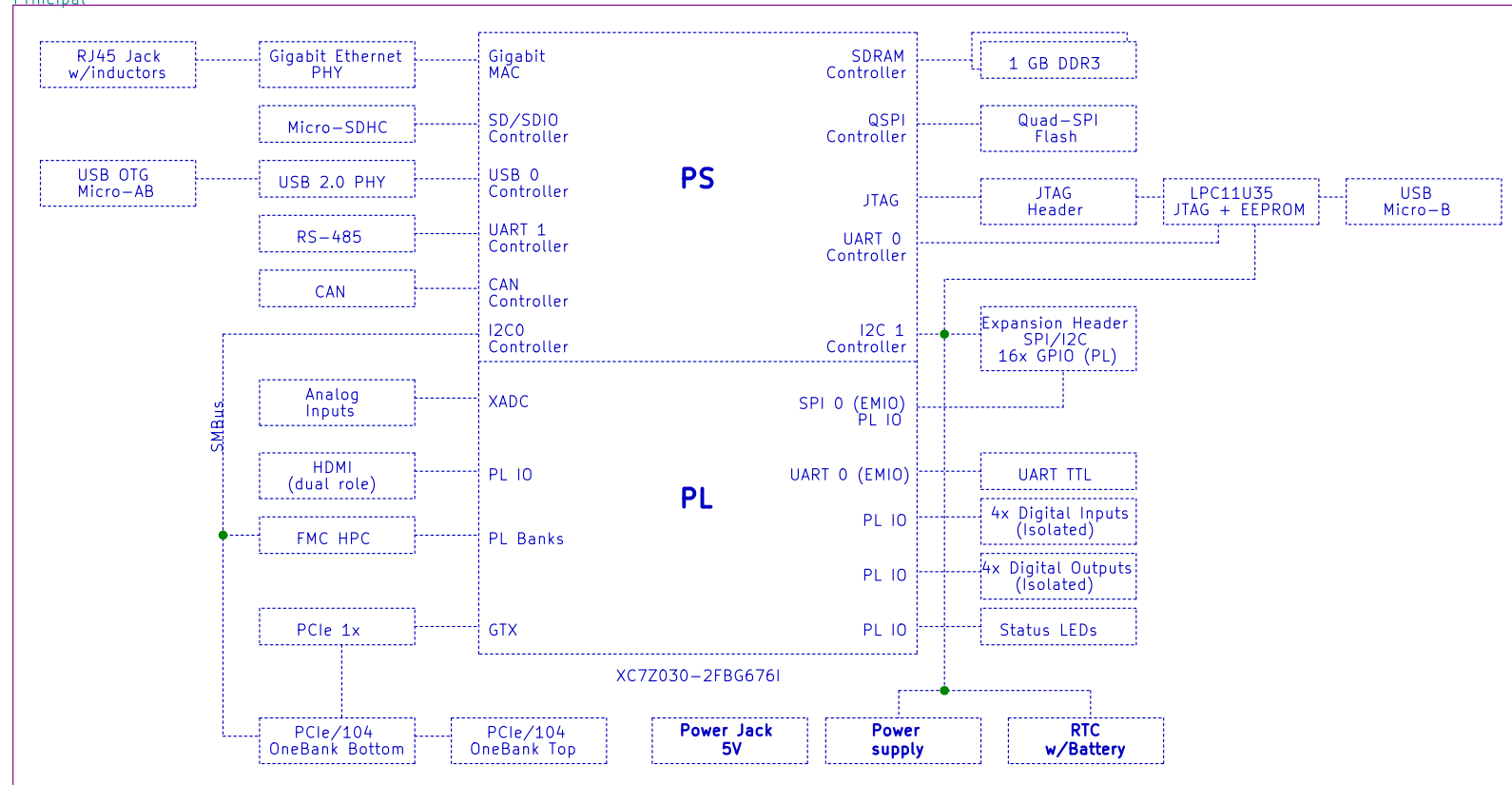


Computadora Industrial Abierta Argentina

CIAA-ACC

Xilinx XC7Z030 (2x Cortex A9 + Kintex-7 FPGA)

Principal



Principal.sch



Authors: See 'doc/CHANGES.txt' file. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.
COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)

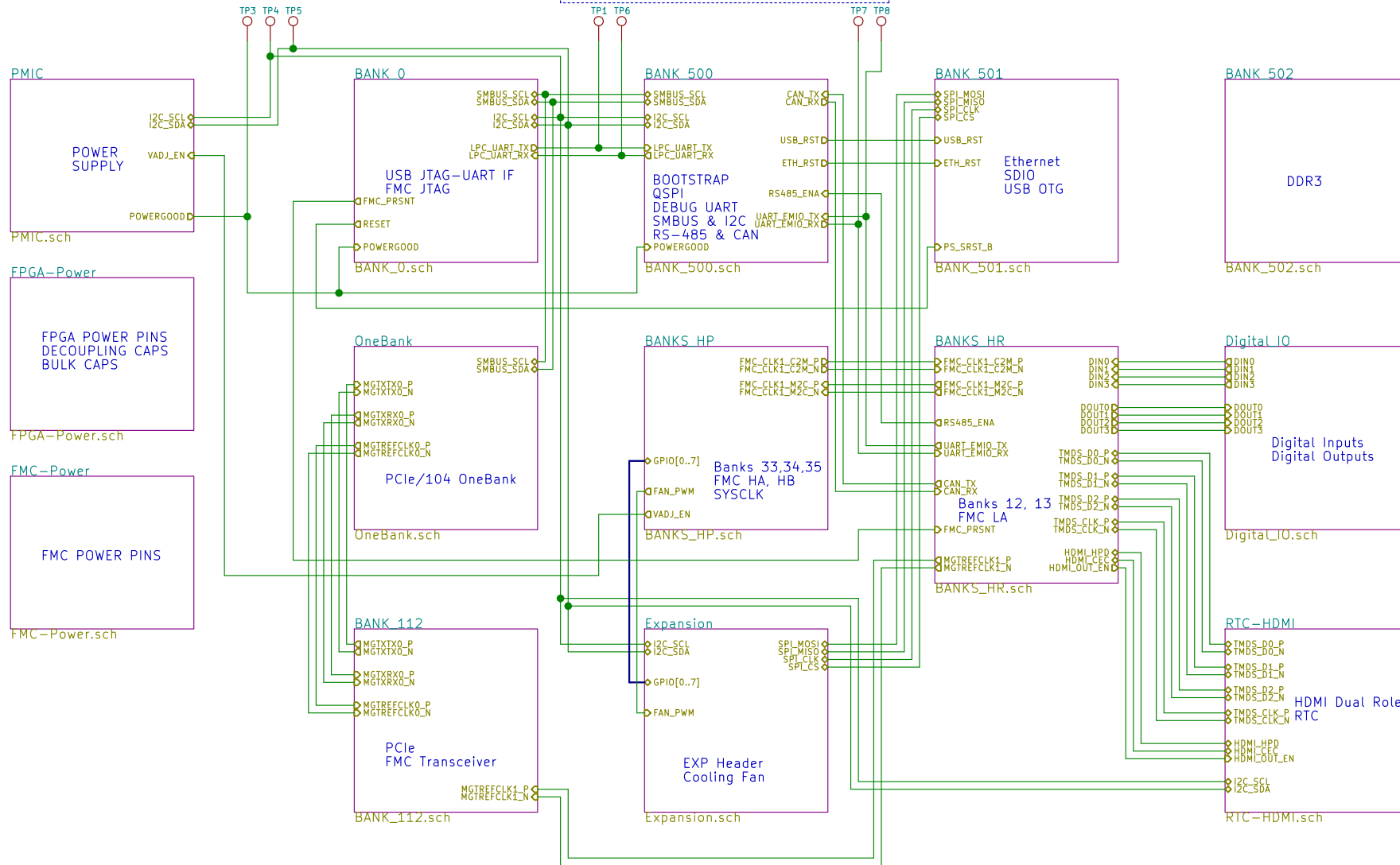
Sheet: /
 File: ciao_acc.sch

Title: CIAA-ACC Block Diagram

Size: A4 Date: 2016-10-17
 KiCad E.D.A. kicad 4.0.7

Rev: V1.1
 Id: 1/16

Hierarchical Schematic



FMC COMPATIBILITY NOTE:

Currents:
3.3V: 3A
VADJ: 2A
1.2V: Not implemented

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

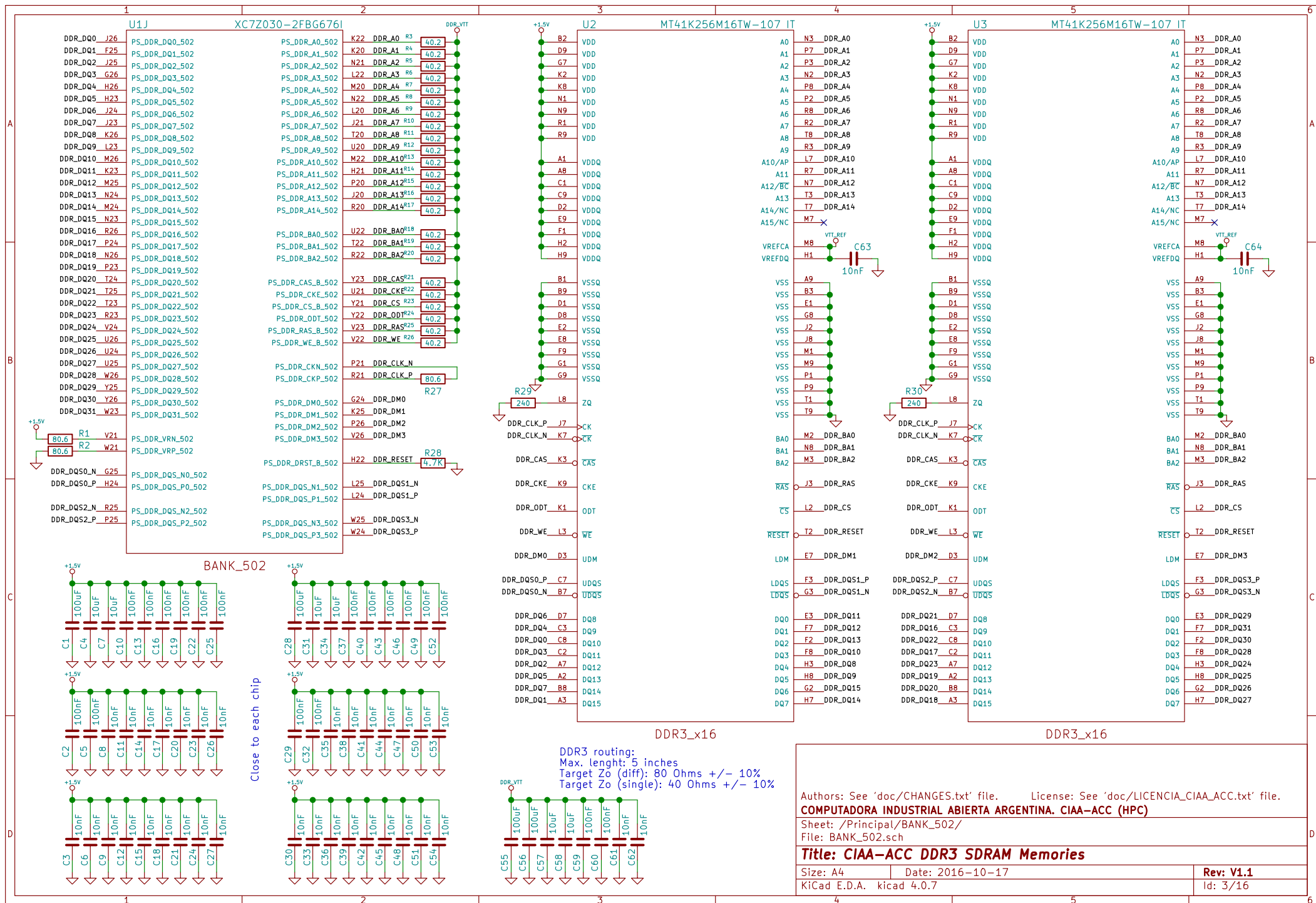
Authors: See 'doc/CHANGES.txt' file. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.
COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)

Sheet: /Principal/
File: Principal.sch

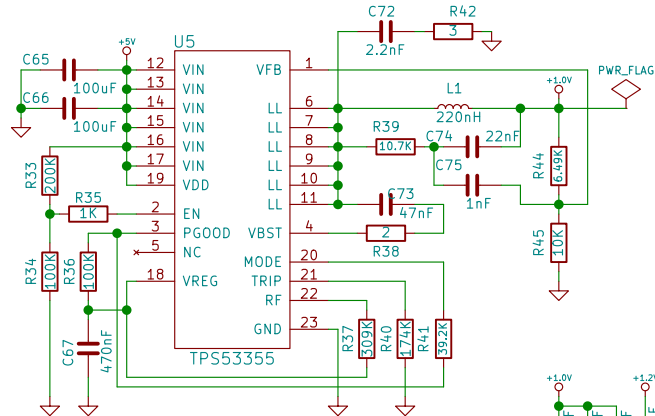
Title: CIAA-ACC Hierarchical schematic

Size: A4 Date: 2016-10-17
KiCad E.D.A. kicad 4.0.7

Rev: V1.1
Id: 2/16

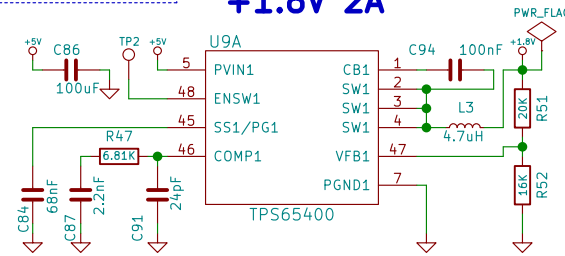


+1.0V 25A

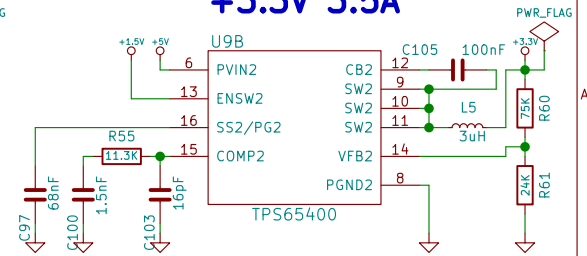


Power Supply

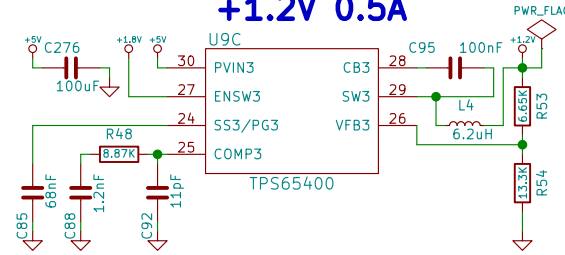
+1.8V 2A



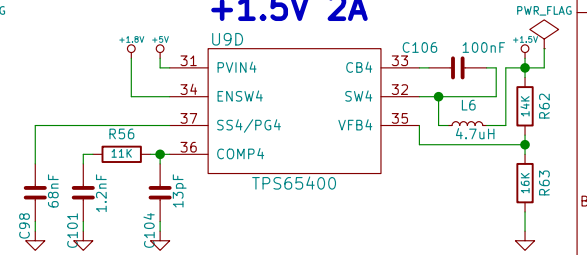
+3.3V 3.5A



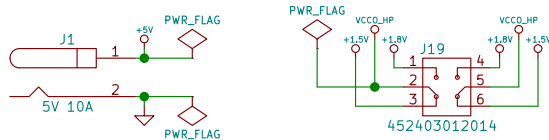
+1.2V 0.5A



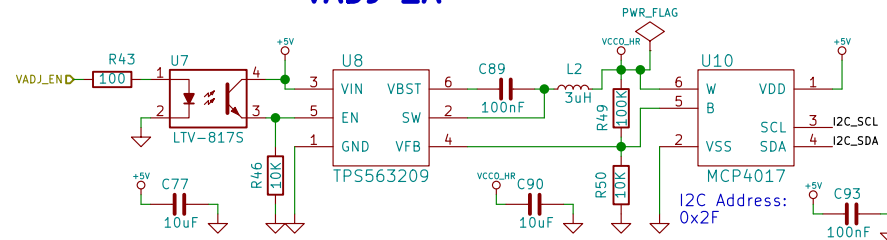
+1.5V 2A



DC Input +5V 10A

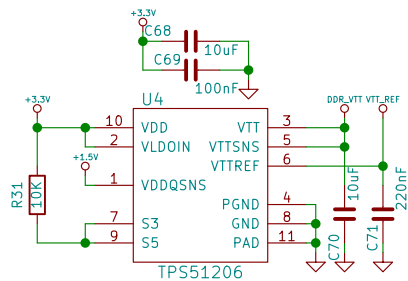


VADJ 2A



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

DDR_VTT +0.75V



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

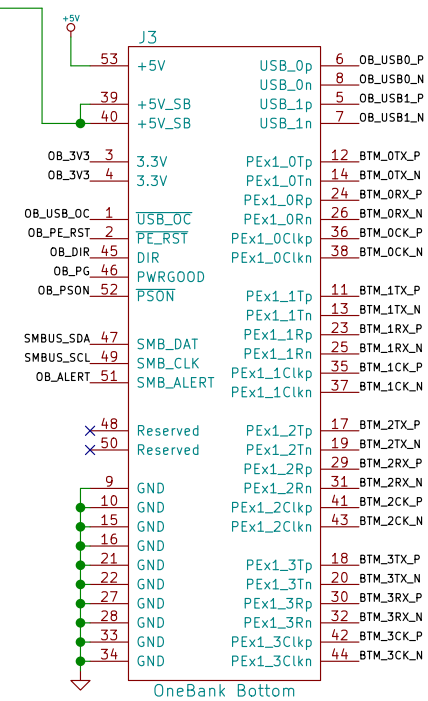
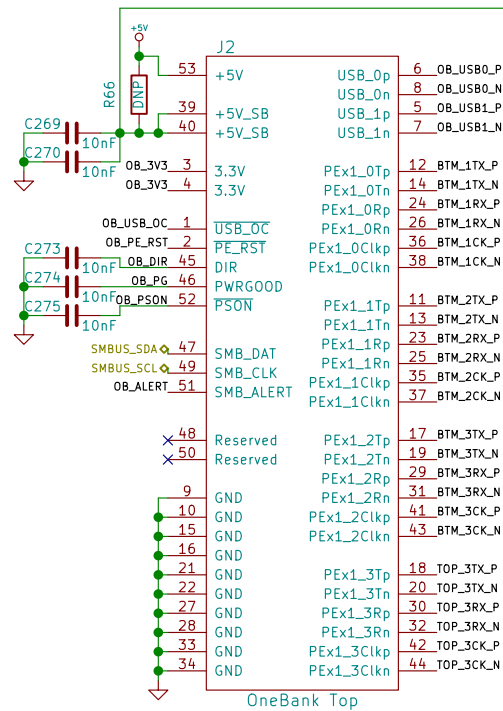
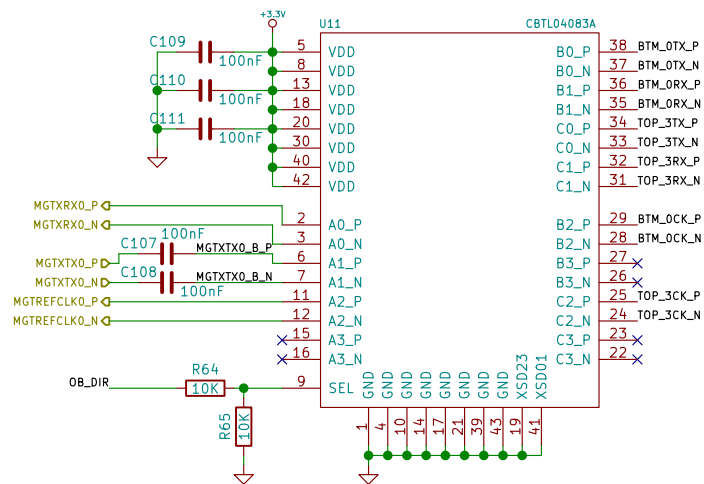
Size: A4 Date: 2016-10-17
KiCad E.D.A. kicad 4.0.7

Rev: V1.1
Id: 4/16

PCIe/104 OneBank Connector

H1 H3
H2 H4
Holes PCIe 104

Mux/Demux Switch



PCle OneBank device routing:
Max. length: 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. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.
COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)

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

Title: CIAA-ACC PCIe/104 OneBank Connector

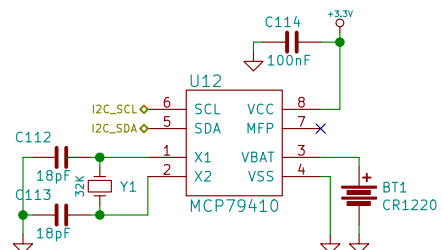
Size: A4	Date: 2016-10-17
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SIZE: A1	DATE:
KiCad E.D.A.	kicad 4.0.7

Rev: V1.1

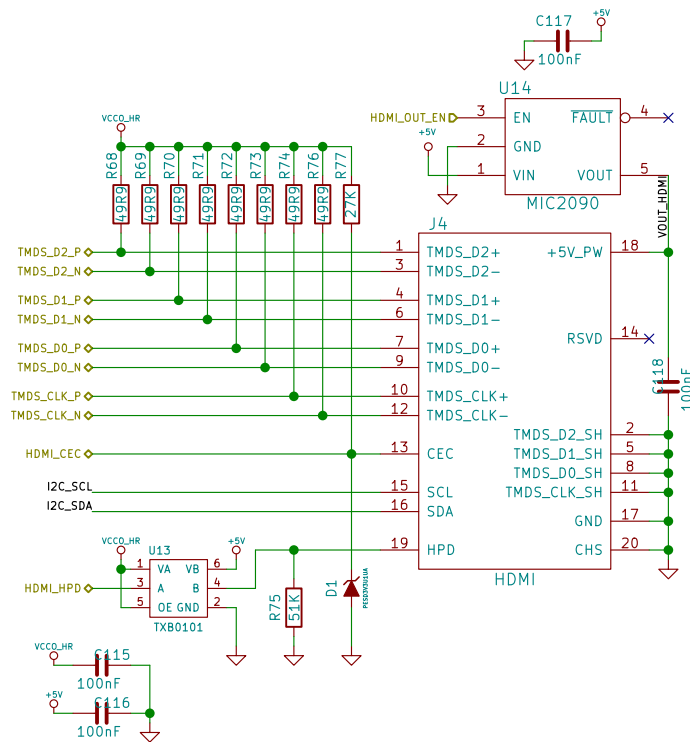
Id: 5/16

HDMI / RTC



I2C Addresses: 0x6F & 0x57

Real Time Clock



HDMI DUAL ROLE

Note for HDMI: VCCO_HR must be 3.3V

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COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)

Sheet: /Principal/RTC-HDMI/

File: RTC-HDMI.sch

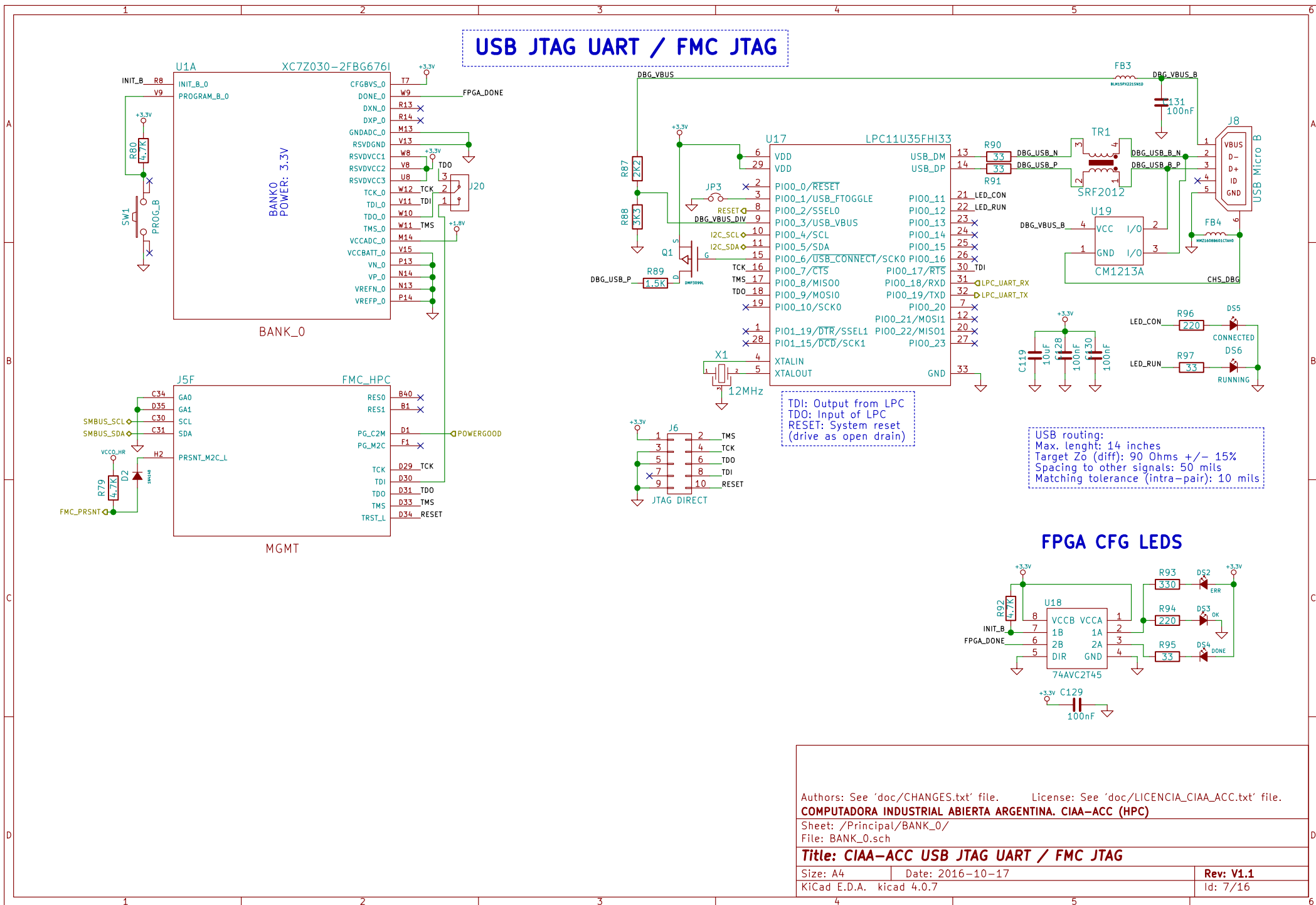
Title: CIAA-ACC HDMI Dual Role

Size: A4	Date: 2016-10-17
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Rev: V1.1

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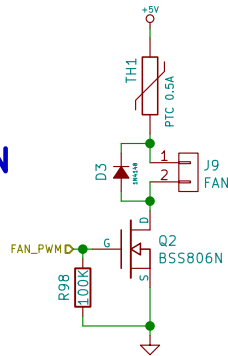
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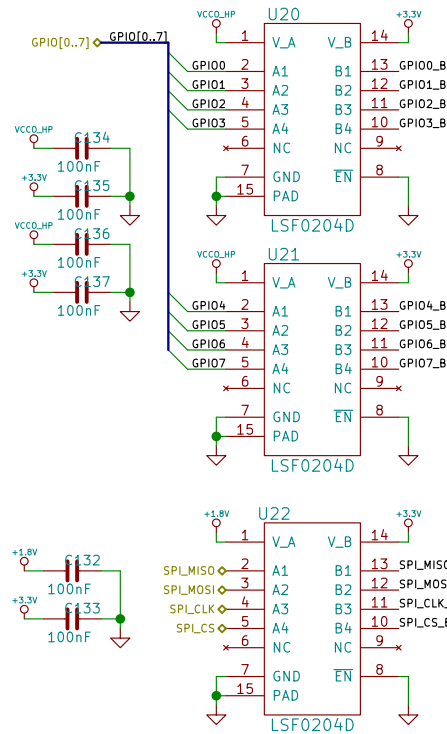
Id: 7/16

Expansion Header / FAN Connector

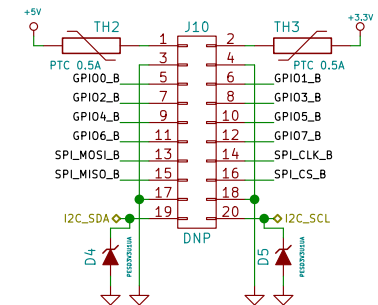
FAN



Voltage level translator



Expansion Header



GPIO Only available when
VCCO_HP = 1.8V



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COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)

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

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

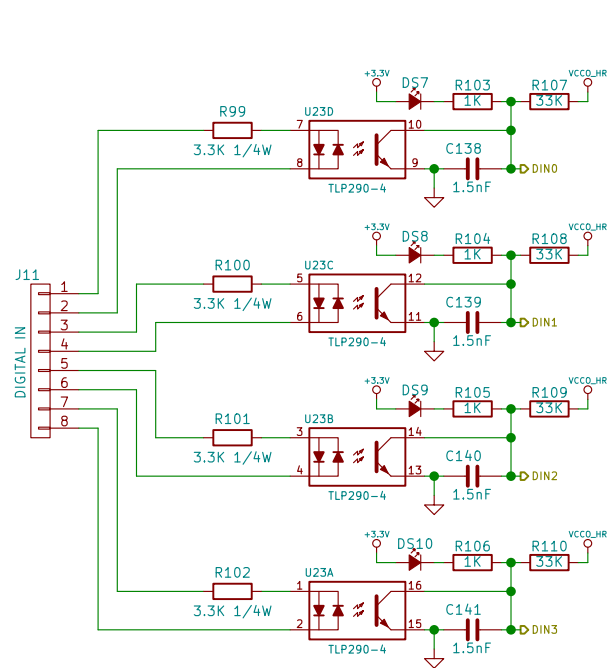
Size: A4 Date: 2016-10-17

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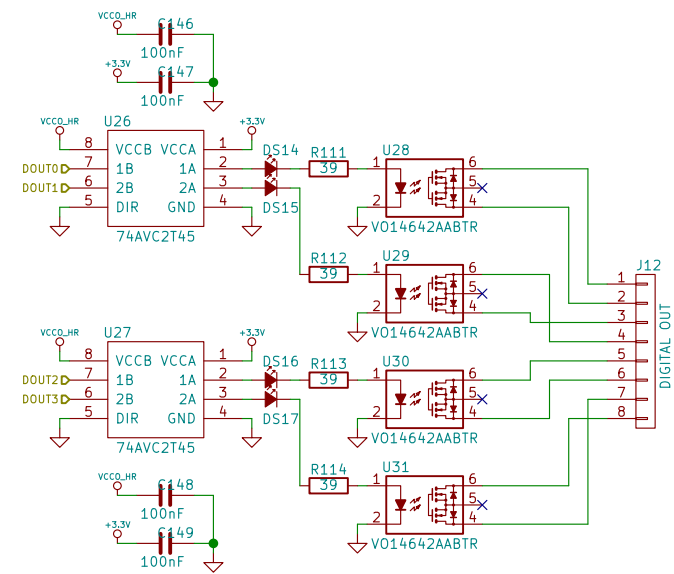
Rev: V1.1

Id: 8/16

Digital Inputs and Outputs

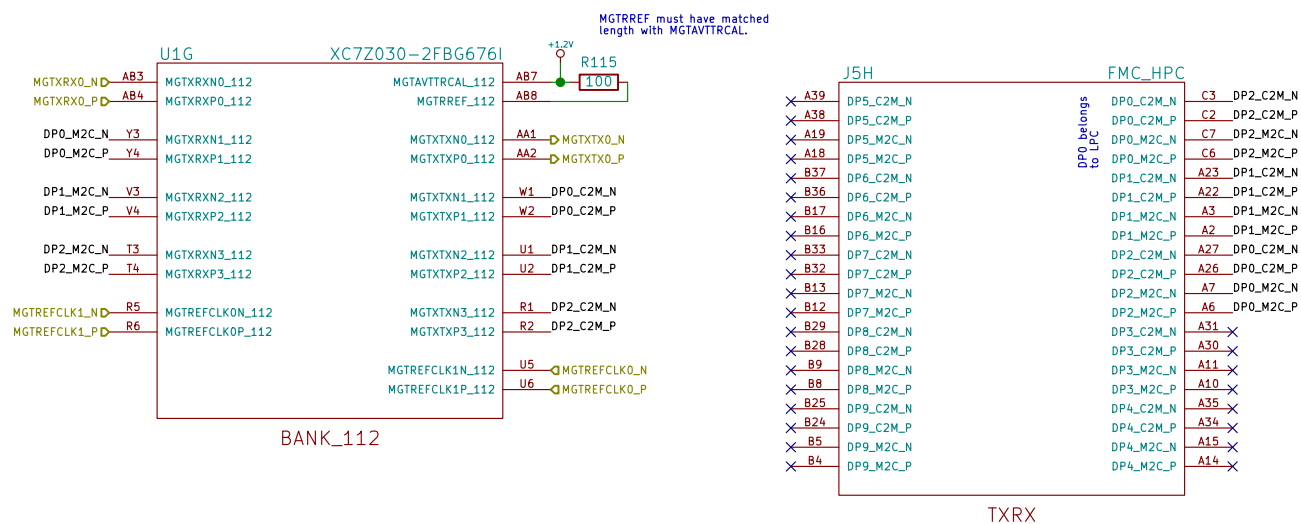


ISOLATED DIGITAL INPUTS
Range: 12 to 24 V



ISOLATED DIGITAL OUTPUTS
Range: up to 60 V

PCIe / FMC Transceiver



Coupling capacitor for transceivers must be in FMC mezzanine card.

PCle 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. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.
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Sheet: /Principal/BANK_112/
File: BANK_112.sch

Title: CIAA-ACC FPGA PCIe / FMC transceiver

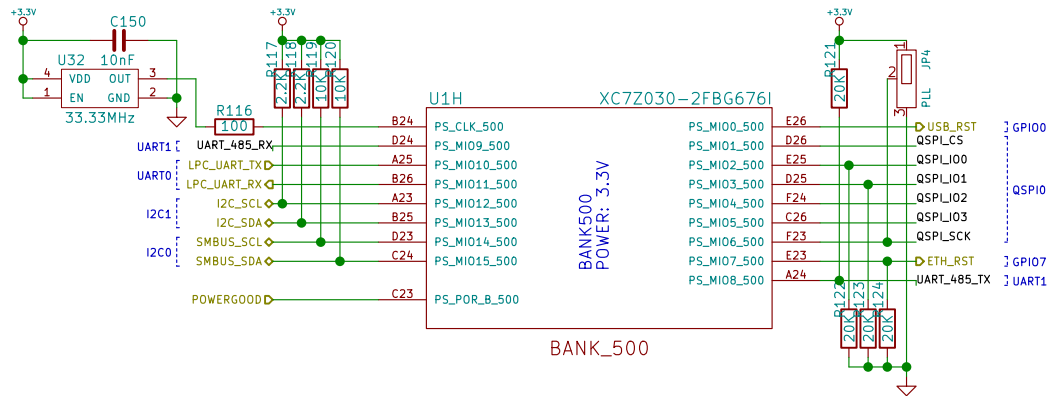
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SIZE: A1	DATE:
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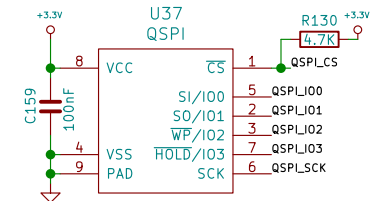
Rev: V1.1

Id: 10/16

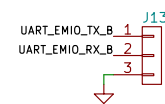
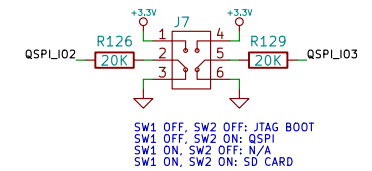
UART, QSPI, I2C, CAN, RS485



QSPI

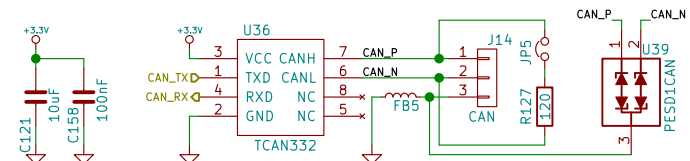
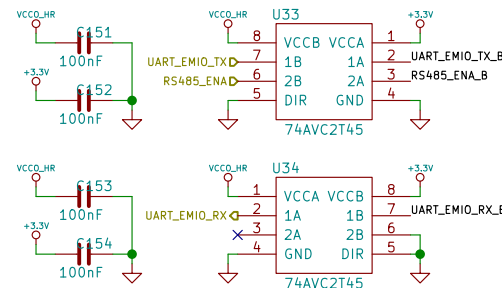


QSPI Routing:
Target Zo: 50 Ohms +/- 5%
Spacing to other signals: 3w
Matching tolerance: 3 mm

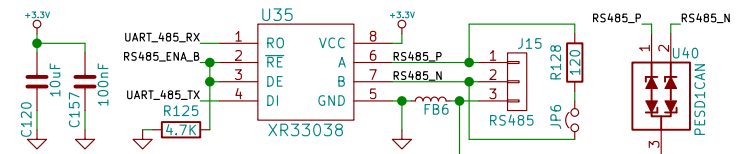


EMIO UART

BOOT SELECTOR



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

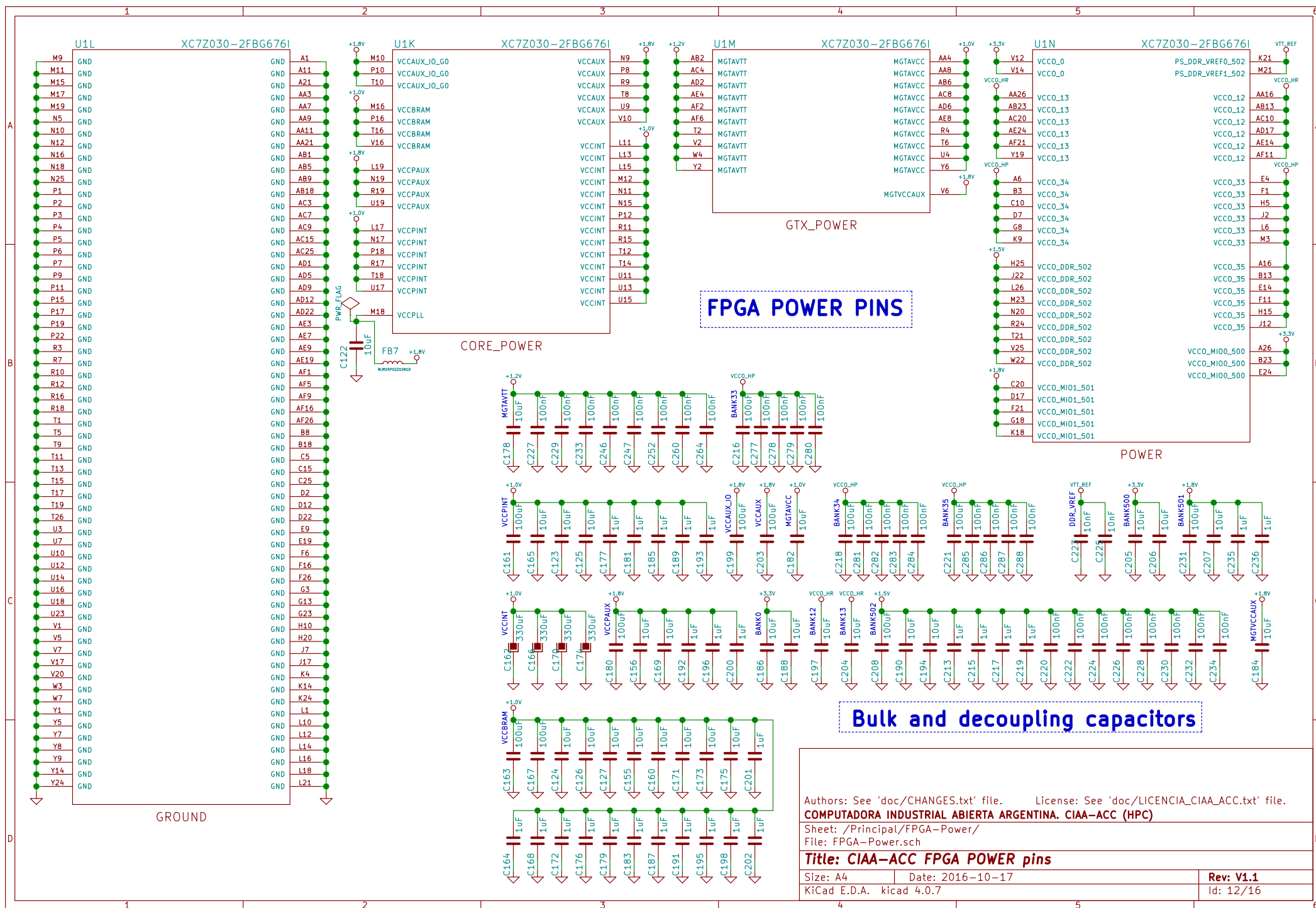
Title: CIAA-ACC UART, QSPI, I2C, CAN, RS485

Size: A4 Date: 2016-10-17

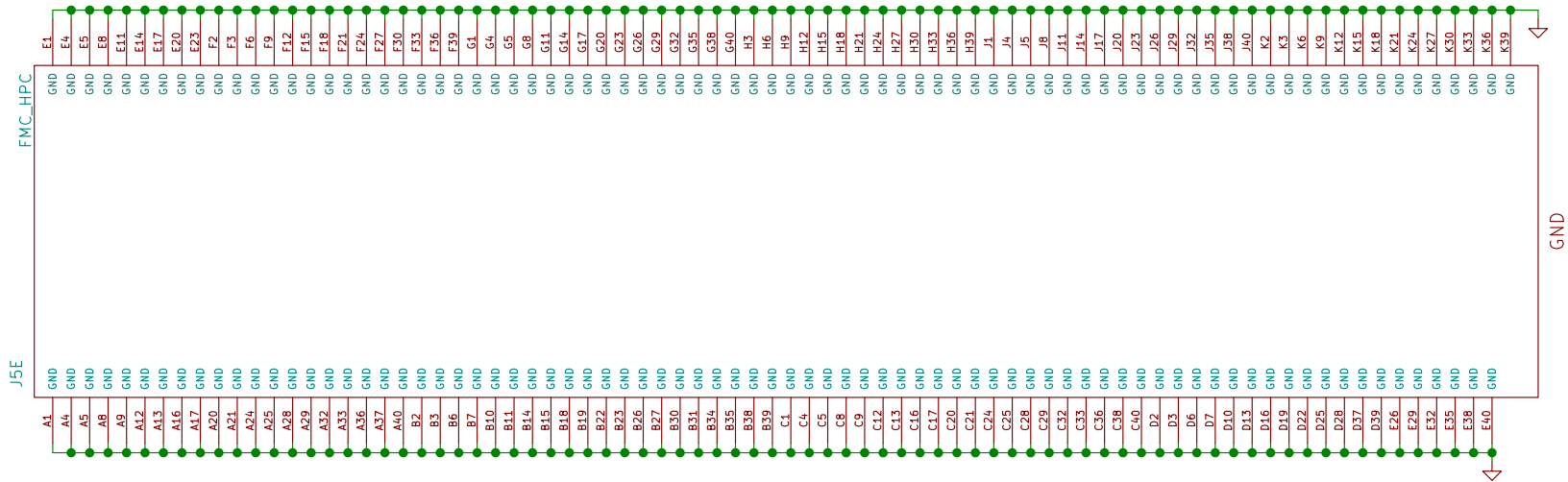
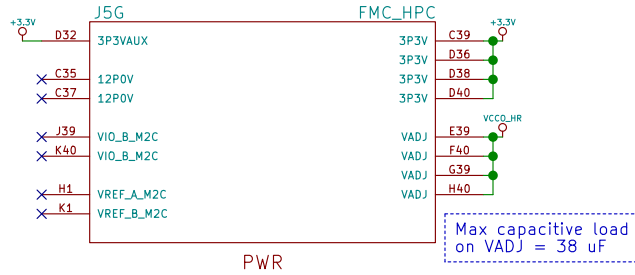
KiCad E.D.A. kicad 4.0.7

Rev: V1.1

Id: 11/16



FMC POWER PINS



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COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)

Sheet: /Principal/FMC-Power/

File: FMC-Power.sch

Title: CIAA-ACC FMC POWER pins

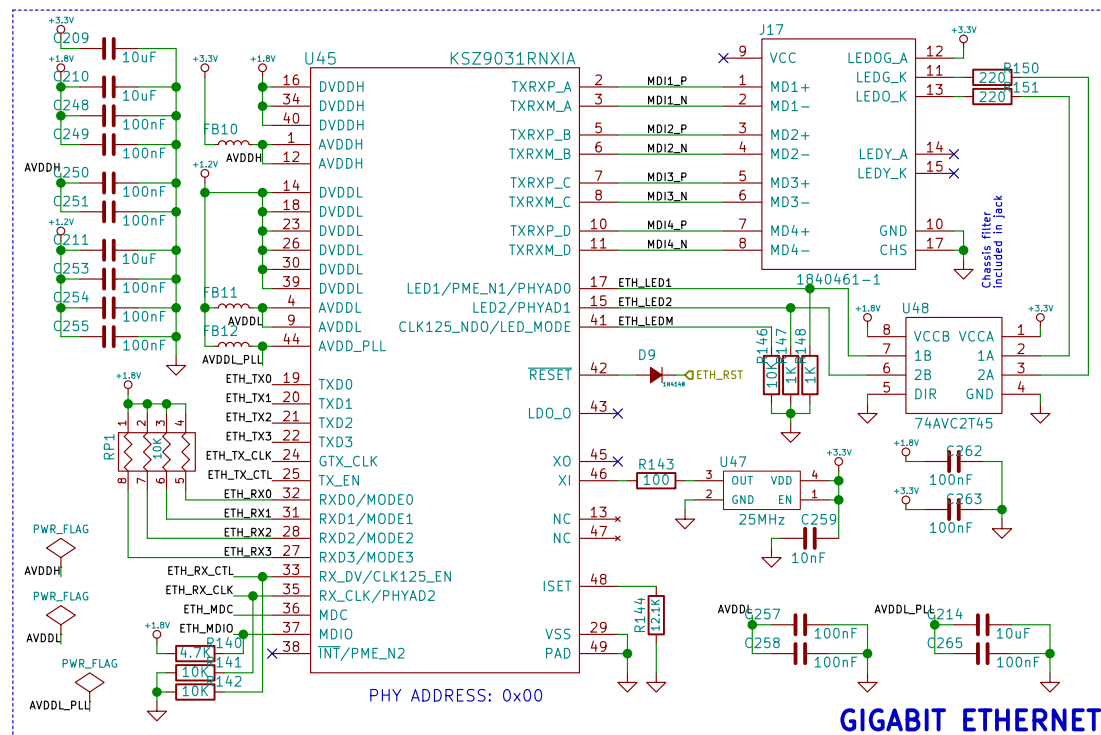
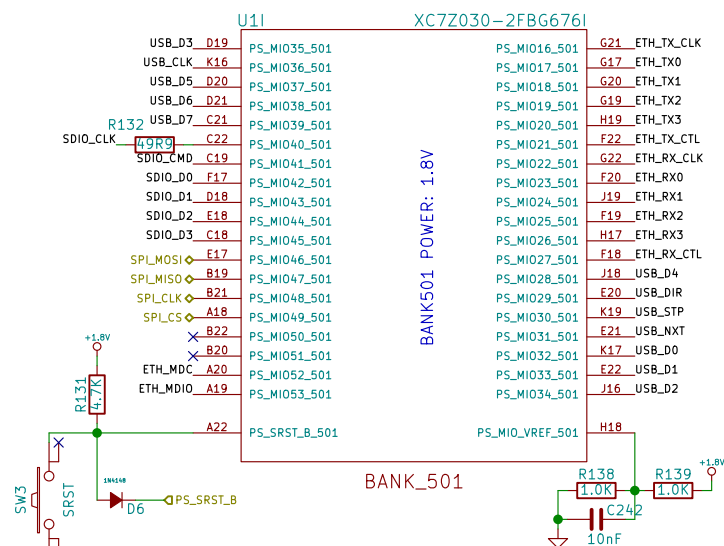
Size: A4 Date: 2016-10-17

KiCad E.D.A. kicad 4.0.7

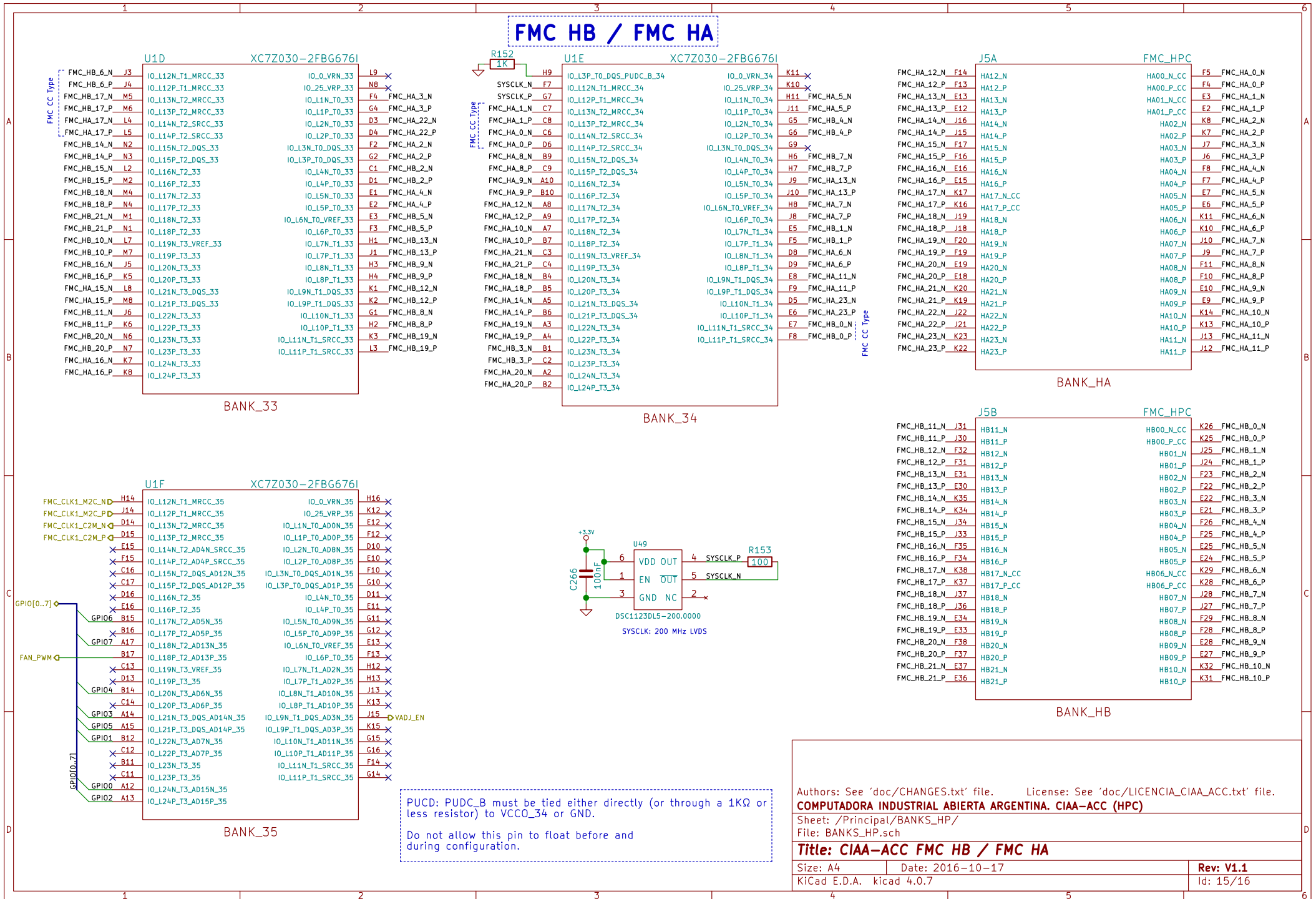
Rev: V1.1

Id: 13/16

ETH, SDIO, USB OTG



FMC HB / FMC HA



PUCD: PUCD_B must be tied either directly (or through a 1KΩ or less resistor) to VCCO_34 or GND.

Do not allow this pin to float before and during configuration.

Authors: See 'doc/CHANGES.txt' file. License: See 'doc/LICENCIA_CIAA_ACC.txt' file.
COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)

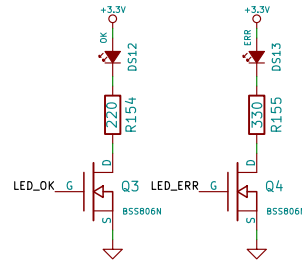
Sheet: /Principal/BANKS_HP/
 File: BANKS_HP.sch

Title: CIAA-ACC FMC HB / FMC HA

Size: A4 Date: 2016-10-17
 KiCad E.D.A. kicad 4.0.7

Rev: V1.1
 Id: 15/16

FMC LA / FPGA BANKS 12, 13

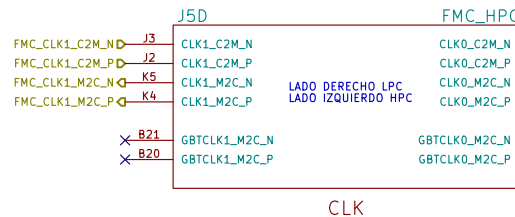


U1B XC7Z030-2FBG6761	
FMC_LA_1_N_AD13	IO_L12N_T1_MRCC_12
FMC_LA_1_P_AC13	IO_L12P_T1_MRCC_12
FMC_CLK0_C2M_N_AD14	IO_L13N_T2_MRCC_12
FMC_CLK0_C2M_P_AC14	IO_L13P_T2_MRCC_12
FMC_CLK0_M2C_N_AB14	IO_L14N_T2_SRCC_12
FMC_CLK0_M2C_P_AB15	IO_L14P_T2_SRCC_12
FMC_LA_30_N_AD15	IO_L15N_T2_DQS_12
FMC_LA_30_P_AD16	IO_L15P_T2_DQS_12
FMC_LA_20_N_AF14	IO_L16N_T2_12
FMC_LA_20_P_AF15	IO_L16P_T2_12
FMC_LA_28_N_AE15	IO_L17N_T2_12
FMC_LA_28_P_AE16	IO_L17P_T2_12
FMC_LA_33_N_AF17	IO_L18N_T2_12
FMC_LA_33_P_AE17	IO_L18P_T2_12
FMC_LA_11_N_AA17	IO_L19N_T3_VREF_12
FMC_LA_11_P_Y17	IO_L19P_T3_12
FMC_LA_23_N_AB16	IO_L20N_T3_12
FMC_LA_23_P_AB17	IO_L20P_T3_12
FMC_LA_25_N_AC16	IO_L21N_T3_DQS_12
FMC_LA_25_P_AC17	IO_L21P_T3_DQS_12
FMC_LA_10_N_AA14	IO_L22N_T3_12
FMC_LA_10_P_AA15	IO_L22P_T3_12
FMC_LA_19_N_Y15	IO_L23N_T3_12
FMC_LA_19_P_Y16	IO_L23P_T3_12
FMC_LA_12_N_W15	IO_L24N_T3_12
FMC_LA_12_P_W16	IO_L24P_T3_12

BANK_12

U1C XC7Z030-2FBG6761	
FMC_LA_18_N_AC24	IO_L12N_T1_MRCC_13
FMC_LA_18_P_AC23	IO_L12P_T1_MRCC_13
FMC_LA_17_N_AD21	IO_L13N_T2_MRCC_13
FMC_LA_17_P_AD20	IO_L13P_T2_MRCC_13
FMC_LA_26_N_AC22	IO_L14N_T2_SRCC_13
FMC_LA_26_P_AC21	IO_L14P_T2_SRCC_13
AF20	IO_L15N_T2_DQS_13
FMC_PRSNTD_AF19	IO_L15P_T2_DQS_13
FMC_LA_21_N_AE21	IO_L16N_T2_13
FMC_LA_21_P_AE20	IO_L16P_T2_13
FMC_LA_31_N_AD19	IO_L17N_T2_13
FMC_LA_31_P_AD18	IO_L17P_T2_13
FMC_LA_27_N_AF18	IO_L18N_T2_13
FMC_LA_27_P_AE18	IO_L18P_T2_13
FMC_LA_22_N_Y20	IO_L19N_T3_VREF_13
FMC_LA_22_P_W20	IO_L19P_T3_13
FMC_LA_29_N_AB20	IO_L20N_T3_13
FMC_LA_29_P_AA20	IO_L20P_T3_13
FMC_LA_32_N_AC19	IO_L21N_T3_DQS_13
FMC_LA_32_P_AC18	IO_L21P_T3_DQS_13
FMC_LA_24_N_AB19	IO_L22N_T3_13
FMC_LA_24_P_AA19	IO_L22P_T3_13
FMC_LA_15_N_W19	IO_L23N_T3_13
FMC_LA_15_P_W18	IO_L23P_T3_13
FMC_LA_16_N_AA18	IO_L24N_T3_13
FMC_LA_16_P_Y18	IO_L24P_T3_13

BANK_13



CLK

J5C FMC_HPC	
FMC_LA_17_N_D21	LA17_N_CC
FMC_LA_17_P_D20	LA17_P_CC
FMC_LA_18_N_C23	LA18_N_CC
FMC_LA_18_P_C22	LA18_P_CC
FMC_LA_19_N_H23	LA19_N
FMC_LA_19_P_H22	LA19_P
FMC_LA_20_N_G22	LA20_N
FMC_LA_20_P_G21	LA20_P
FMC_LA_21_N_H26	LA21_N
FMC_LA_21_P_H25	LA21_P
FMC_LA_22_N_G24	LA22_N
FMC_LA_22_P_G24	LA22_P
FMC_LA_23_N_D23	LA23_N
FMC_LA_23_P_D24	LA23_P
FMC_LA_24_N_H29	LA24_N
FMC_LA_24_P_H28	LA24_P
FMC_LA_25_N_G28	LA25_N
FMC_LA_25_P_G27	LA25_P
FMC_LA_26_N_D27	LA26_N
FMC_LA_26_P_D26	LA26_P
FMC_LA_27_N_C27	LA27_N
FMC_LA_27_P_C26	LA27_P
FMC_LA_28_N_H32	LA28_N
FMC_LA_28_P_H31	LA28_P
FMC_LA_29_N_G31	LA29_N
FMC_LA_29_P_G30	LA29_P
FMC_LA_30_N_H35	LA30_N
FMC_LA_30_P_H34	LA30_P
FMC_LA_31_N_G34	LA31_N
FMC_LA_31_P_G33	LA31_P
FMC_LA_32_N_H38	LA32_N
FMC_LA_32_P_H37	LA32_P
FMC_LA_33_N_G37	LA33_N
FMC_LA_33_P_G36	LA33_P

BANK_LA

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

COMPUTADORA INDUSTRIAL ABIERTA ARGENTINA. CIAA-ACC (HPC)

Sheet: /Principal/BANKS_HR/

File: BANKS_HR.sch

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

Size: A4 Date: 2016-10-17

KiCad E.D.A. kicad 4.0.7

Rev: V1.1

Id: 16/16