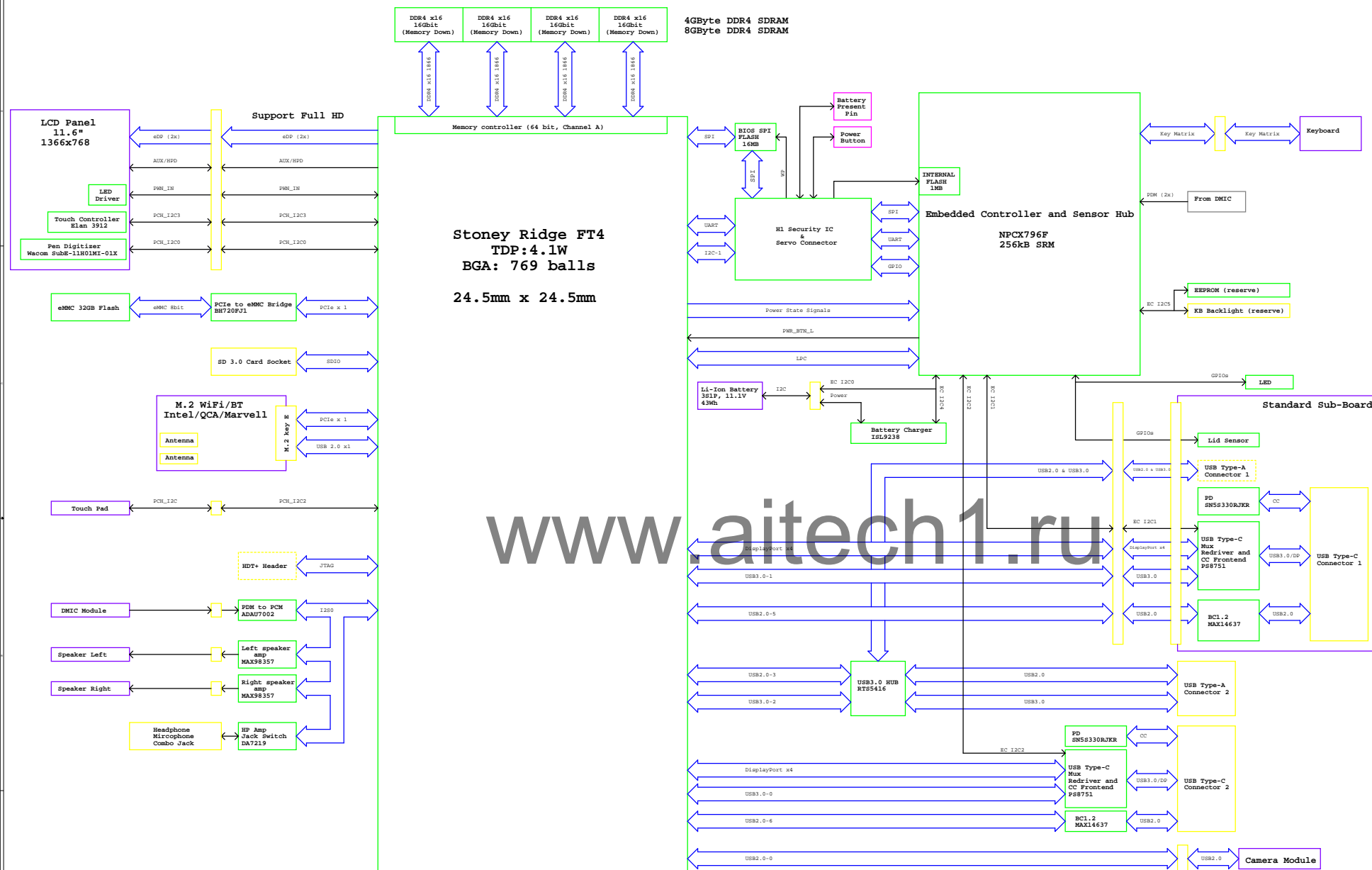


SHEET NO.	SHEET NAME
1	TABLE OF CONTENTS
2	SYSTEM BLOCK DIAGRAM
3	USB TYPE-C BLOCK DIAGRAM
4	POWER TREE
5	I2C MAP
6	FT4 MEMORY/PCIE
7	FT4 eDP/CLK/SV12/JTAG/MISC
8	FT4 SATA/USB/SPI/XTAL
9	FT4 GEVENT/GPIO/SD/AZ
10	FT4 PWR
11	FT4 PPVAR DECOUPLING/GND
12	DDR4 CH00/01
13	DDR4 CH00/11
14	SPI ROM, H1
15	SERVO DEBUG
16	eMMC/SD
17	AUDIO
18	BASE: KB, TP, NFC, FP, PEN
19	LID: eDP, CAM, TOUCH, SENSOR
20	SENSOR: GYRO, LID, LED
21	WIFI
22	EC-NPCX7
23	USB C0
24	USB A CONNECTORS
25	USB3 HUB
26	POWER - BATTERY CHARGER
27	POWER - FT4 CORE
28	POWER - FT4 CORE SWITCHES
29	POWER - DDR4
30	POWER - 1.8V, 3.3V, 5V

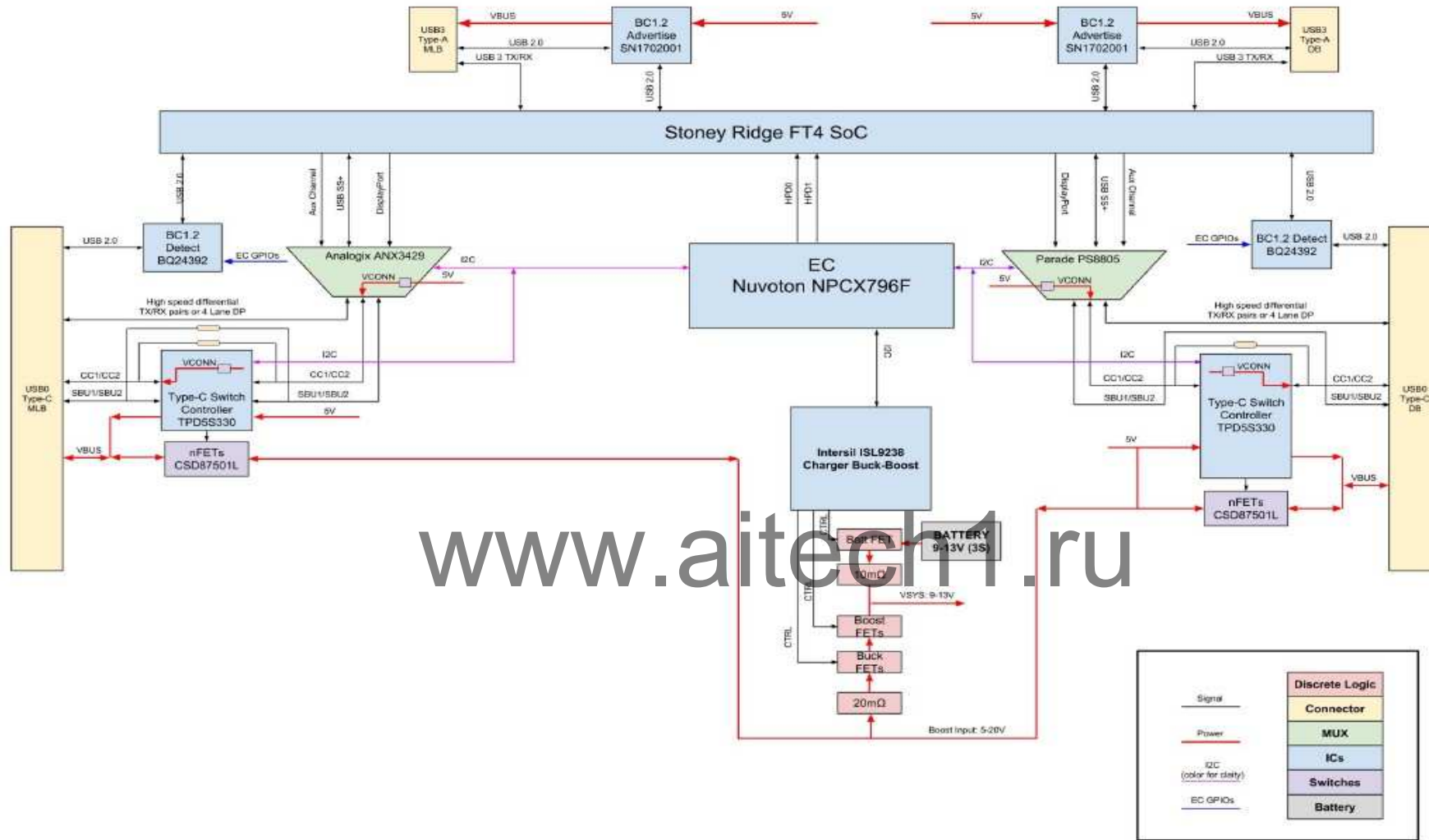
[illegible]



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Grunt USB Block Diagram

Accurate: 2017/10/11



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PROJECT : GRUNT

Size	Document Number	Rev
	USB TYPE-C BLOCK DIAGRAM	2A
Date:	Wednesday, November 14, 2018	Sheet 3 of 36

Grunt I2C Map

2017-10-12

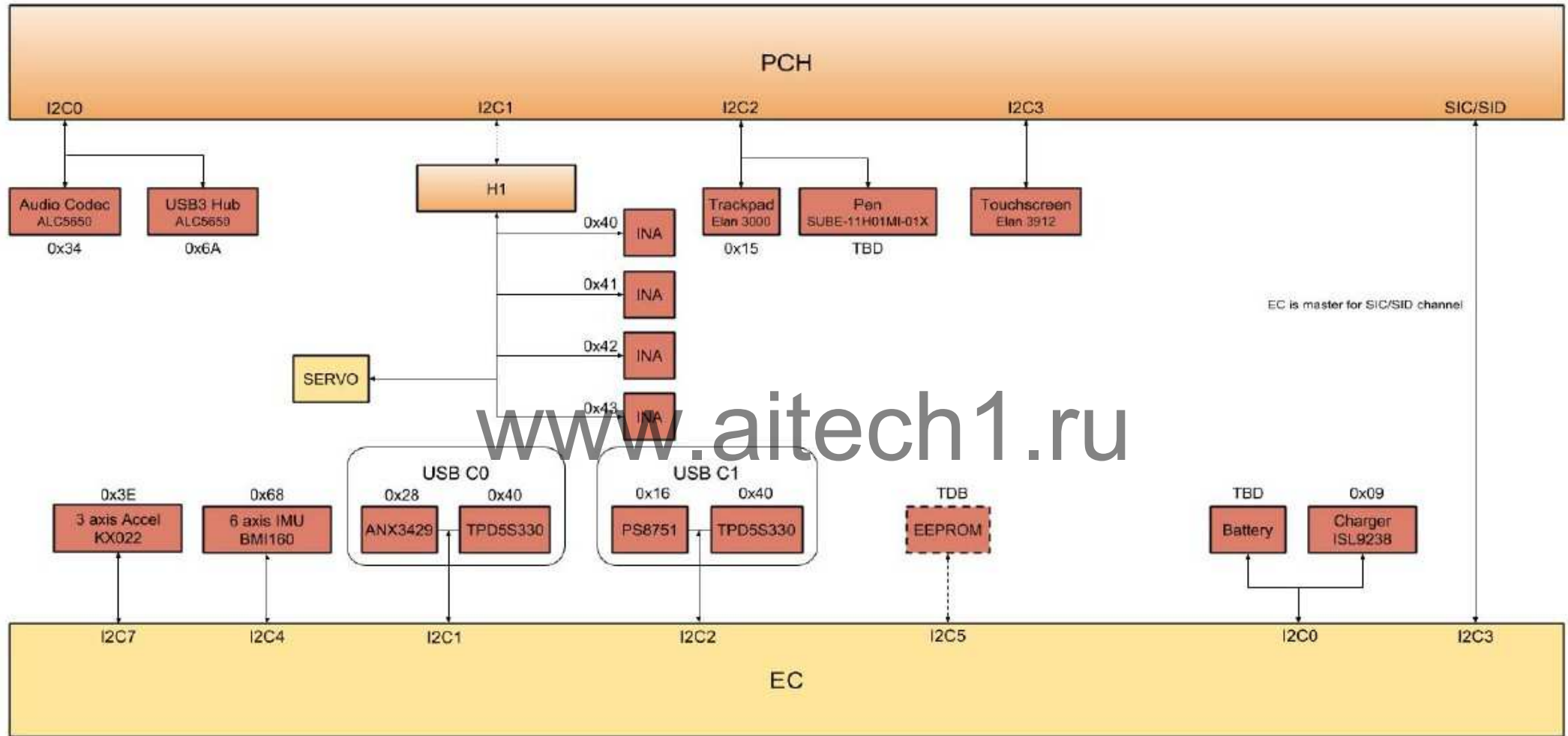
LEGEND

I2C Master & Slave

I2C Master

I2C Slaves

I2C addresses given in 7-bit form

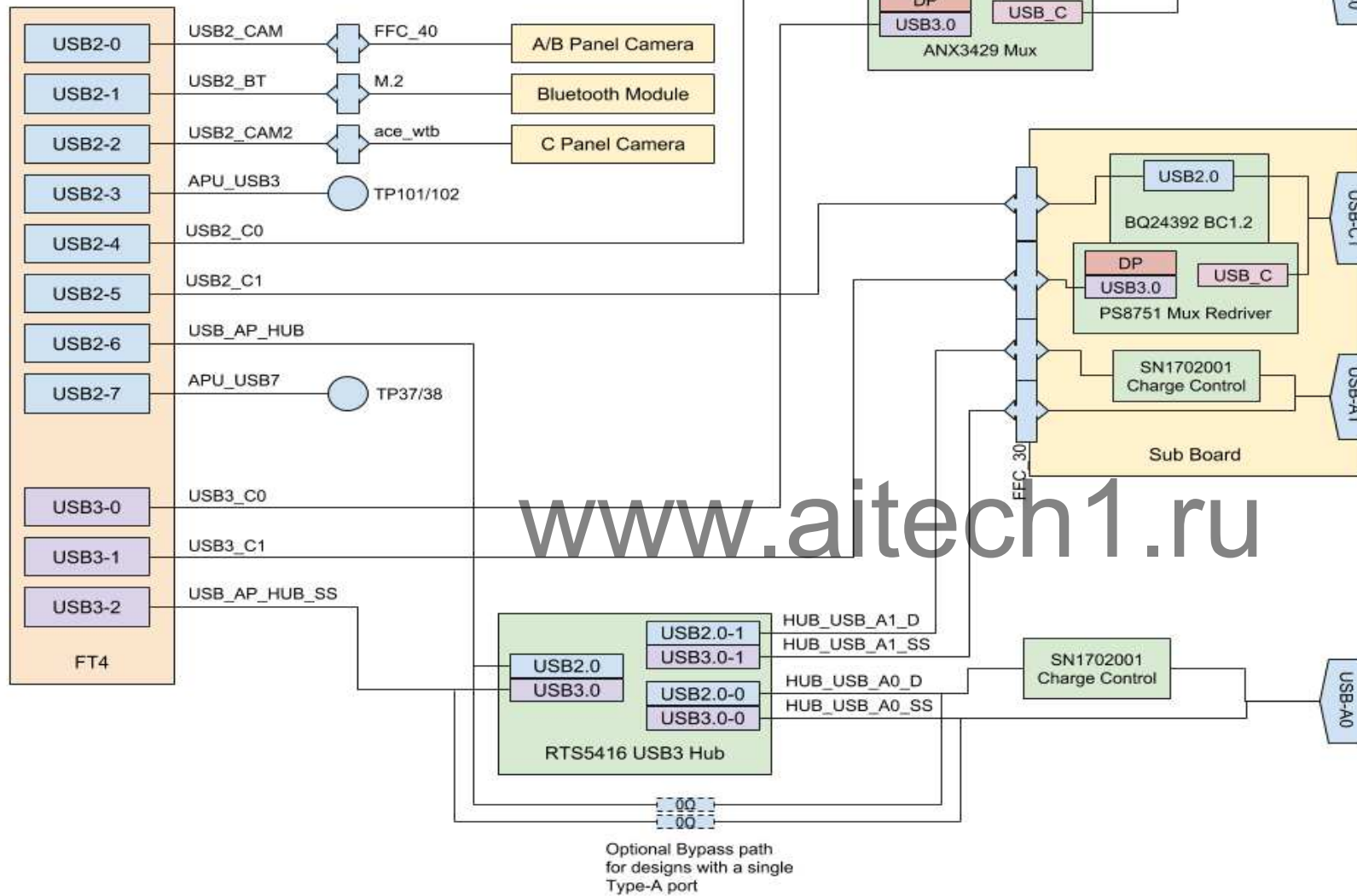


Quanta Computer Inc.

PROJECT : GRUNT

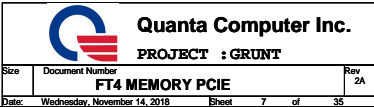
Size	Document Number	Rev
	I2C MAP	2A
Date:	Wednesday, November 14, 2018	Sheet 5 of 35

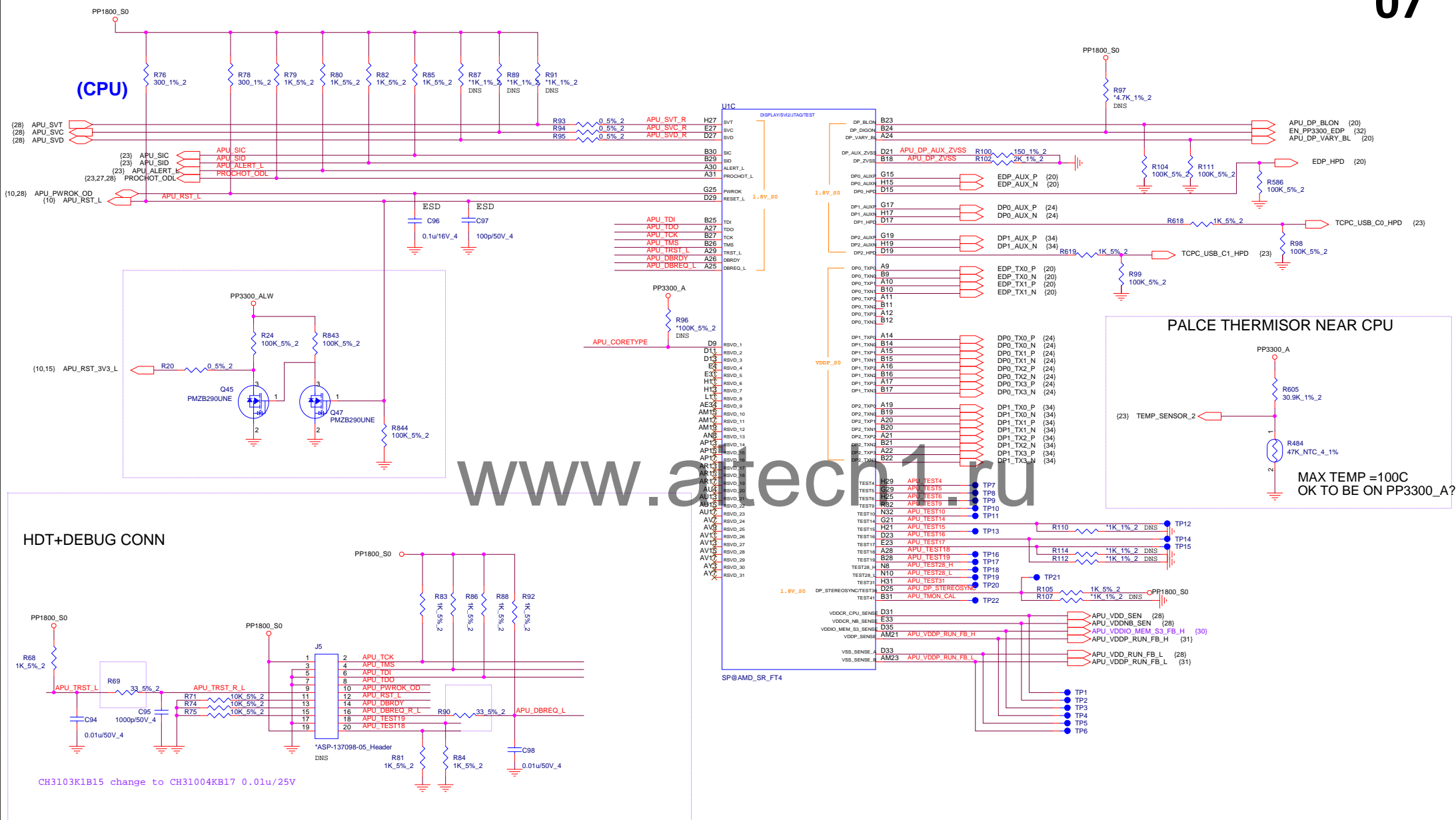
Grunt USB Map 2017-12-14



0.6V REF VOLTAGE

Pin000_DDR_VREF

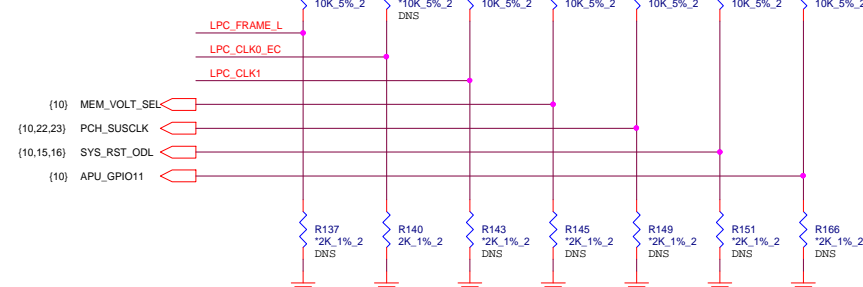


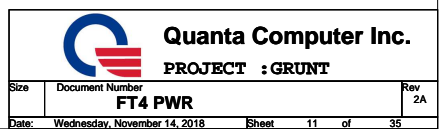




LPC_SMI DOES NOT WORK PROPERLY ON FT4.
THE SIGNAL IS REROUTED TO ANOTHER PIN AS PER THE FT4 ERRATA.

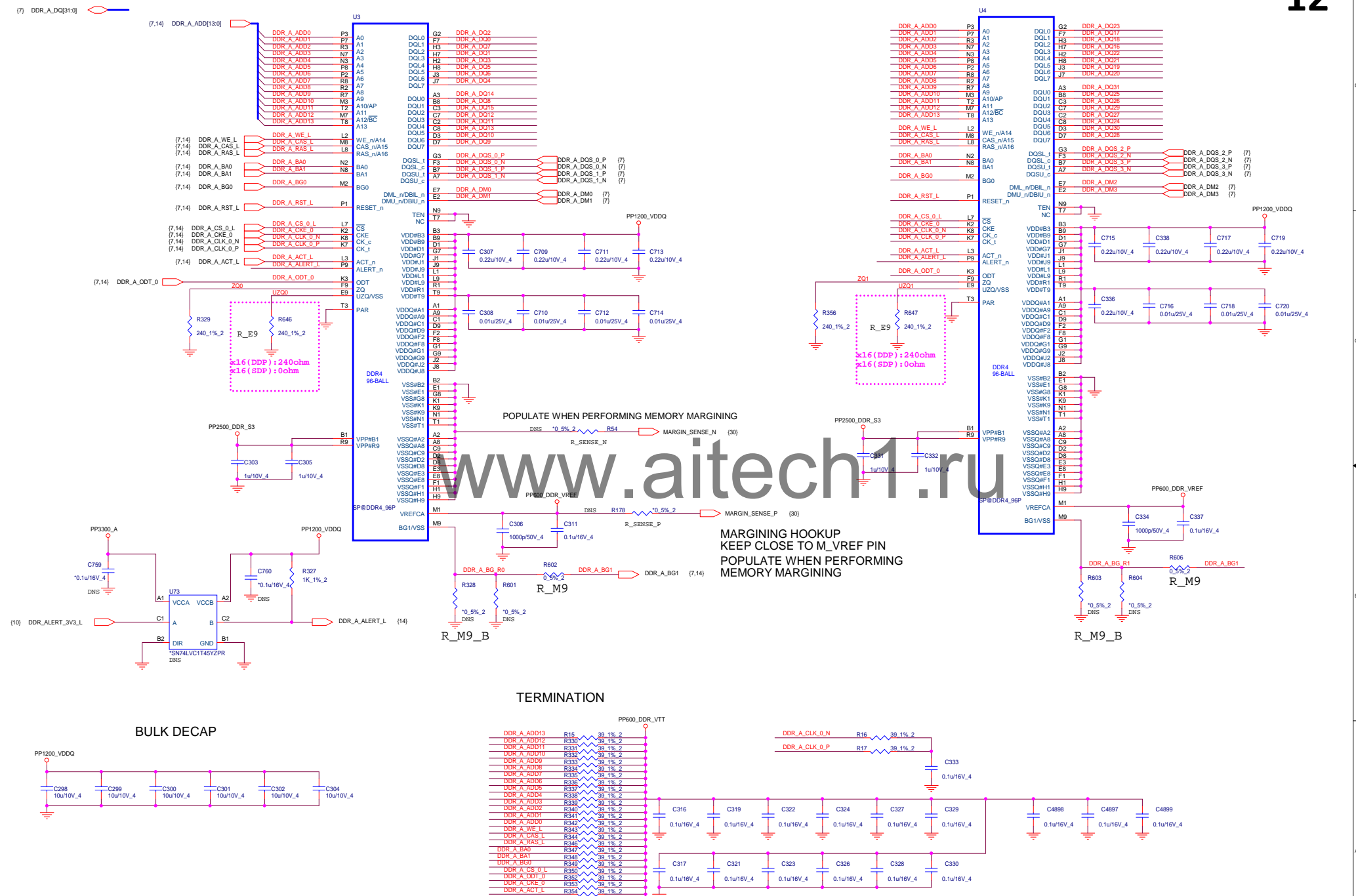
FU	SPI ROM (DEFAULT)	BOOT FAIL TIMER ENABLED	CLKEN ENABLED (DEFAULT)	ENHANCED RESET LOGIC	COIN BATT ON BOARD (DEFAULT)	NORMAL RESET MODE (DEFAULT)	LDI RST#/PG OUTPUT TO APU (DEFAULT)	1.6V SPI ROM (DEFAULT)	ENHANCED RESET
PD	LPC ROM	BOOT FAIL TIMER DISABLED (DEFAULT)	CLKEN DISABLED	TRADITIONAL RESET LOGIC	COIN BATT NOT ON BOARD	SHORT RESET MODE	OUTPUT TO PADS	3.3V SPI ROM	TRADITIONAL RESET (DEFAULT)



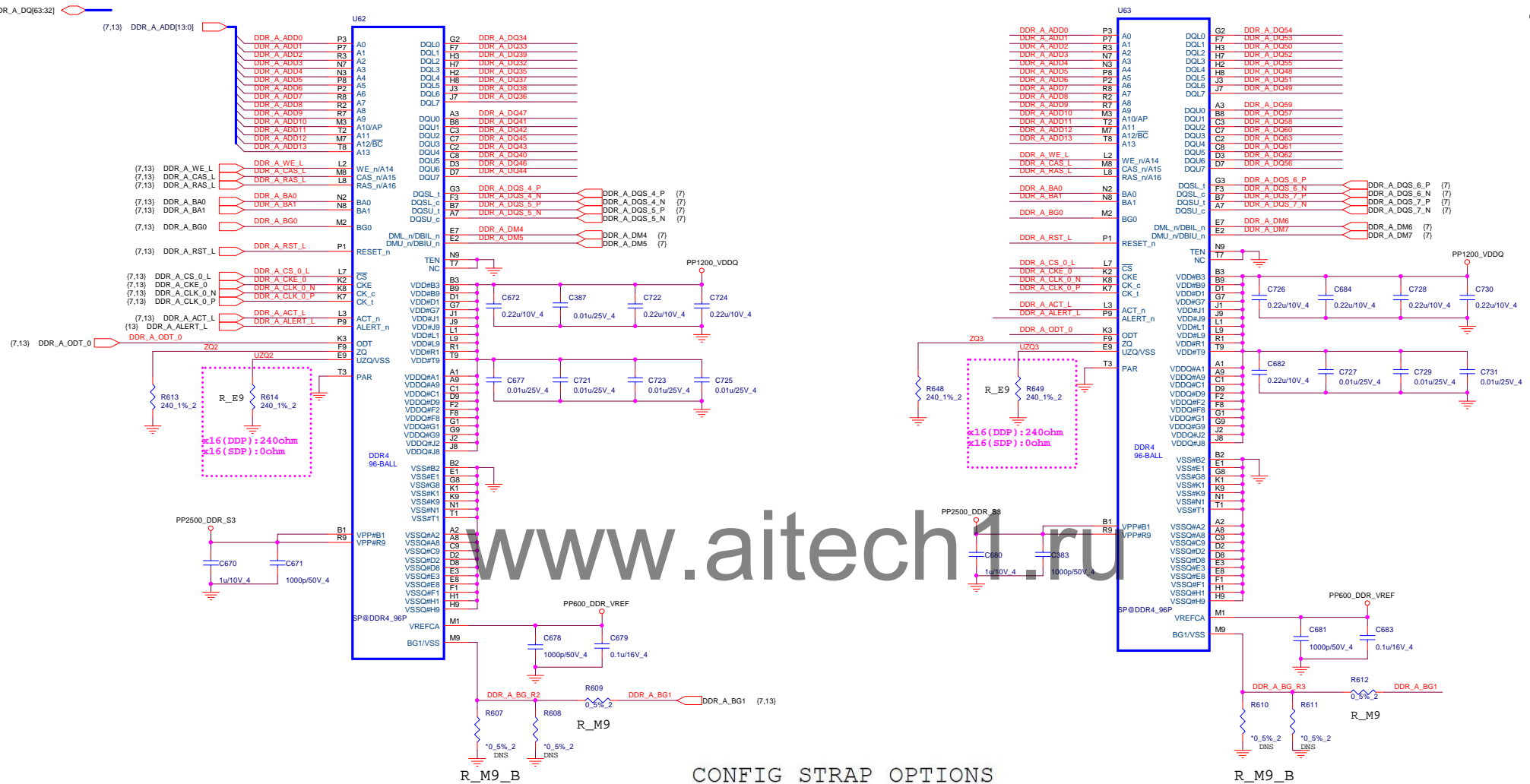




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On board memory(OBM)



SDP = 4GB

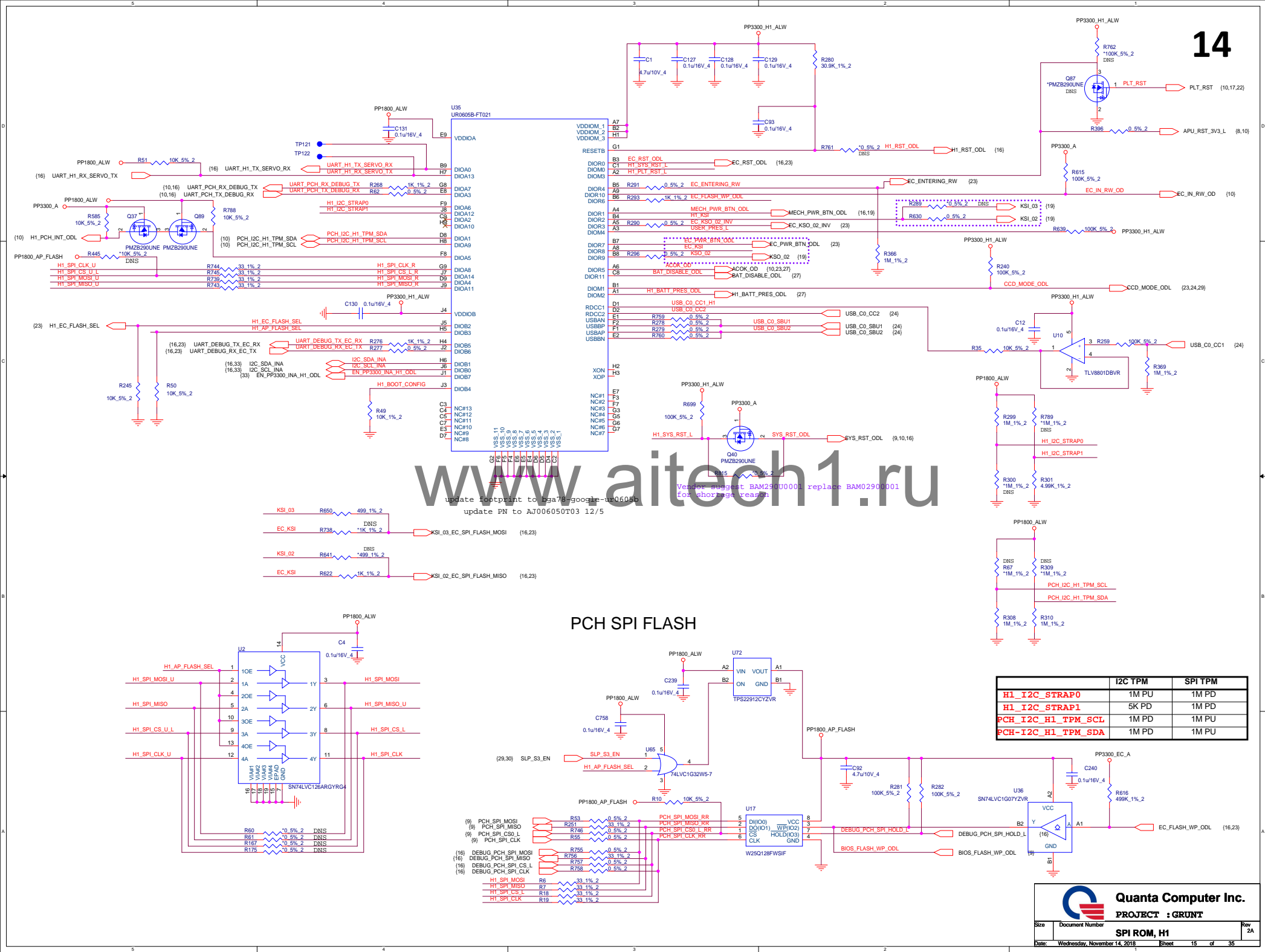
DDP = 8GB

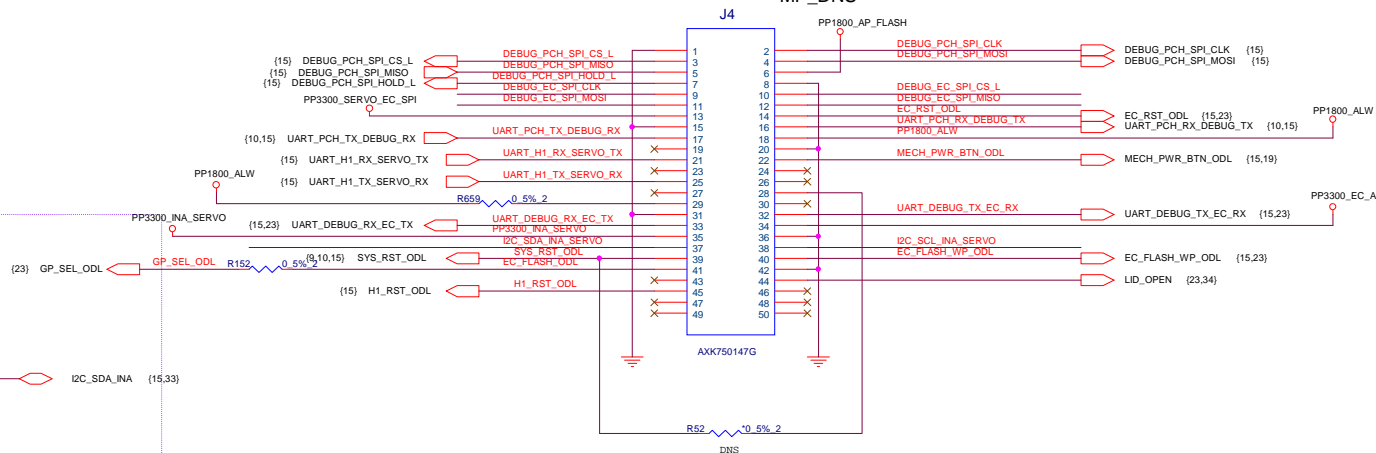
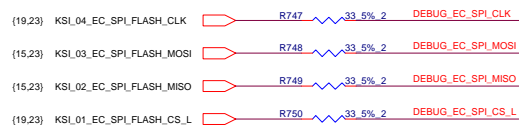
SDP VS. DDP DRR4 STUFF OPTIONS

	SDP	DDP
R_E9	0 OHM	240 OHM
R_M9	OPEN	0 OHM
R_M9_B	0 OHM	OPEN
R_B9	OPEN	39 OHM

CONFIG_STRAP OPTIONS

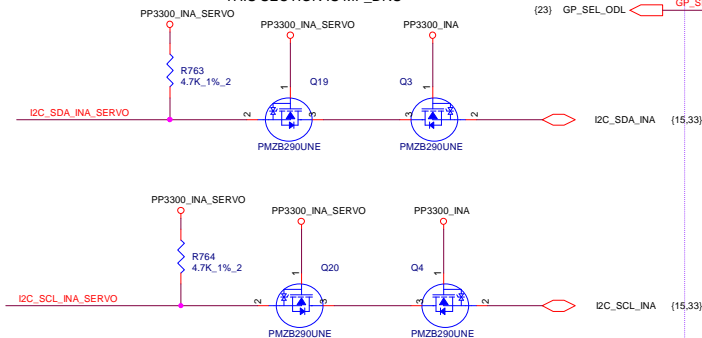
CONFIG_STRAP	4	3	2	1	DDR4 IC	DDR4 P/N
0	0	0	0	0	HYNIX 8GBIT	H5AN8G6NAFR-UHC
0	0	0	0	1	HYNIX 16GBIT DDP	H5ANAG6NAMR-UHC
0	0	0	1	0	MICRON 8GBIT	MT40A512M16JY-083E
0	0	0	1	1	MICRON 16GBIT DDP	MT40A1G16KNR-075E
0	0	1	0	0	SAMSUNG 8GBIT	K4A8G165WB-BCRC
0	0	1	0	1	SAMSUNG 16GBIT DDP	K4AAG165WB-MCRC
0	0	1	1	0		
0	0	1	1	1		
0	1	0	0	0		
0	1	0	0	1		
0	1	0	1	0		
0	1	0	1	1		
0	1	1	0	0		
0	1	1	0	1		
0	1	1	1	0		
0	1	1	1	1		



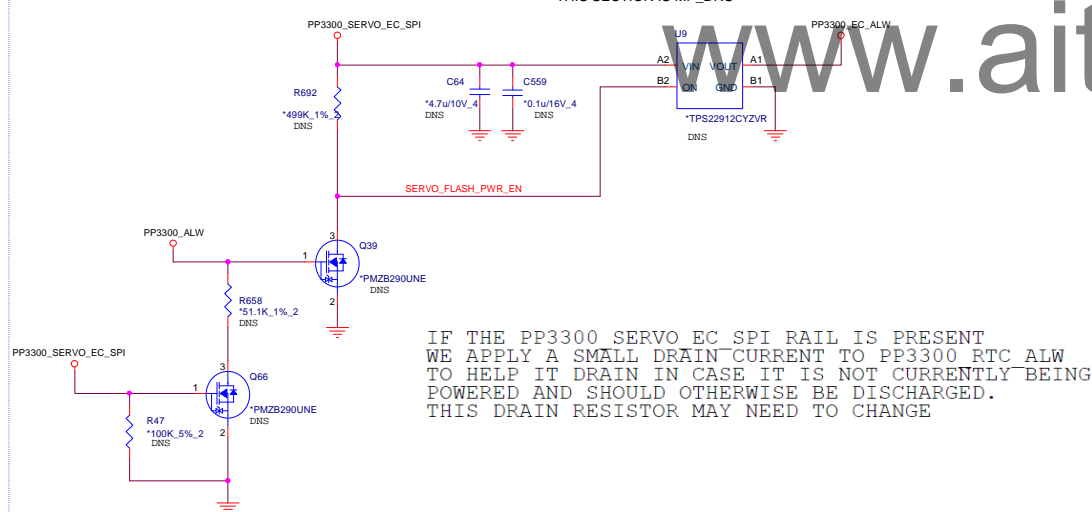


WIRE 0-OHM TO CONNECT SERVO WARM_RST
BUTTON TO WARM_RST ON PCB

INA LEAKAGE PROTECTION
THIS SECTION IS MP_DNS



EC POWER FOR FLASHING
THIS SECTION IS MP DNS



32 GB EMMC STORAGE

16

MAX BH720 OR FT4 EMMC SPEED: HS200

check PN

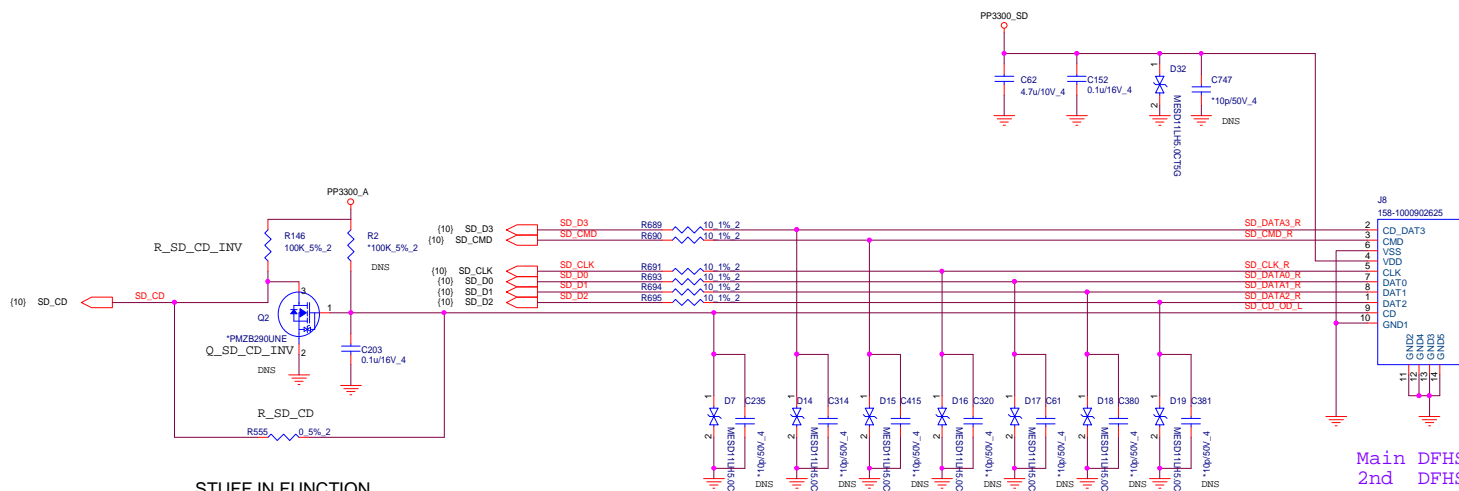
*DS PIN NOT USED FOR HS200

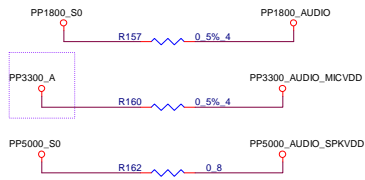
A1	NC#A1	NC#H2	H2
A2	NC#A2	NC#H3	H3
A3	NC#A3	NC#H4	H4
A4	NC#A4	NC#H5	H5
A5	NC#A5	NC#H6	H6
A6	NC#A6	NC#H7	H7
A7	NC#A7	NC#H8	H8
A8	NC#A8	NC#H9	H9
A9	NC#A9	NC#H10	H10
A10	NC#A10	NC#H11	H11
A11	NC#A11	NC#H12	H12
A12	NC#A12	NC#H13	H13
A13	NC#A13	NC#H14	H14
A14	NC#A14	NC#H15	H15
A15	NC#A15	NC#H16	H16
B1	NC#B1	NC#K1	K1
B2	NC#B2	NC#K2	K2
B3	NC#B3	NC#K3	K3
B4	NC#B4	NC#K4	K4
B5	NC#B5	NC#K5	K5
B6	NC#B6	NC#K6	K6
B7	NC#B7	NC#K7	K7
B8	NC#B8	NC#K8	K8
B9	NC#B9	NC#K9	K9
B10	NC#B10	NC#K10	K10
B11	NC#B11	NC#K11	K11
B12	NC#B12	NC#K12	K12
B13	NC#B13	NC#K13	K13
B14	NC#B14	NC#K14	K14
C1	NC#C1	NC#L1	L1
C2	NC#C2	NC#L2	L2
C3	NC#C3	NC#L3	L3
C4	NC#C4	NC#L4	L4
C5	NC#C5	NC#L5	L5
C6	NC#C6	NC#L6	L6
C7	NC#C7	NC#L7	L7
C8	NC#C8	NC#L8	L8
C9	NC#C9	NC#L9	L9
C10	NC#C10	NC#L10	L10
C11	NC#C11	NC#L11	L11
C12	NC#C12	NC#L12	L12
C13	NC#C13	NC#L13	L13
C14	NC#C14	NC#L14	L14
C15	NC#C15	NC#L15	L15
D1	NC#D1	NC#M1	M1
D2	NC#D2	NC#M2	M2
D3	NC#D3	NC#M3	M3
D4	NC#D4	NC#M4	M4
D5	NC#D5	NC#M5	M5
D6	NC#D6	NC#M6	M6
D7	NC#D7	NC#M7	M7
D8	NC#D8	NC#M8	M8
D9	NC#D9	NC#M9	M9
D10	NC#D10	NC#M10	M10
D11	NC#D11	NC#M11	M11
D12	NC#D12	NC#M12	M12
D13	NC#D13	NC#M13	M13
D14	NC#D14	NC#M14	M14
D15	NC#D15	NC#M15	M15
E1	NC#E1	NC#N1	N1
E2	NC#E2	NC#N2	N2
E3	NC#E3	NC#N3	N3
E4	NC#E4	NC#N4	N4
E5	NC#E5	NC#N5	N5
E6	NC#E6	NC#N6	N6
E7	NC#E7	NC#N7	N7
E8	NC#E8	NC#N8	N8
E9	NC#E9	NC#N9	N9
E10	NC#E10	NC#N10	N10
E11	NC#E11	NC#N11	N11
E12	NC#E12	NC#N12	N12
E13	NC#E13	NC#N13	N13
E14	NC#E14	NC#N14	N14
F1	NC#F1	NC#P1	P1
F2	NC#F2	NC#P2	P2
F3	NC#F3	NC#P3	P3
F4	NC#F4	NC#P4	P4
F5	NC#F5	NC#P5	P5
F6	NC#F6	NC#P6	P6
F7	NC#F7	NC#P7	P7
F8	NC#F8	NC#P8	P8
F9	NC#F9	NC#P9	P9
F10	NC#F10	NC#P10	P10
F11	NC#F11	NC#P11	P11
F12	NC#F12	NC#P12	P12
F13	NC#F13	NC#P13	P13
F14	NC#F14	NC#P14	P14
G1	NC#G1	NC#Q1	Q1
G2	NC#G2	NC#Q2	Q2
G3	NC#G3	NC#Q3	Q3
G4	NC#G4	NC#Q4	Q4
G5	NC#G5	NC#Q5	Q5
G6	NC#G6	NC#Q6	Q6
G7	NC#G7	NC#Q7	Q7
G8	NC#G8	NC#Q8	Q8
G9	NC#G9	NC#Q9	Q9
G10	NC#G10	NC#Q10	Q10
G11	NC#G11	NC#Q11	Q11
G12	NC#G12	NC#Q12	Q12
G13	NC#G13	NC#Q13	Q13
G14	NC#G14	NC#Q14	Q14
H1	NC#H1	NC#R1	R1

THGBMH8C2LBAL

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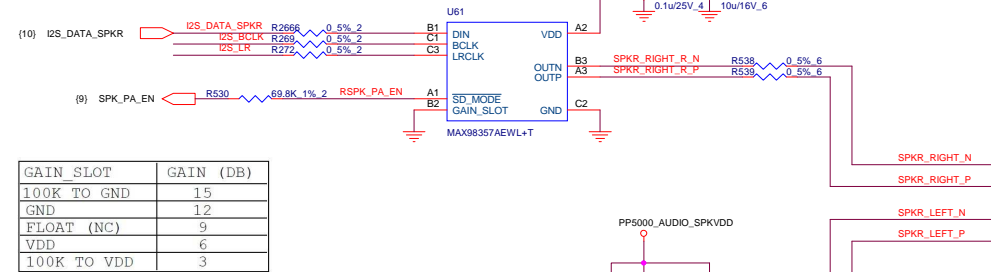
MICRO SD CARD



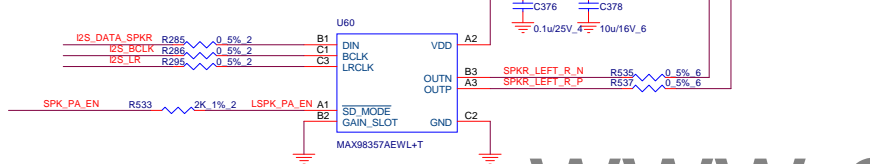


LAYOUT NOTES
SPKR_RIGHT_P, SPKR_RIGHT_N & SPKR_LEFT_P, SPKR_LEFT_N SHOULD BE CONNECTED AS CLOSE TO THE SPEAKER CONNECTOR AS POSSIBLE

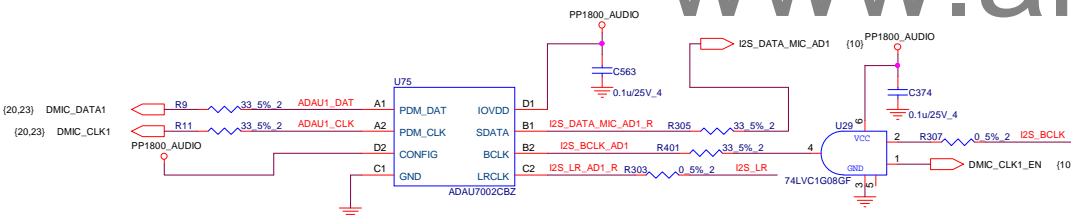
RIGHT CHANNEL



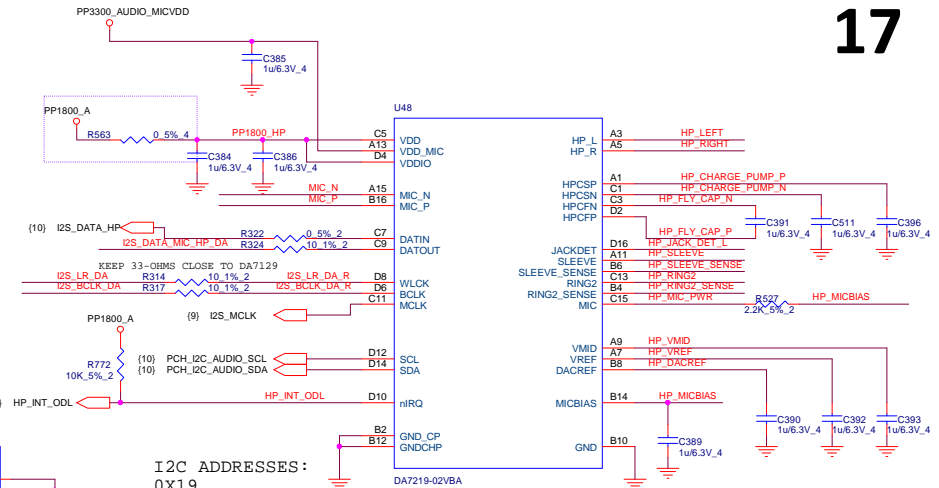
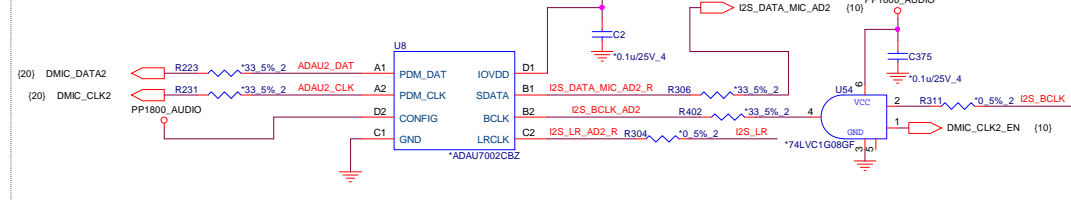
LEFT CHANNEL



NOTE: EXTRA PDM TO I2S CONVERTER IN CASE EC'S WOY IS NOT AVAILABLE.



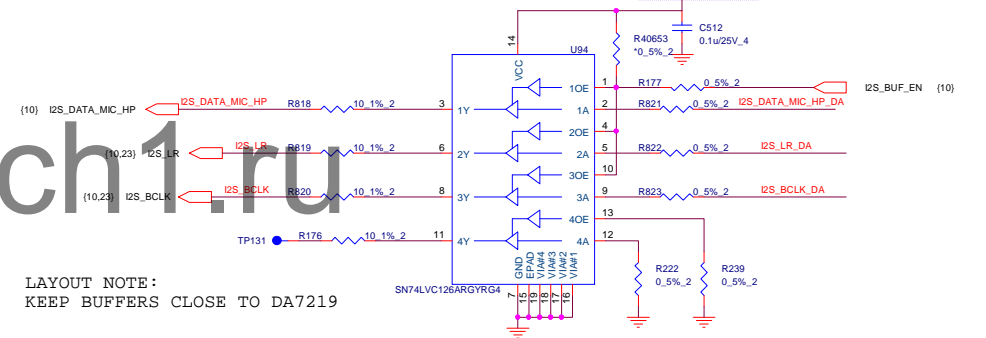
DNS these parts.



I2C ADDRESSES:
0X19
0X18
0X1A (DEFAULT)
0X1B

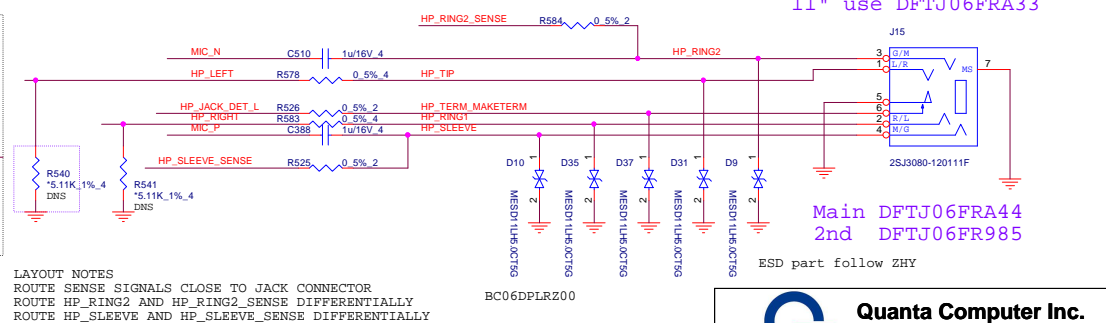
3X 74LVC1G17 CAN BE REPLACED WITH 1X 74LVC3G17
THESE BUFFERS ARE NEEDED TO PROVIDE THE EXTRA DRIVE STRENGTH THAT THE DA7219 CANNOT SOURCE THROUGH THE LONG PCB TRACES

Main DFHD04MR445
2nd DFHD04MR348



LAYOUT NOTE:
KEEP BUFFERS CLOSE TO DA7219

15" use DFTJ06FRA44
11" use DFTJ06FRA33



LAYOUT NOTES
ROUTE SENSE SIGNALS CLOSE TO JACK CONNECTOR
ROUTE HP_RING2 AND HP_RING2_SENSE DIFFERENTIALLY
ROUTE HP_SLEEVE AND HP_SLEEVE_SENSE DIFFERENTIALLY

BC06DPLR200



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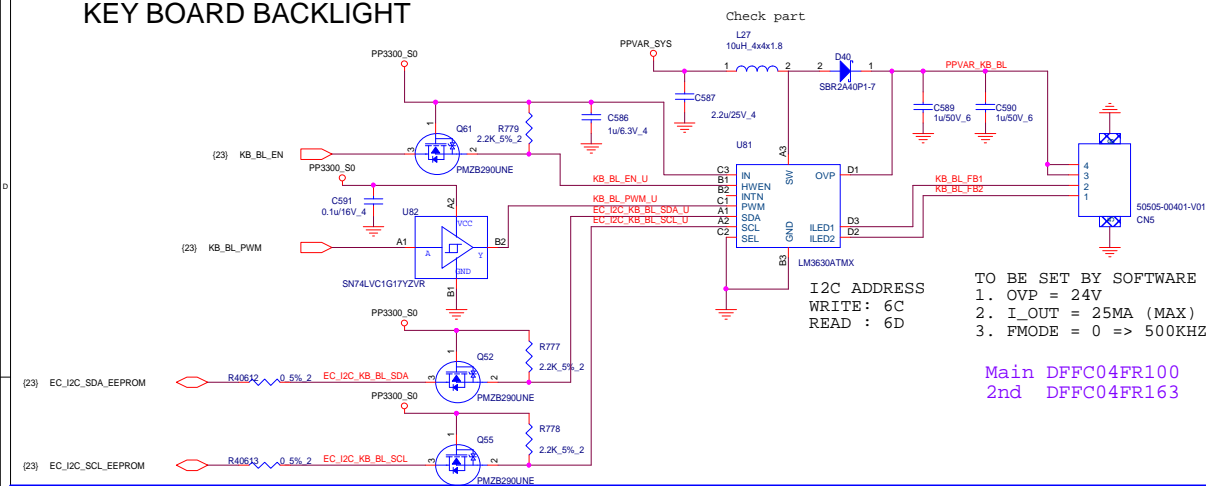
PROJECT : GRUNT

Size Document Number
Date: Wednesday, November 14, 2018 Sheet 18 of 35

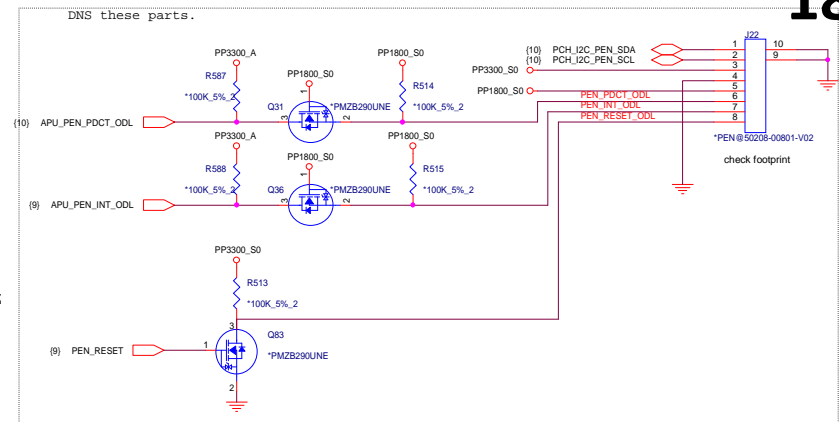
AUDIO

Rev 2A

KEY BOARD BACKLIGHT

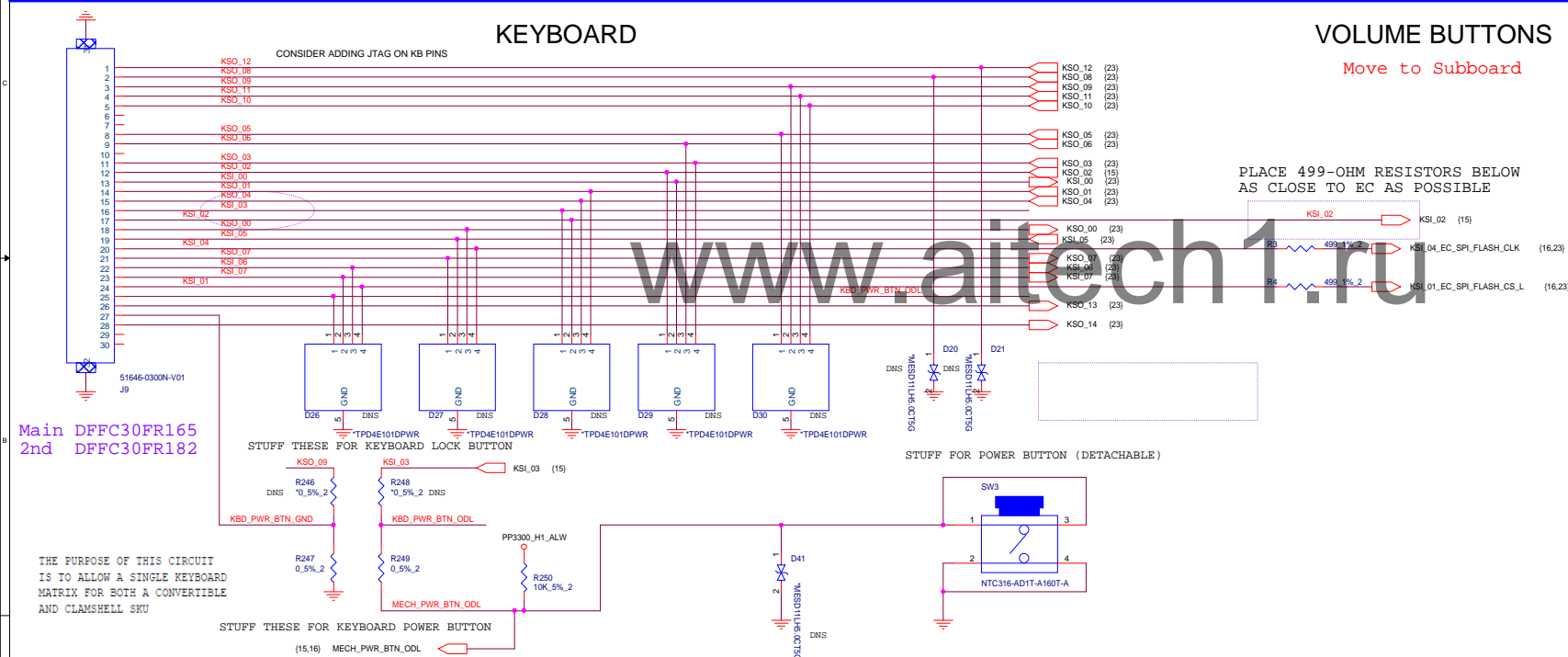


PEN CONNECTOR



18

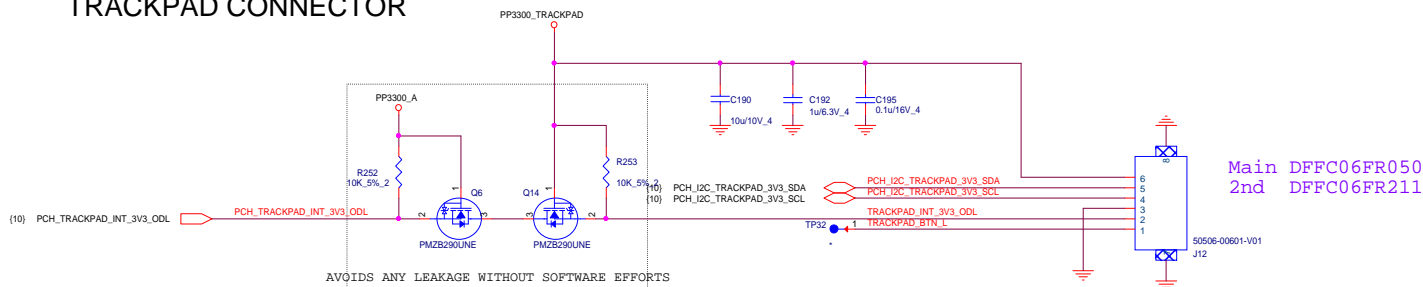
KEYBOARD

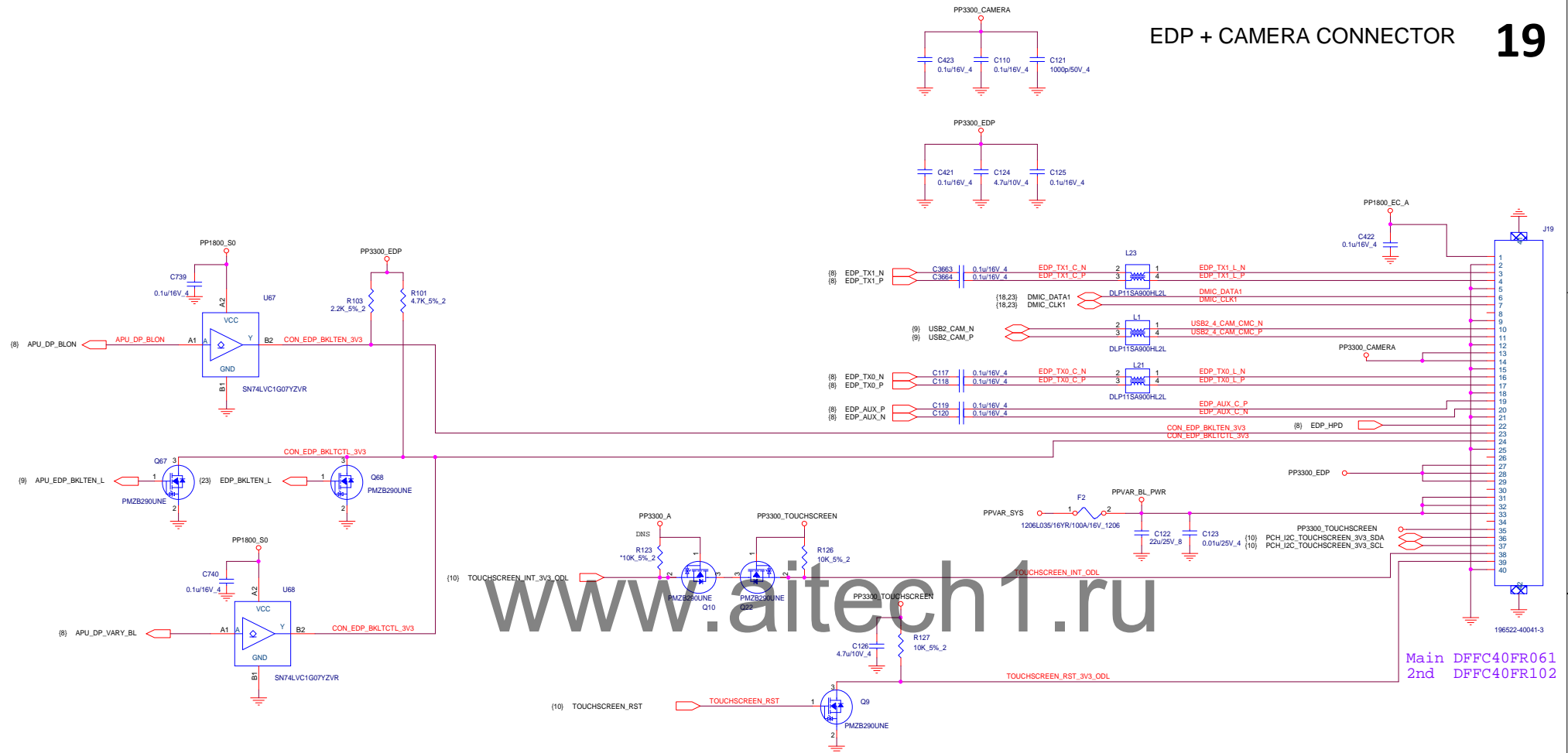


VOLUME BUTTONS

Move to Subboard

TRACKPAD CONNECTOR



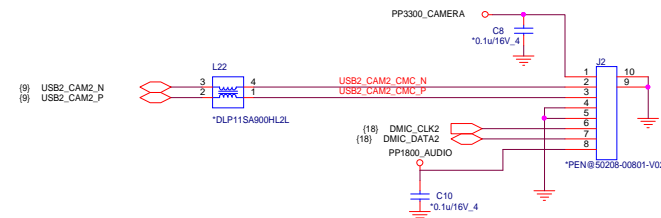


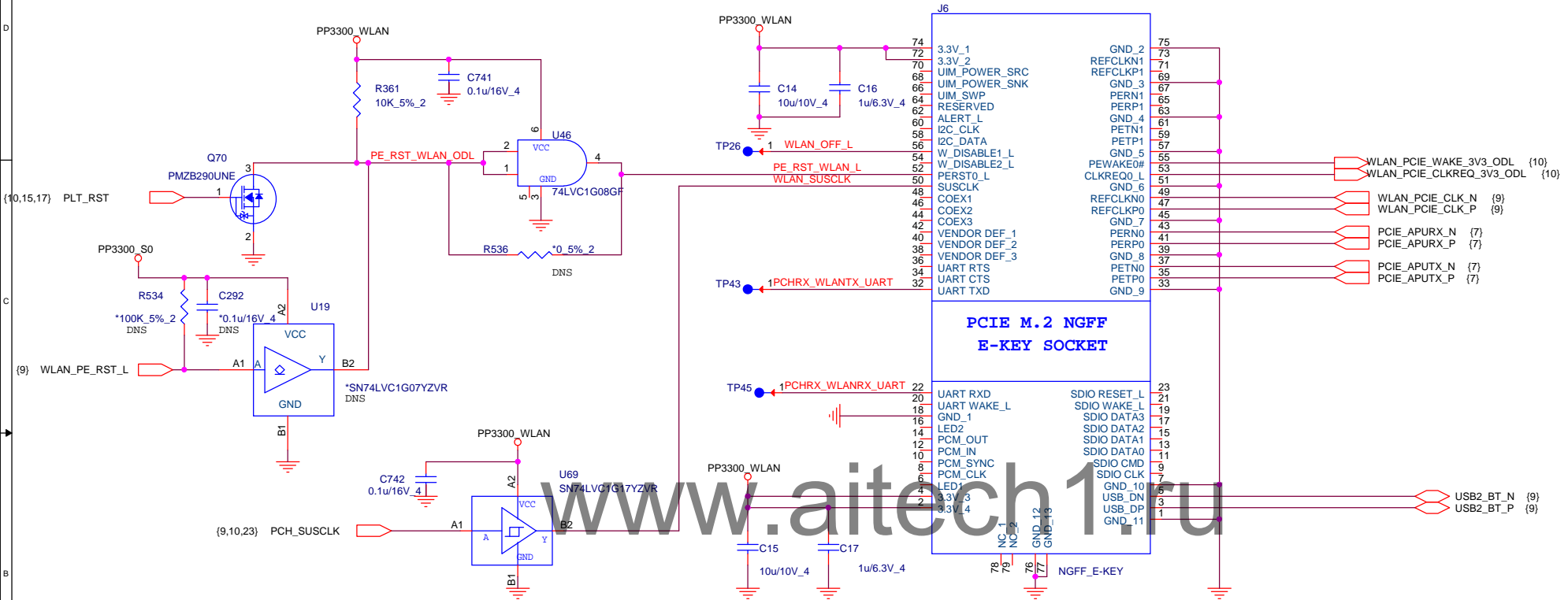
Main DFFC40FR061
2nd DFFC40FR102

EC WOV SEL

C-PANEL CAMERA

DNS these parts.



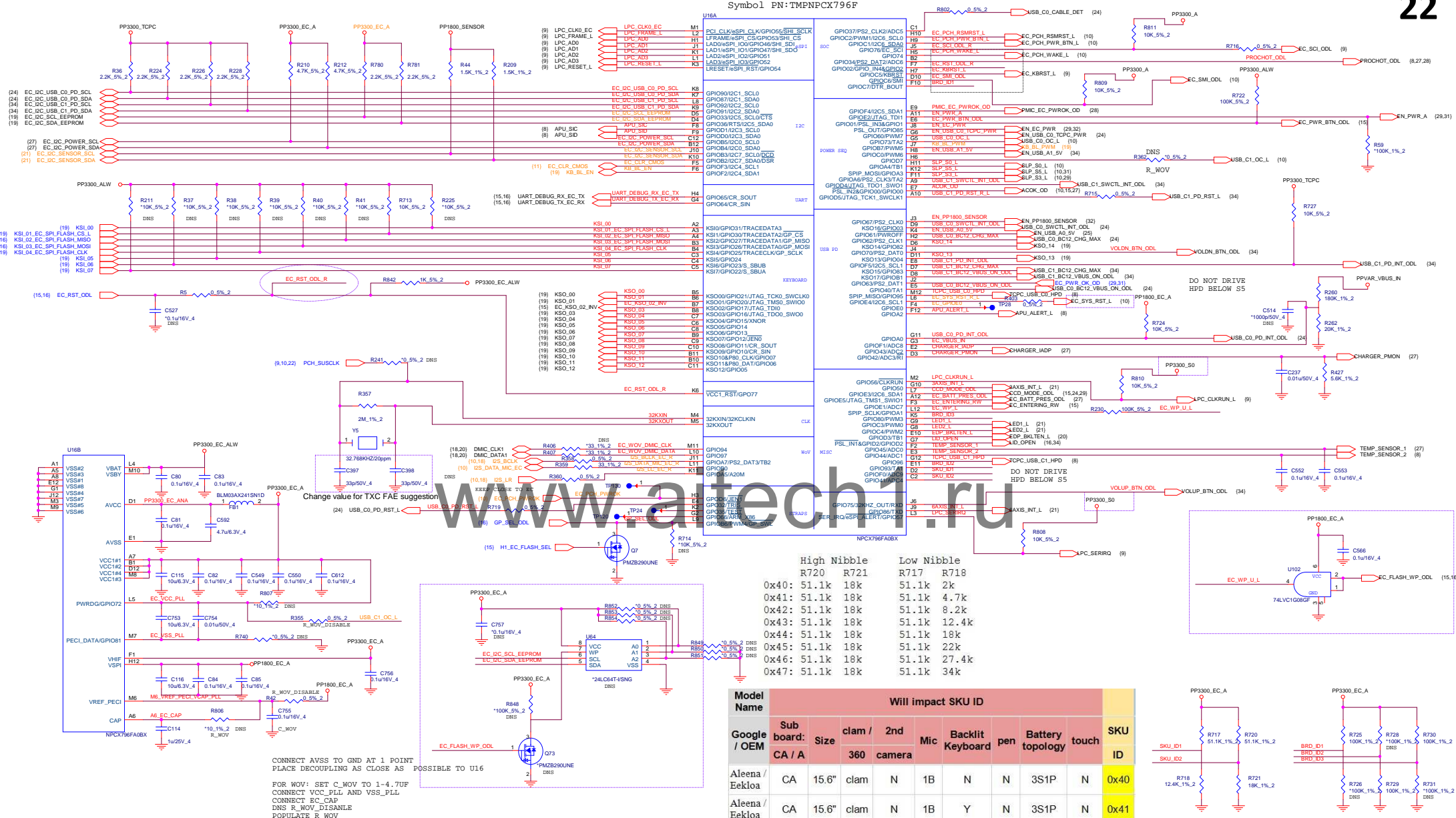


Main DFHS75FR108
2nd DFHS75FR270

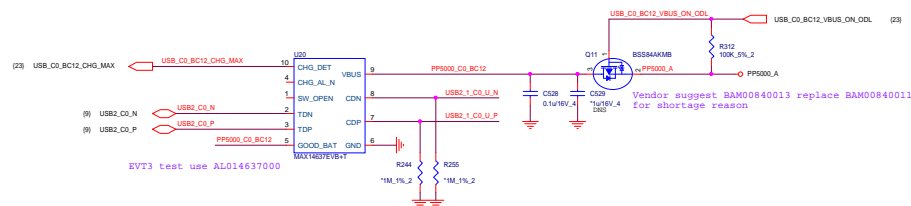


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PROJECT : GRUNT

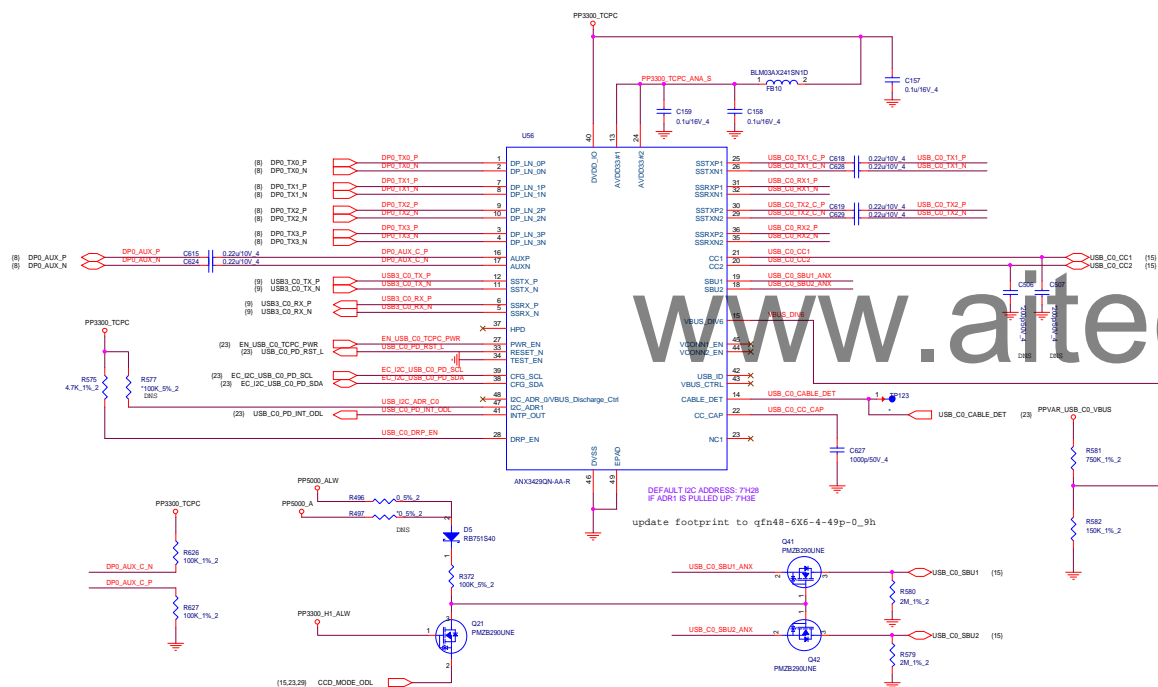
Size	Document Number	Rev
	WIFI	2A
Date:	Wednesday, November 14, 2018	Sheet 22 of 35



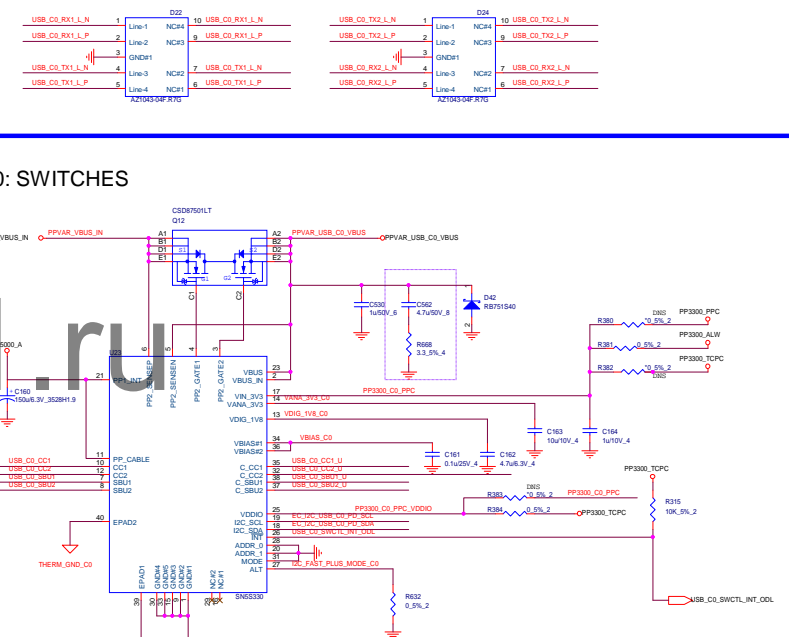
PORT 0: BC1.2



PORT 0: TCPC



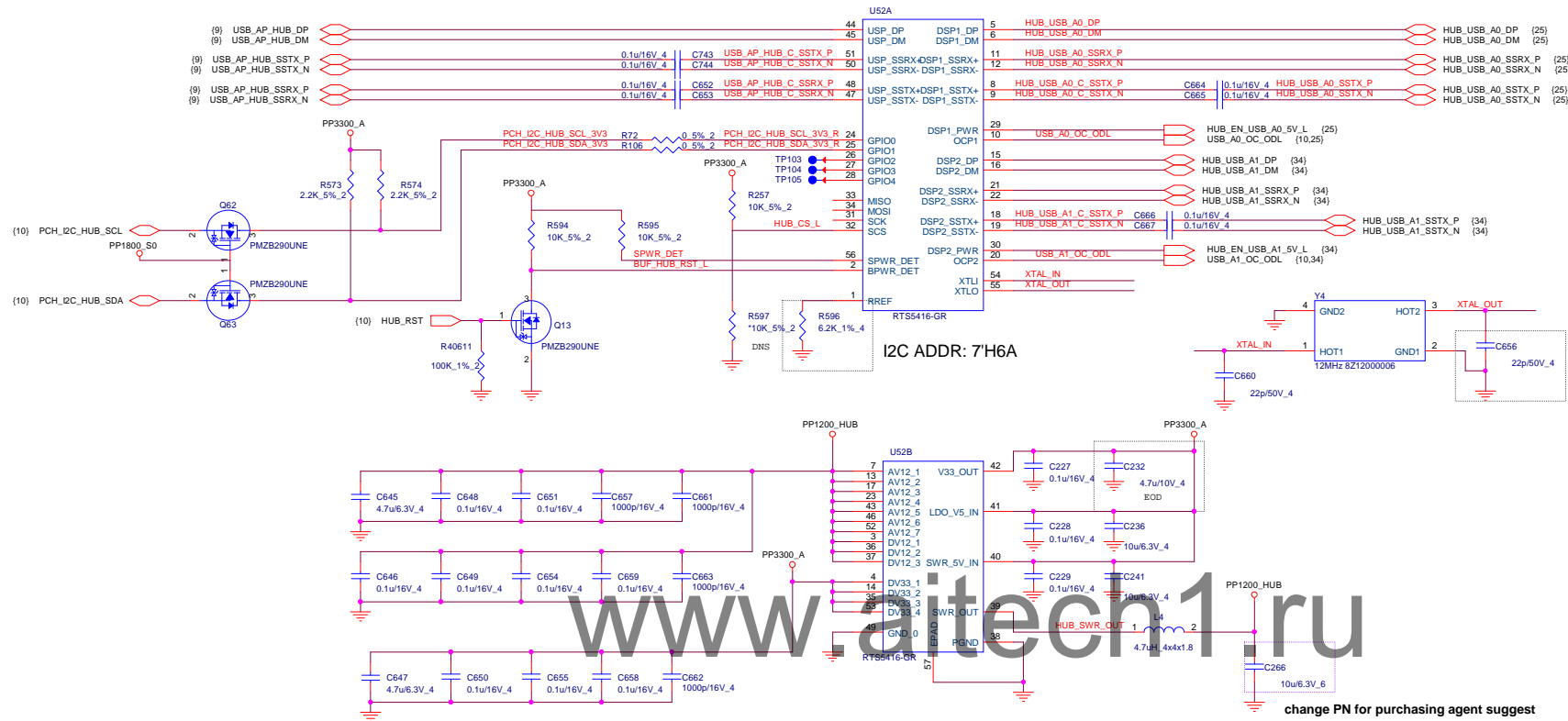
PORT 0: SWITCHES



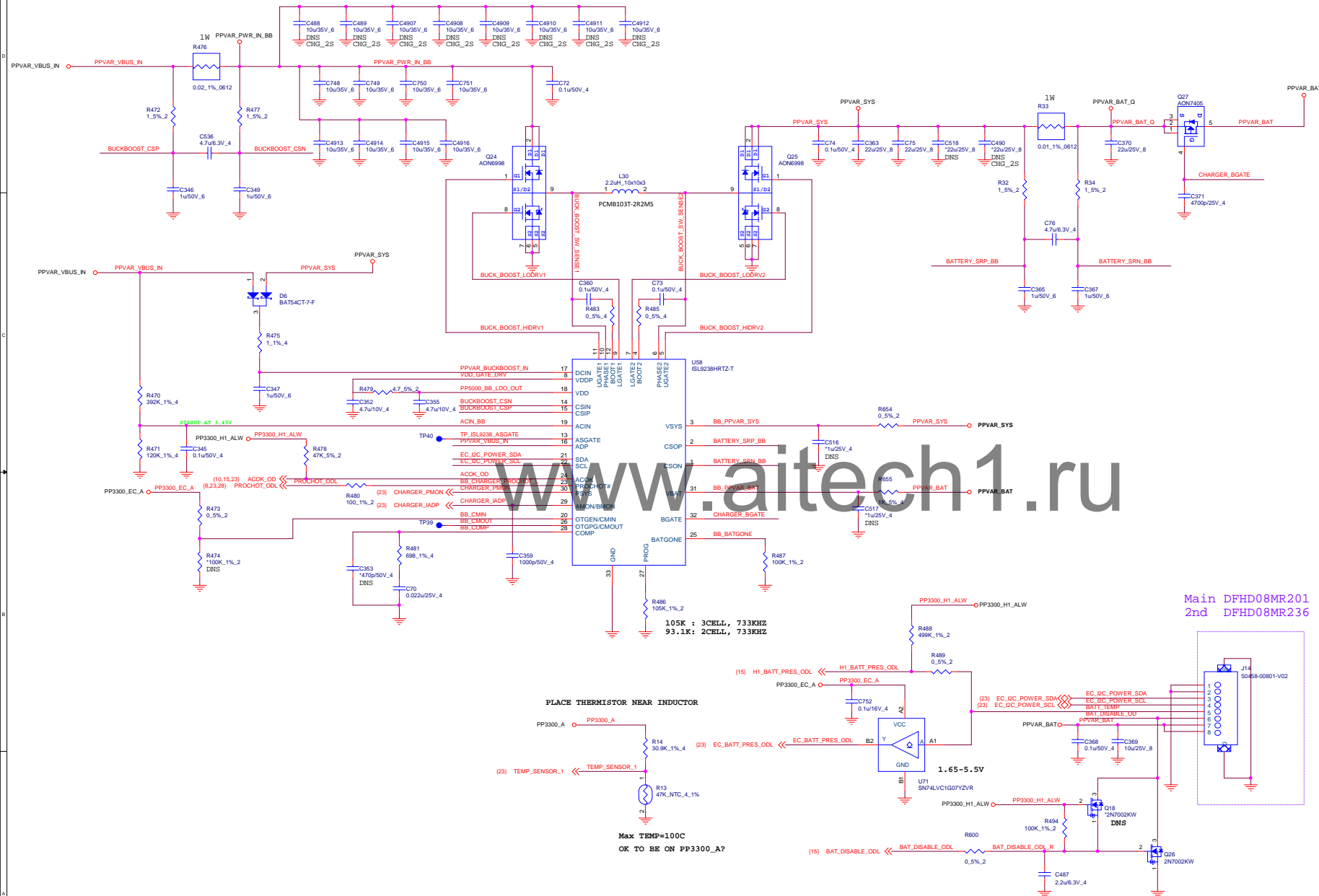
USB HUB

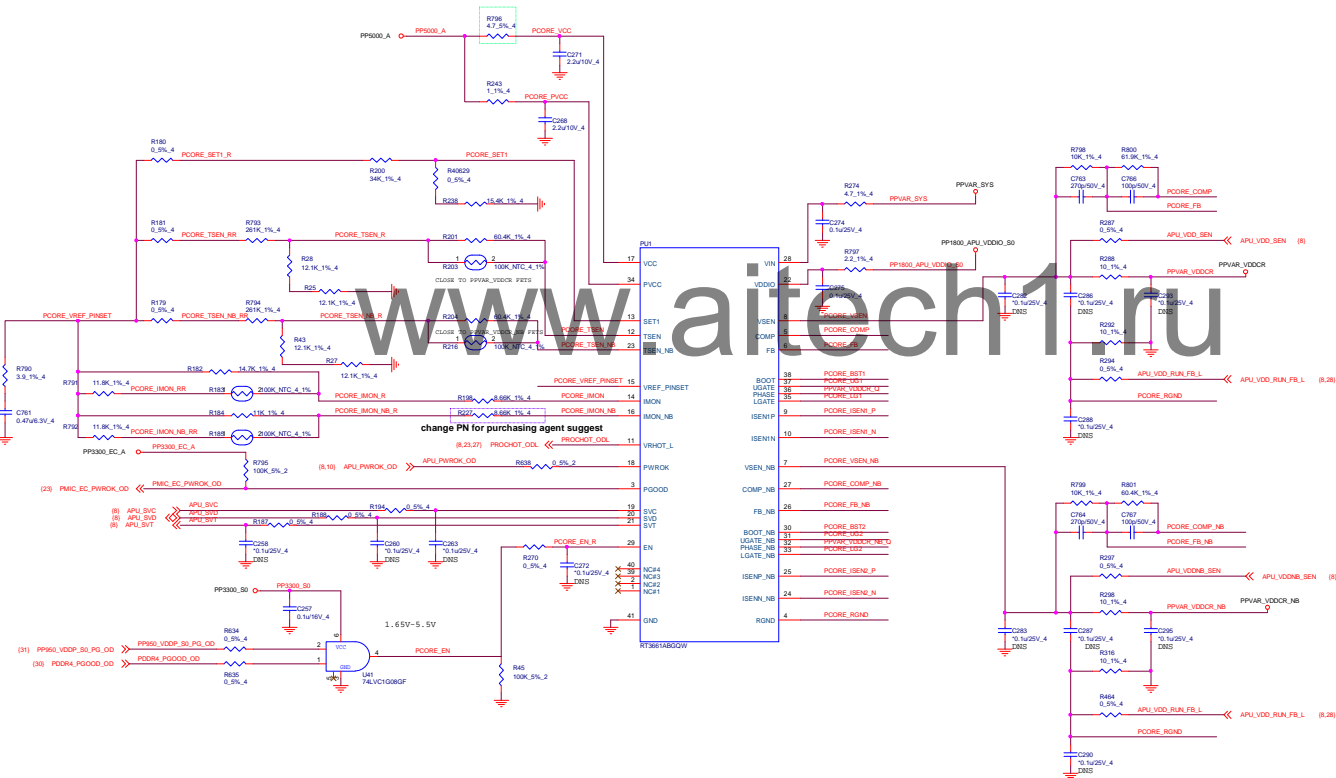
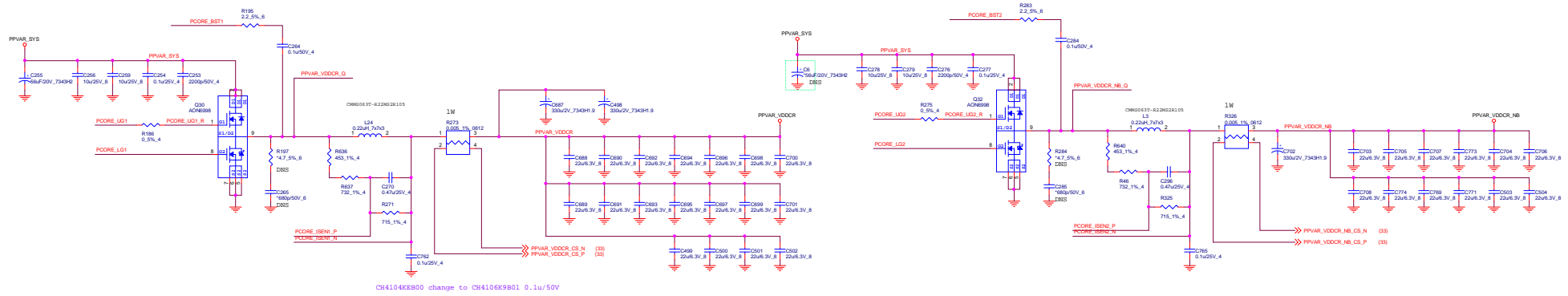
IF ONLY A SINGLE USB3.0 TYPE-A PORT IS NEEDED, THIS HUB CAN BE REMOVED AND REPLACED WITH SN1702001 (OR EQUIVALENT)

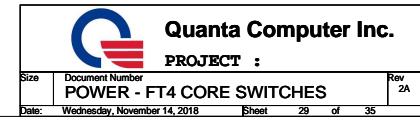
25

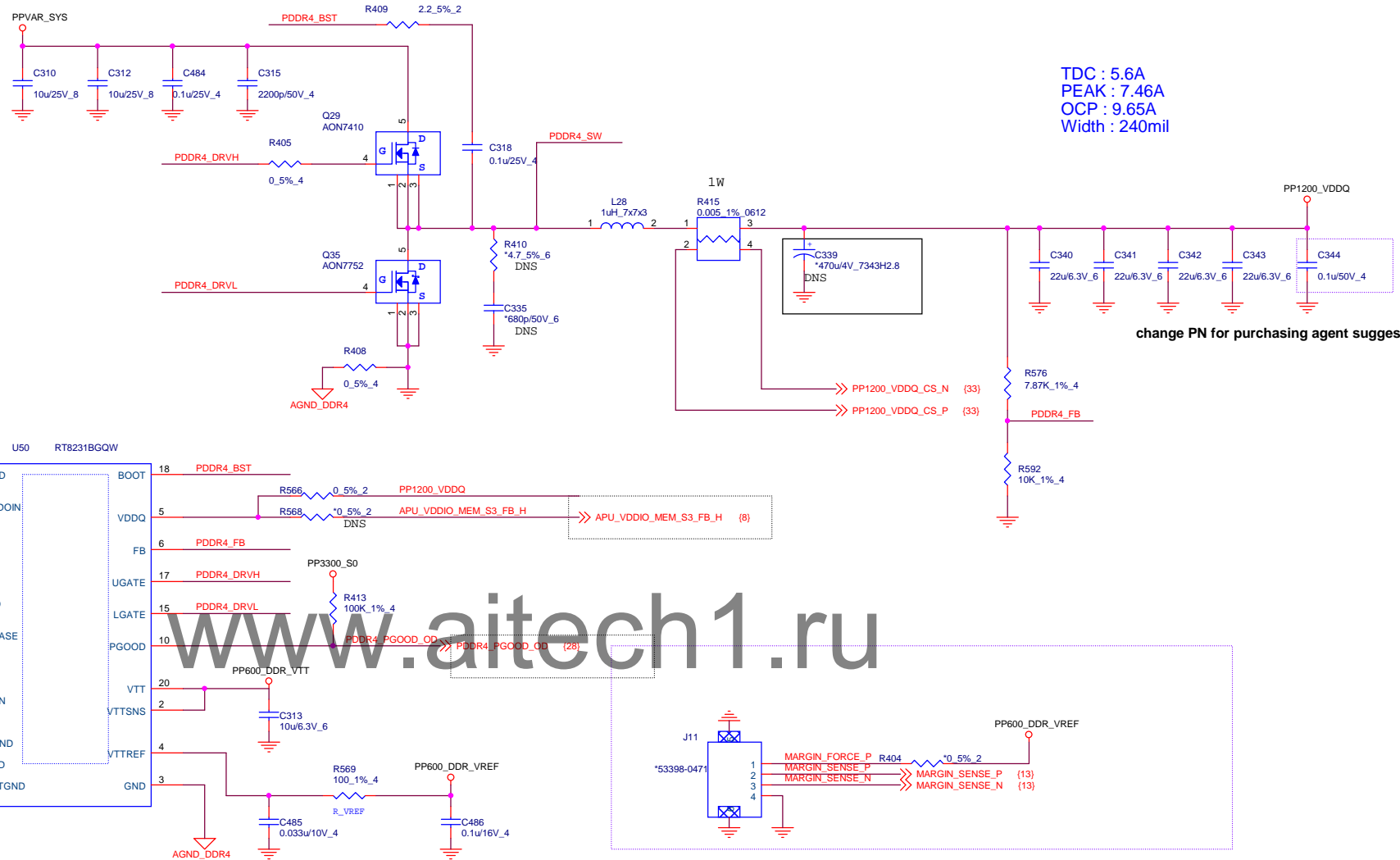


INTERSIL BUCK - BOOST CHARGER










TDC : 5.6A
PEAK : 7.46A
OCP : 9.65A
Width : 240mil

change PN for purchasing agent suggest

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VID	REF VOLTAGE
HIGH	0.675V
LOW	0.75V



Quanta Computer Inc.
PROJECT :
POWER - DDR4

Size

Document Number

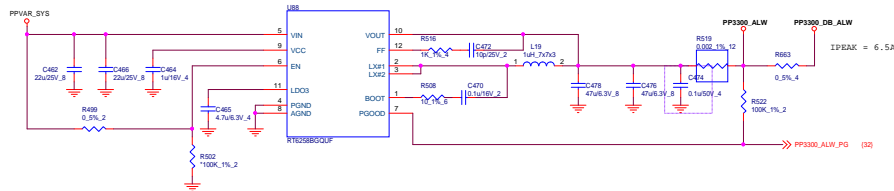
Rev

Date: Wednesday, November 14, 2018

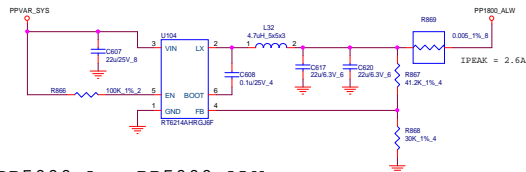
Sheet 30 of 35

2A

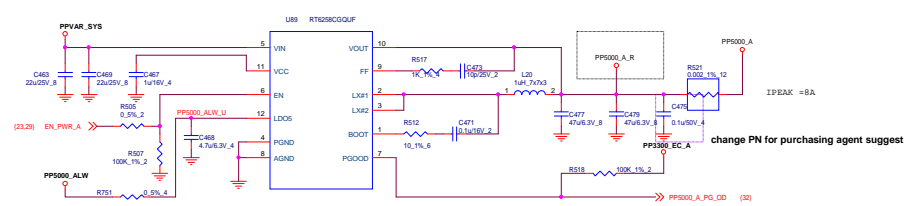
PP3300_ALW



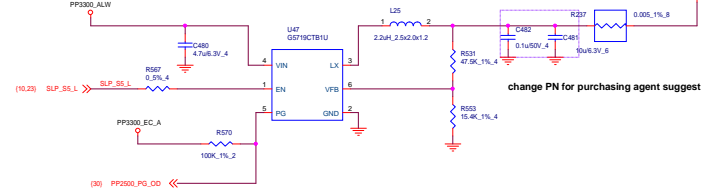
PP1800_ALW



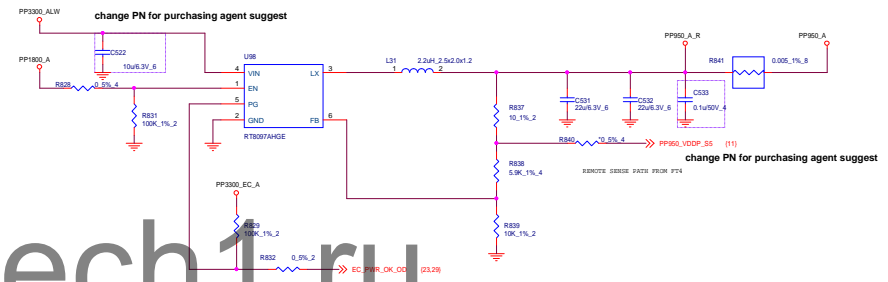
PP5000_A + PP5000_ALW



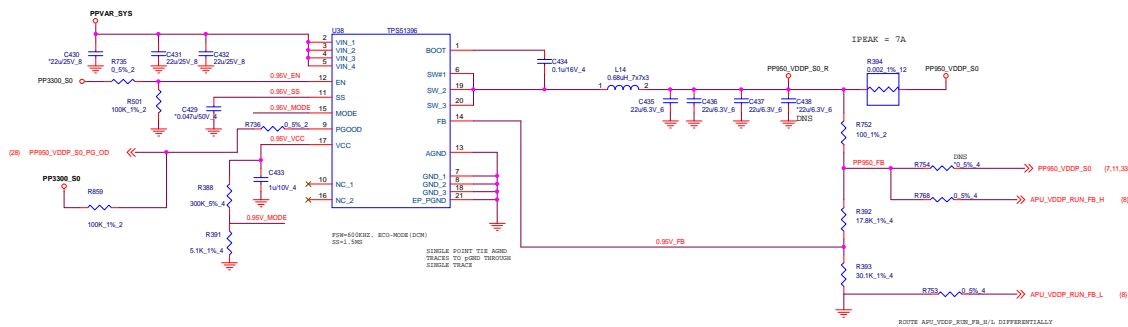
PP2500_DDR4_S3



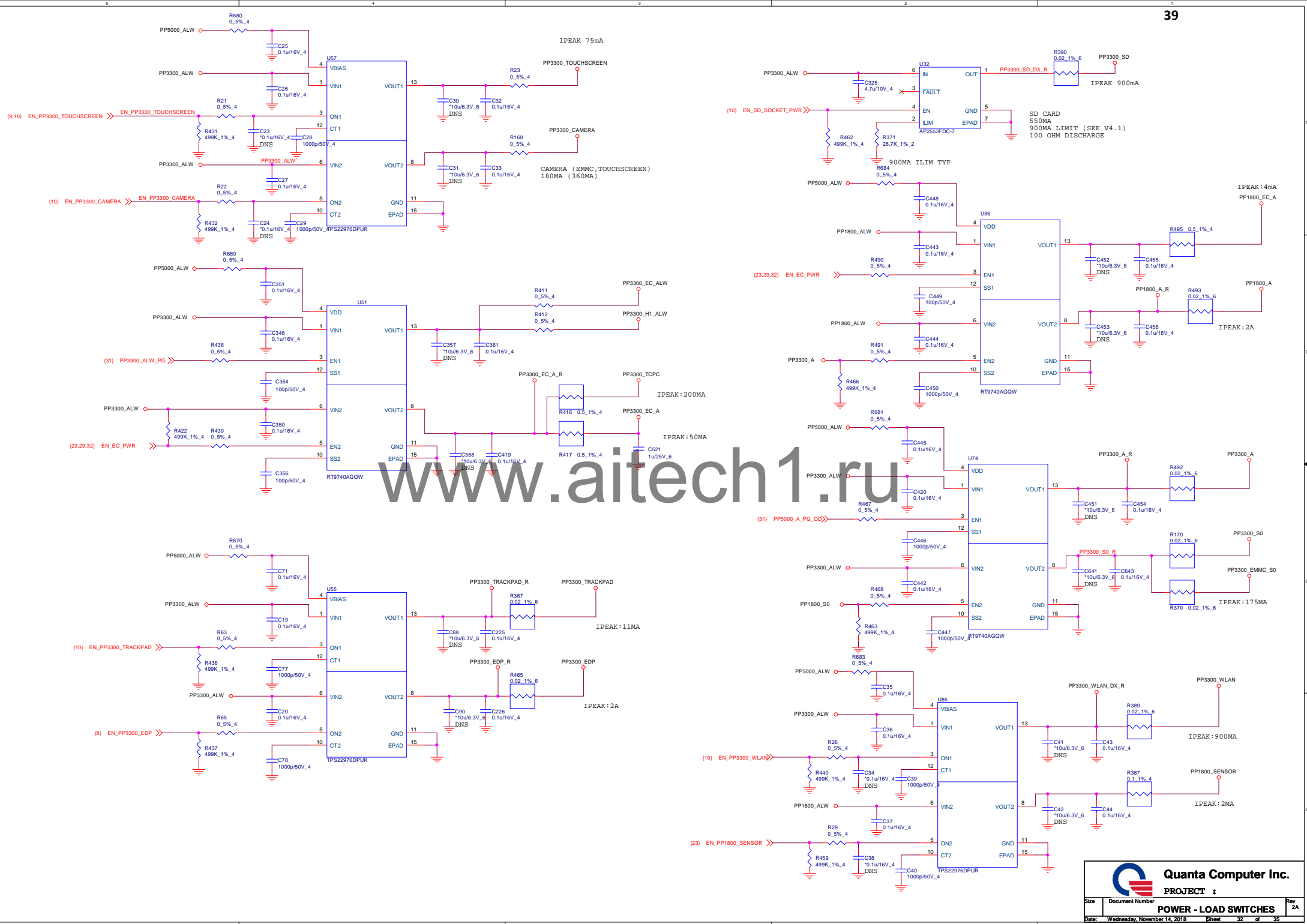
PP950_A

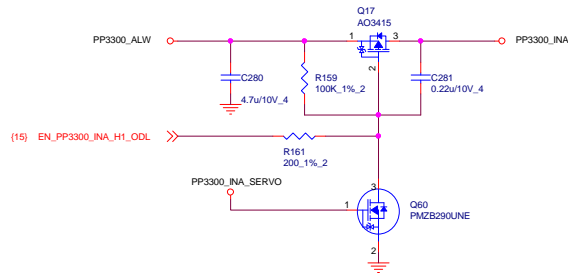
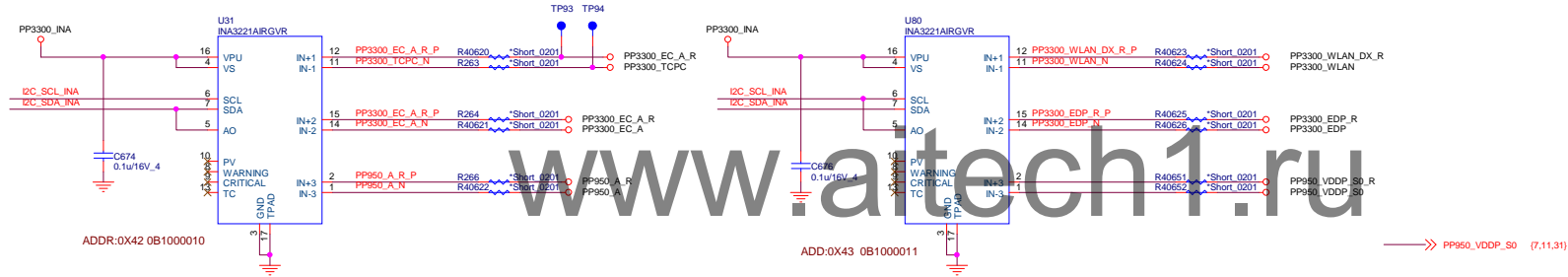
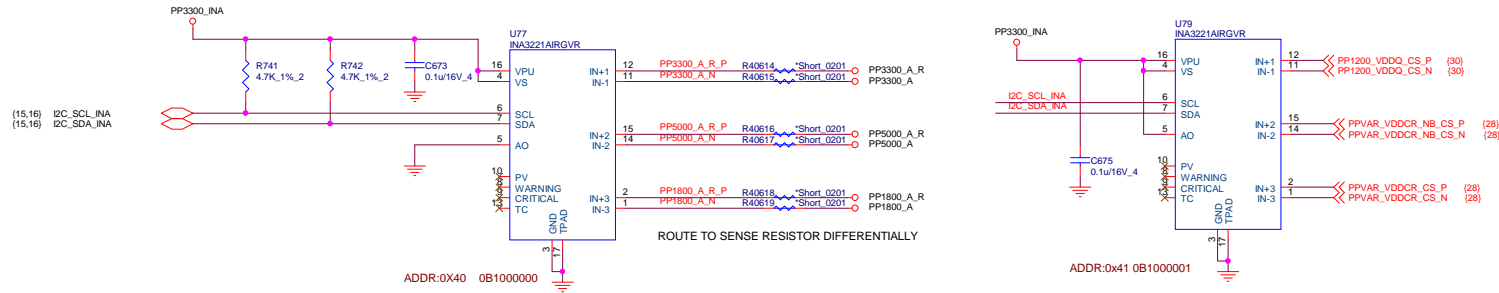


PP950_S0



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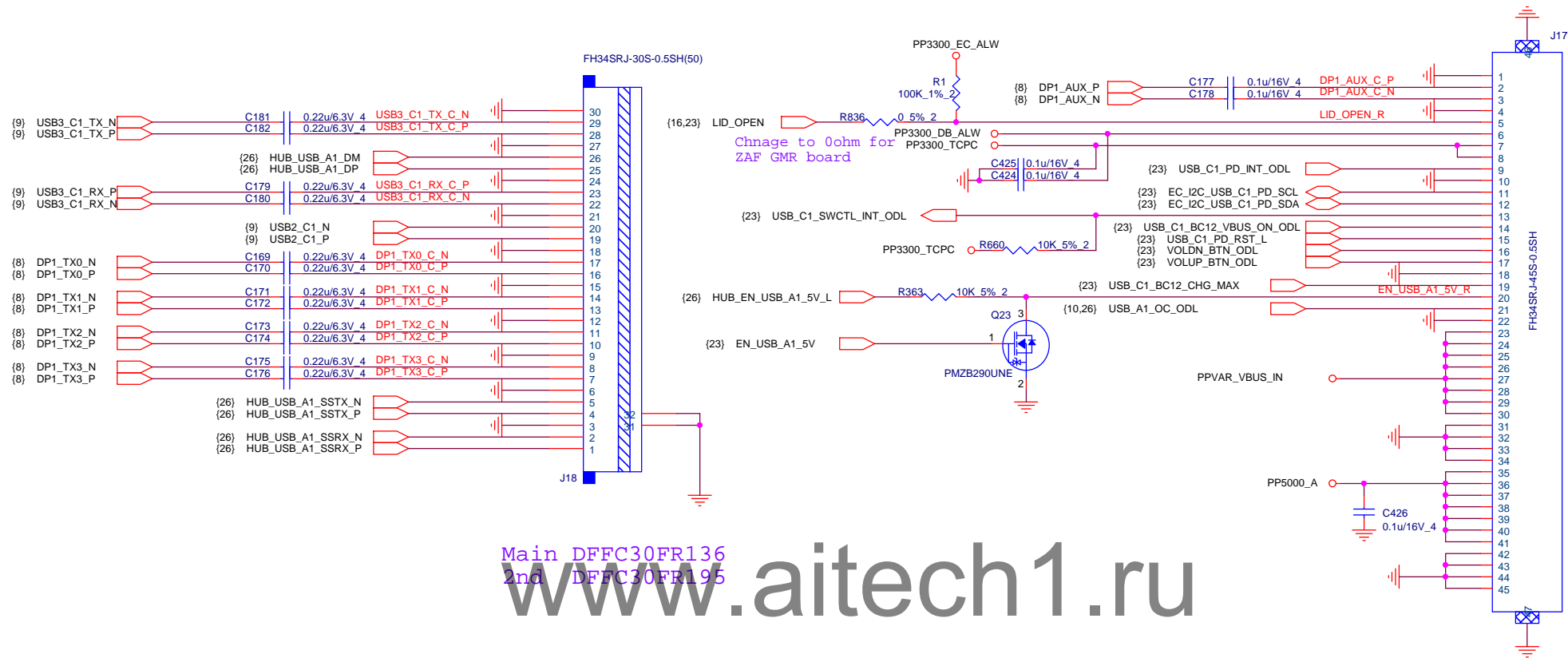


40MIL TESTPAD
(BACKSIDE)




70MIL TESTPAD
(BACKSIDE)





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		Quanta Computer Inc.	
		PROJECT : GRUNT	
Size	Document Number		Rev
DNS FEATURE LIST		2A	
Date:	Wednesday, November 14, 2018		Sheet 35 of 35

