGES.txt' file. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.

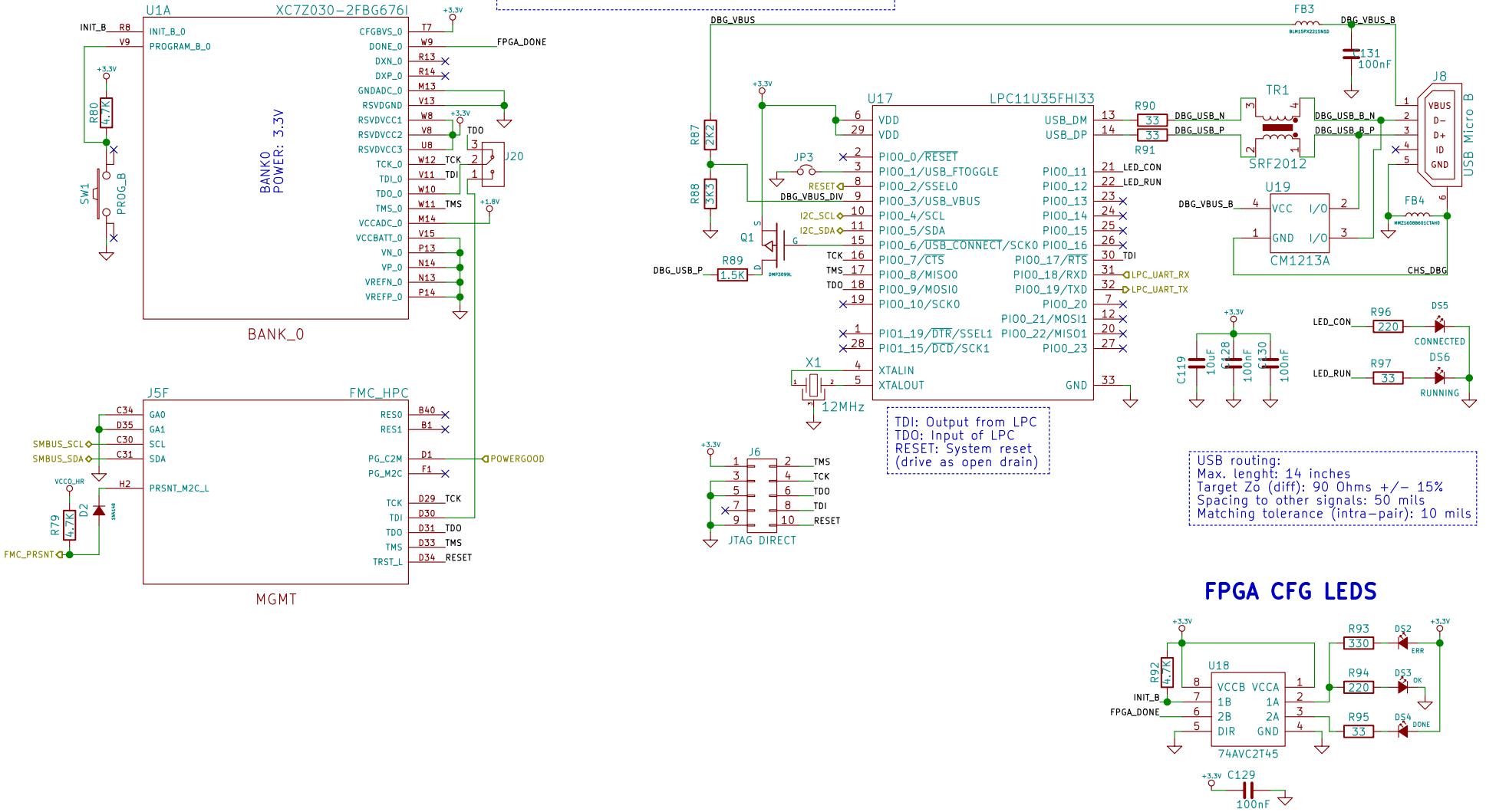
**COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA–ACC (HPC)**

Sheet: /Principal/RTC–HDMI/
File: RTC–HDMI.sch

***Title: CIAA–ACC HDMI Dual Role***

| Size: A4 | Date: 2016–10–17 | **Rev: V1.1** |
|---|---|---|
| KiCad E.D.A. kicad 4.0.7 | | Id: 6/16 |

# USB JTAG UART / FMC JTAG




Authors: See 'doc/CHANGES.txt' file. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.

**COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)**

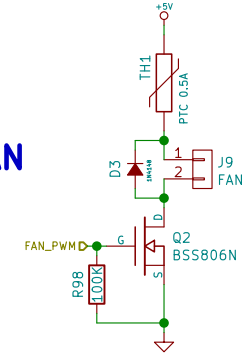
Sheet: /Principal/BANK_0/
File: BANK_0.sch

***Title: CIAA-ACC USB JTAG UART / FMC JTAG***

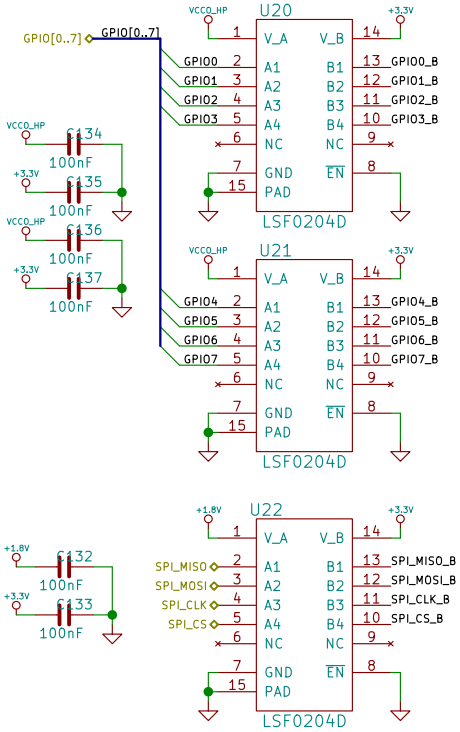
| Size: A4 | Date: 2016-10-17 | **Rev: V1.1** |
|---|---|---|
| KiCad E.D.A. kicad 4.0.7 | | Id: 7/16 |

# Expansion Header / FAN Connector

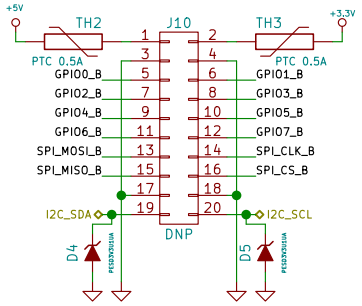
## FAN




## Voltage level translator




## Expansion Header




GPIO Only available when VCCO_HP = 1.8V

F1 F2 F3 F4



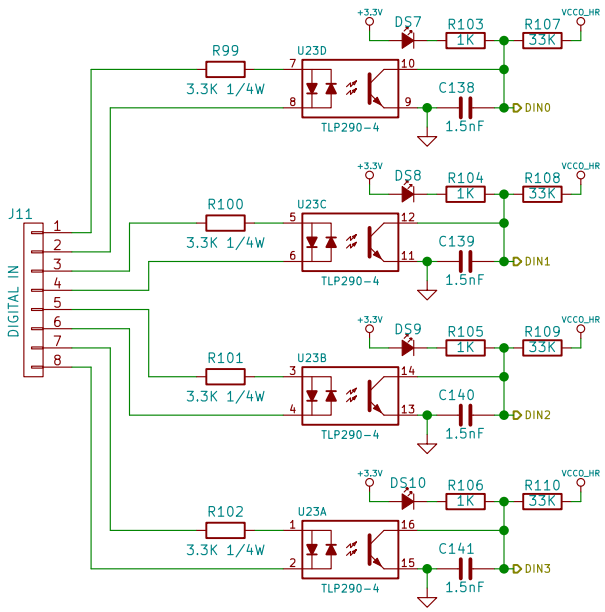
**COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)**

Sheet: /Principal/Expansion/
File: Expansion.sch

***Title: CIAA-ACC Expansion Header (GPIO, SPI, I2C) / FAN Connector***

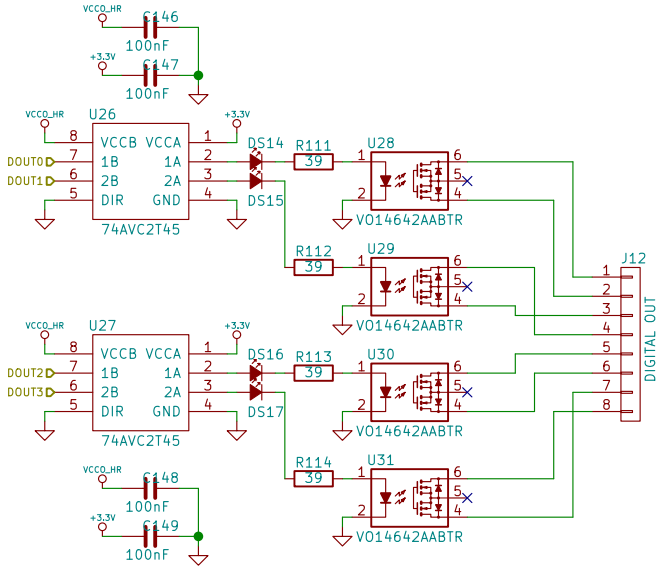
| Size: A4 | Date: 2016-10-17 | **Rev: V1.1** |
|---|---|---|
| KiCad E.D.A. kicad 4.0.7 | | Id: 8/16 |

# Digital Inputs and Outputs




## ISOLATED DIGITAL INPUTS

Range: 12 to 24 V




## ISOLATED DIGITAL OUTPUTS

Range: up to 60 V

Authors: See 'doc/CHANGES.txt' file. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.

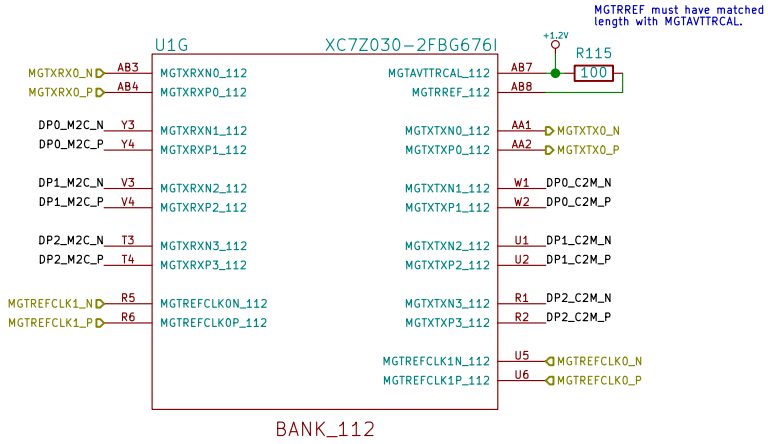
**COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)**

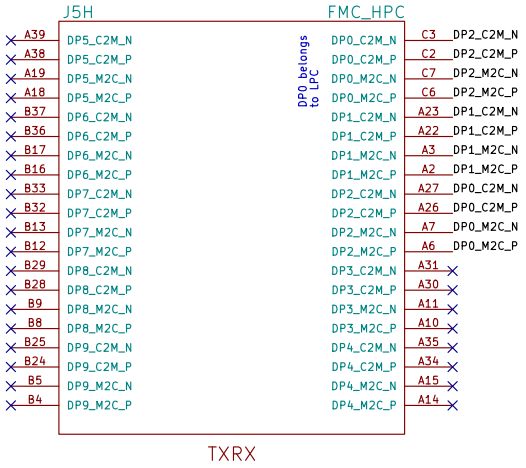
Sheet: /Principal/Digital_IO/
File: Digital_IO.sch

***Title: CIAA-ACC Digital Inputs and Outputs***

| Size: A4 | Date: 2016-10-17 | **Rev: V1.1** |
|---|---|---|
| KiCad E.D.A. kicad 4.0.7 | | Id: 9/16 |

# PCIe / FMC Transceiver




Coupling capacitor for transceivers must be in FMC mezzanine card.

PCIe routing:
Target Zo (diff): 85 Ohms +/- 15%
Spacing between links: 20 mils
Matching tolerance (intra-pair): 5 mils
Matching tolerance (inter-pair): Not required


Authors: See 'doc/CHANGES.txt' file.



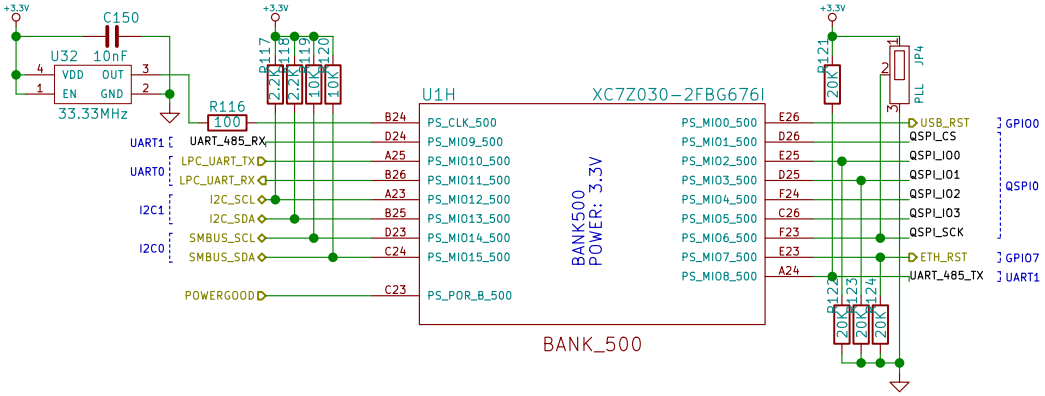
**COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)**

Sheet: /Principal/BANK_112/
File: BANK_112.sch

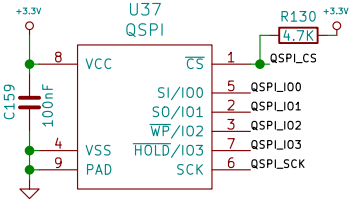
***Title: CIAA-ACC FPGA PCIe / FMC transceiver***

| | | |
|---|---|---|
| Size: A4 | Date: 2016-10-17 | **Rev: V1.1** |
| KiCad E.D.A. kicad 4.0.7 | | Id: 10/16 |

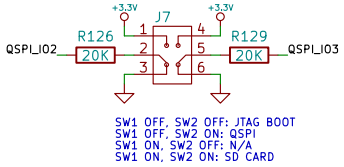
# UART, QSPI, I2C, CAN, RS485



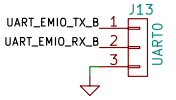

## QSPI



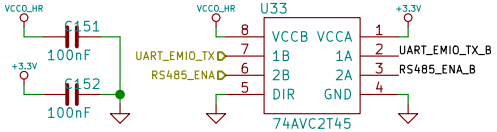

QSPI Routing:
Target Zo: 50 Ohms +/- 5%
Spacing to other signals: 3w
Matching tolerance: 3 mm

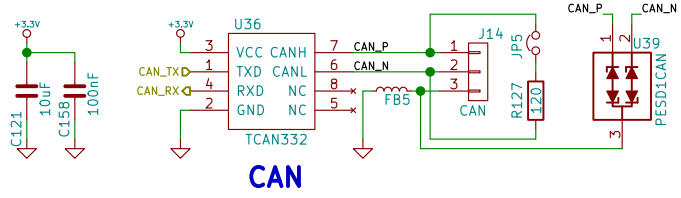



## BOOT SELECTOR

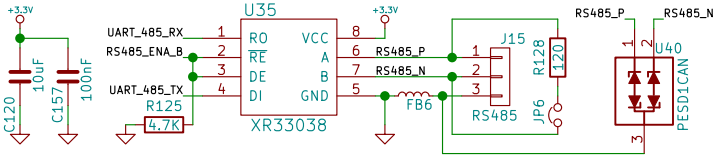



## EMIO UART




## CAN




## RS-485

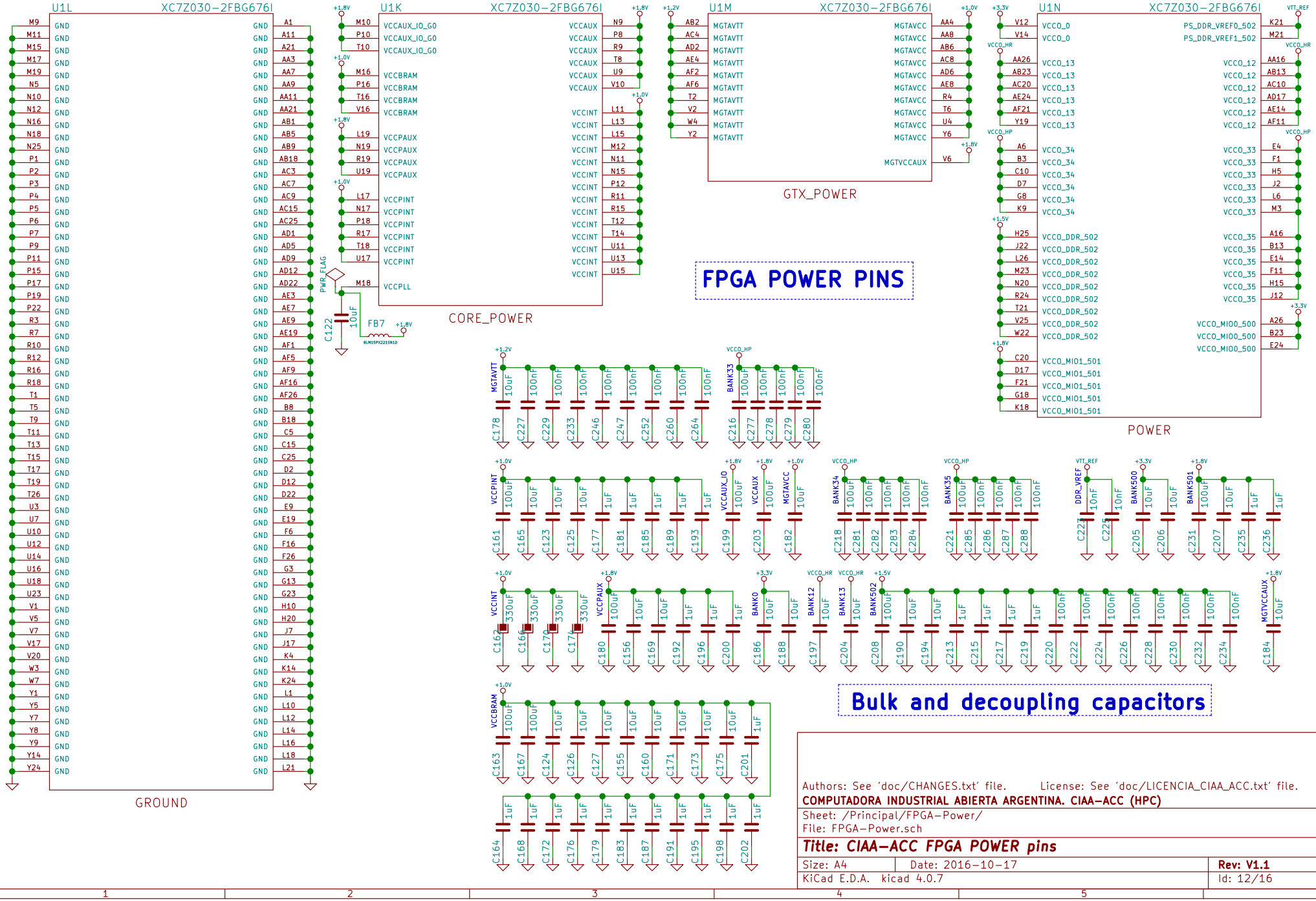
Authors: See 'doc/CHANGES.txt' file. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.

**COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)**

Sheet: /Principal/BANK_500/
File: BANK_500.sch

***Title: CIAA-ACC UART, QSPI, I2C, CAN, RS485***

| Size: A4 | Date: 2016-10-17 | **Rev: V1.1** |
|---|---|---|
| KiCad E.D.A. kicad 4.0.7 | | Id: 11/16 |




Authors: See 'doc/CHANGES.txt' file. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.

**COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)**

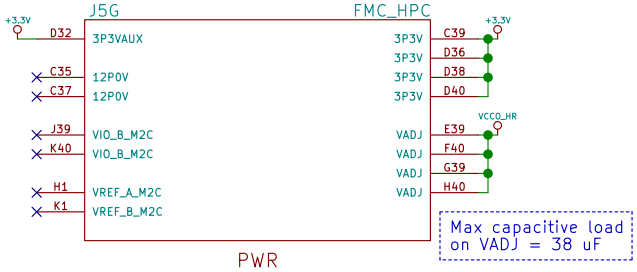
Sheet: /Principal/FPGA-Power/

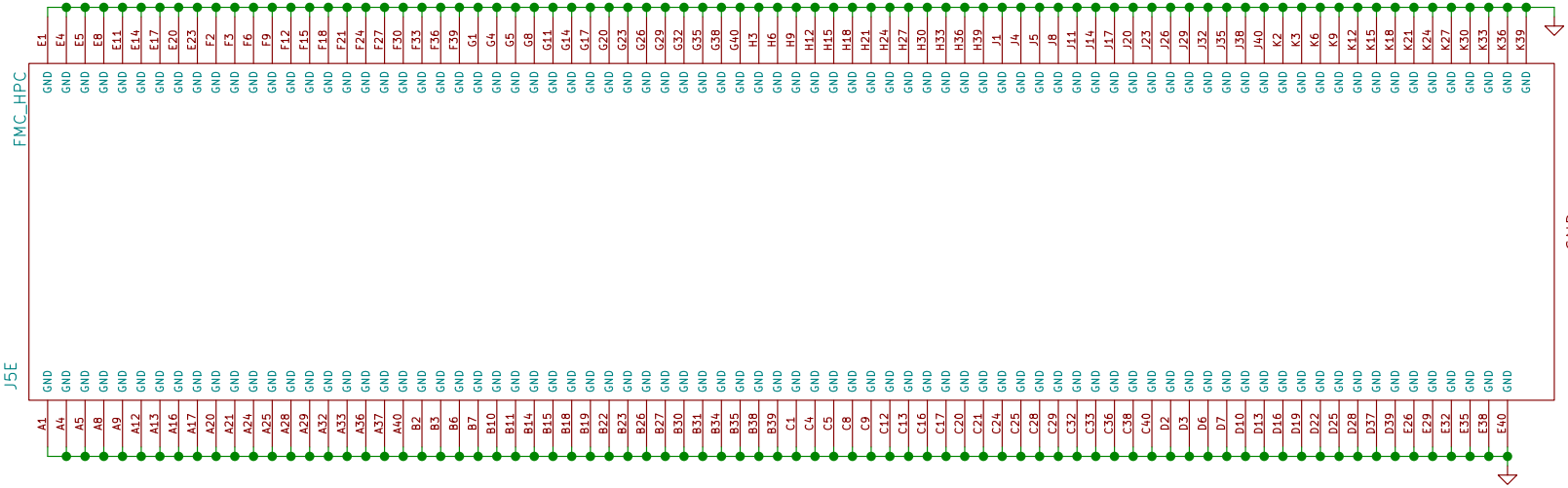
File: FPGA-Power.sch

***Title: CIAA-ACC FPGA POWER pins***

| Size: A4 | Date: 2016-10-17 | **Rev: V1.1** |
|---|---|---|
| KiCad E.D.A. kicad 4.0.7 | | Id: 12/16 |

# FMC POWER PINS

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Sheet: /Principal/FMC-Power/
File: FMC-Power.sch

***Title: CIAA-ACC FMC POWER pins***

| Size: A4 | Date: 2016-10-17 | **Rev: V1.1** |
|---|---|---|
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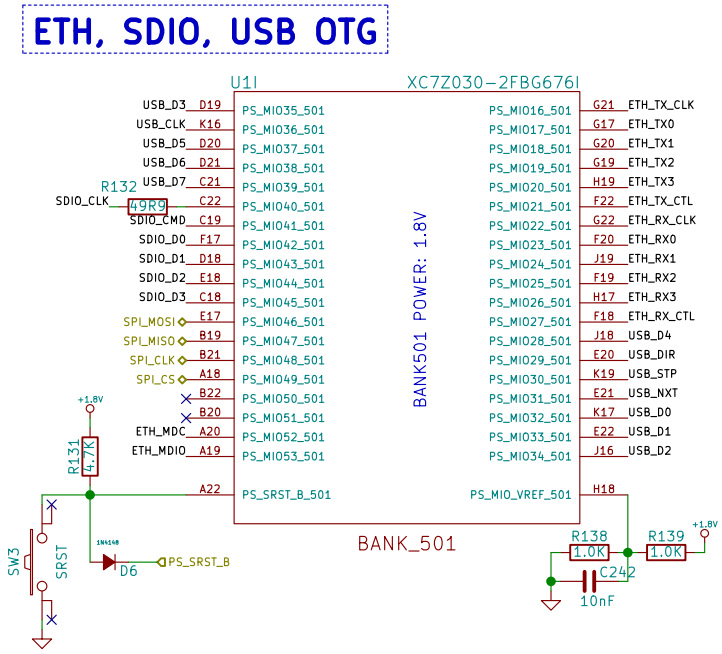
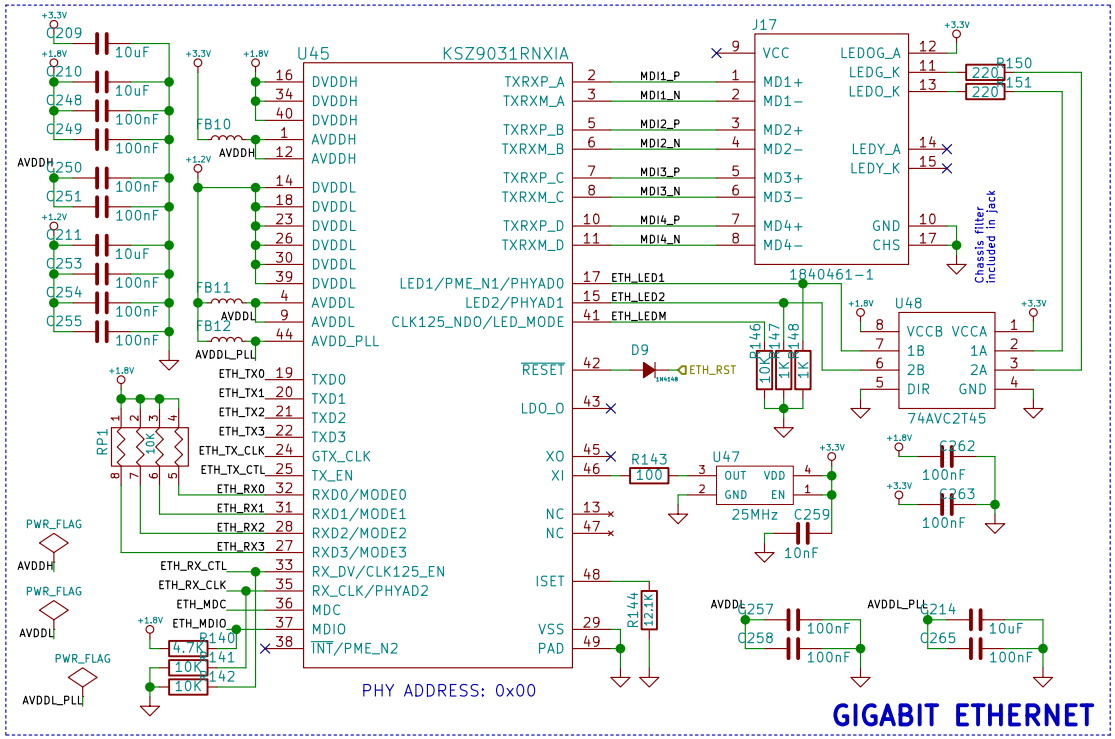
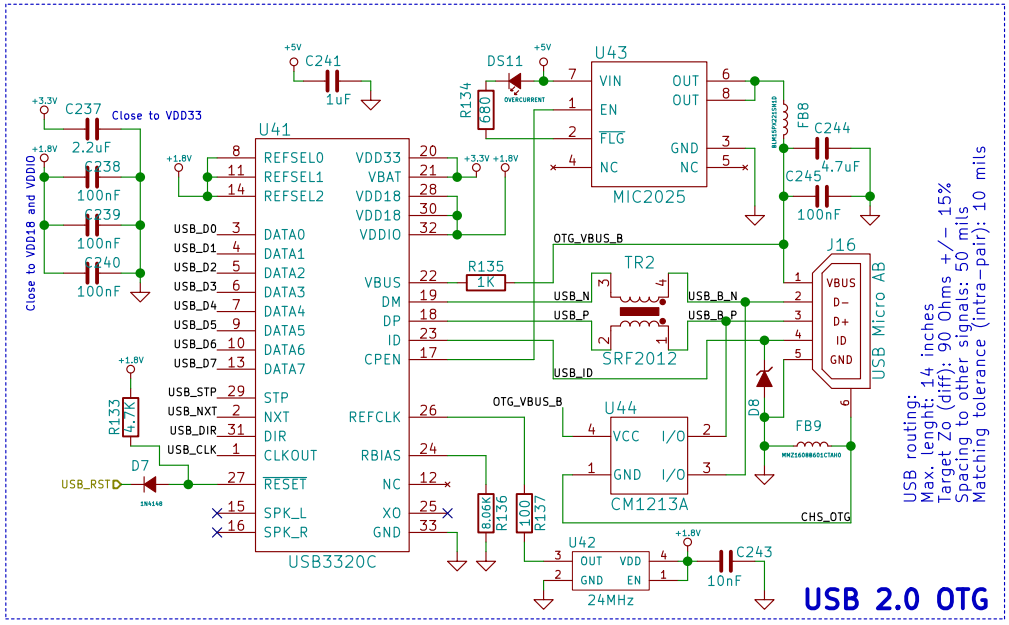
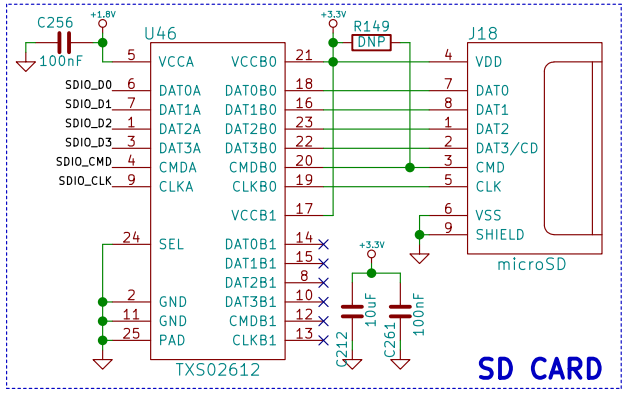
# ETH, SDIO, USB OTG

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**COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)**

Sheet: /Principal/BANK_501/
File: BANK_501.sch

***Title: CIAA-ACC Ethernet, SDIO, USB OTG***

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|---|---|---|
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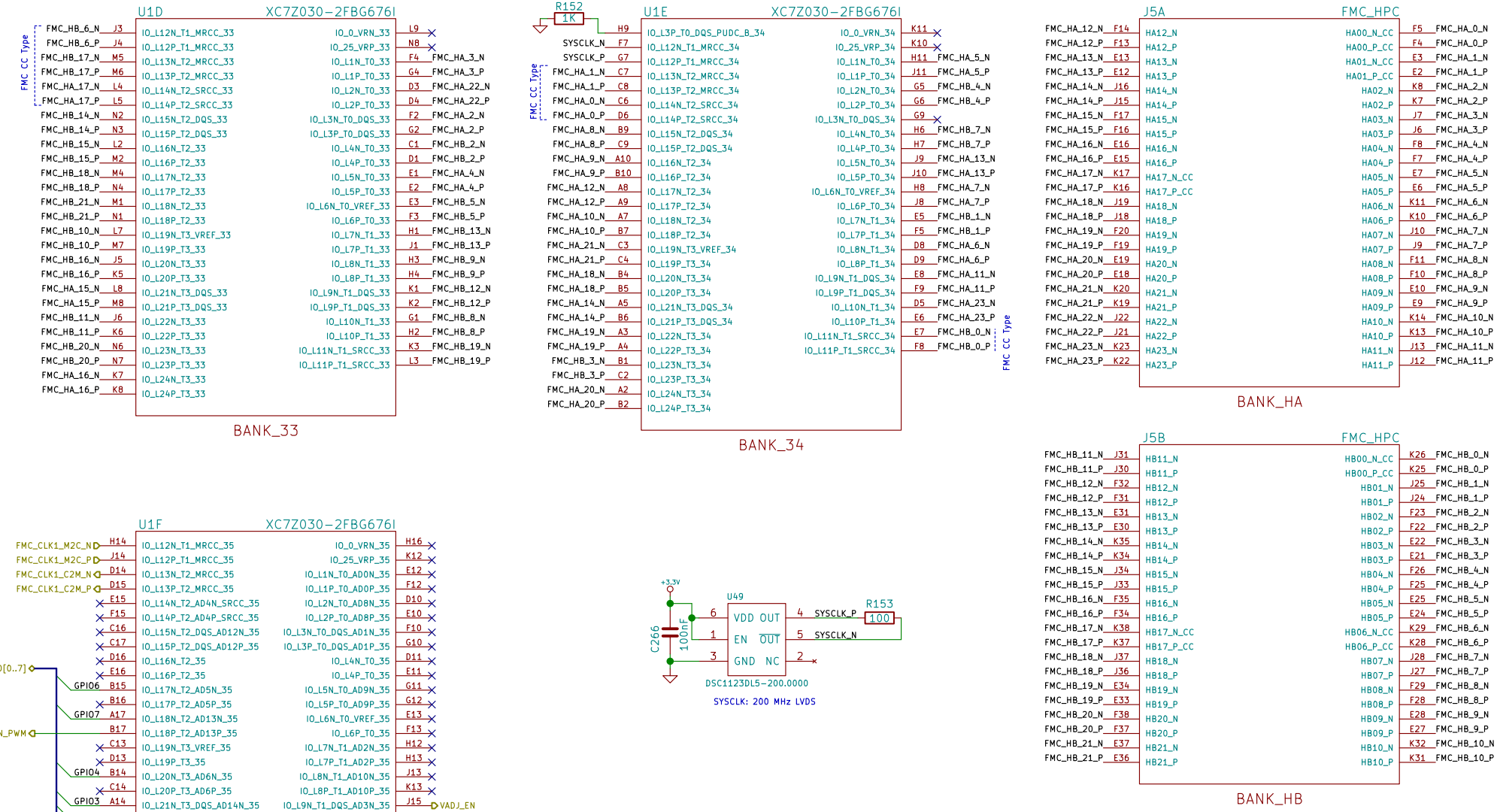
# FMC HB / FMC HA





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**COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)**


Sheet: /Principal/BANKS_HP/
File: BANKS_HP.sch

**Title: CIAA-ACC FMC HB / FMC HA**

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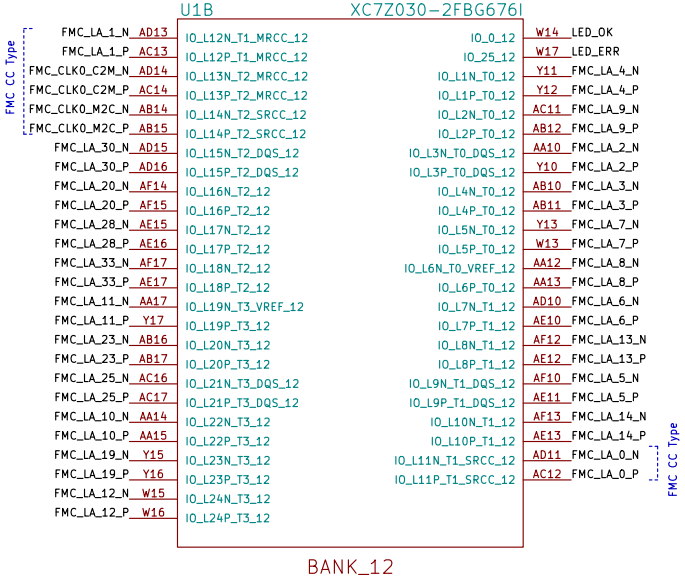
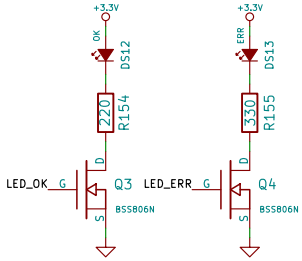
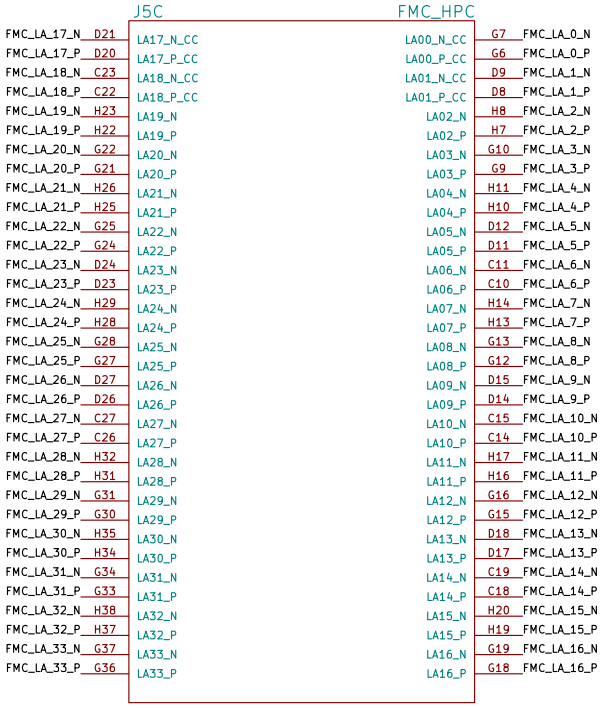
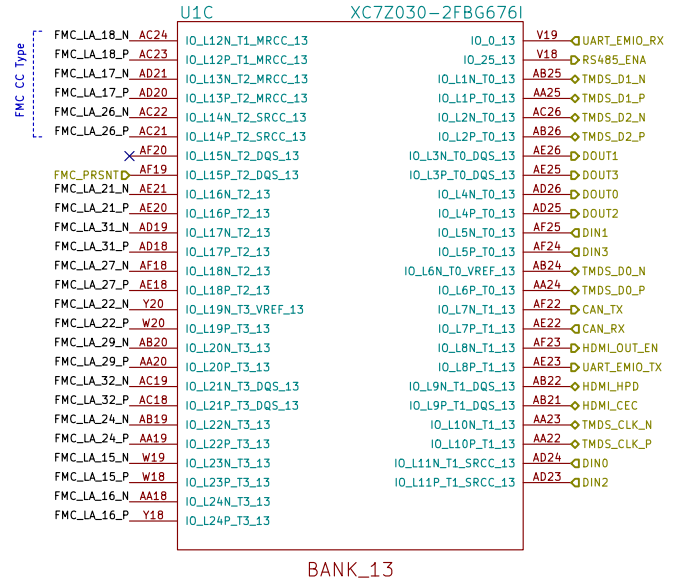
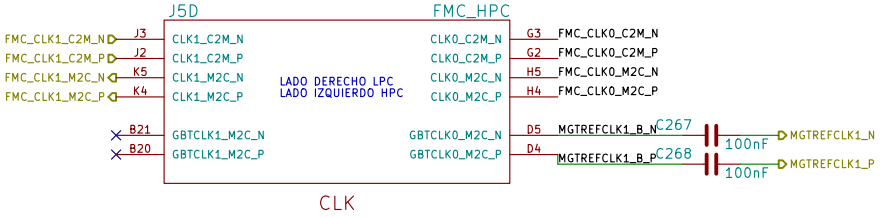
# FMC LA / FPGA BANKS 12, 13

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Sheet: /Principal/BANKS_HR/
File: BANKS_HR.sch

***Title: CIAA-ACC FMC LA / FPGA BANKS 12, 13***

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