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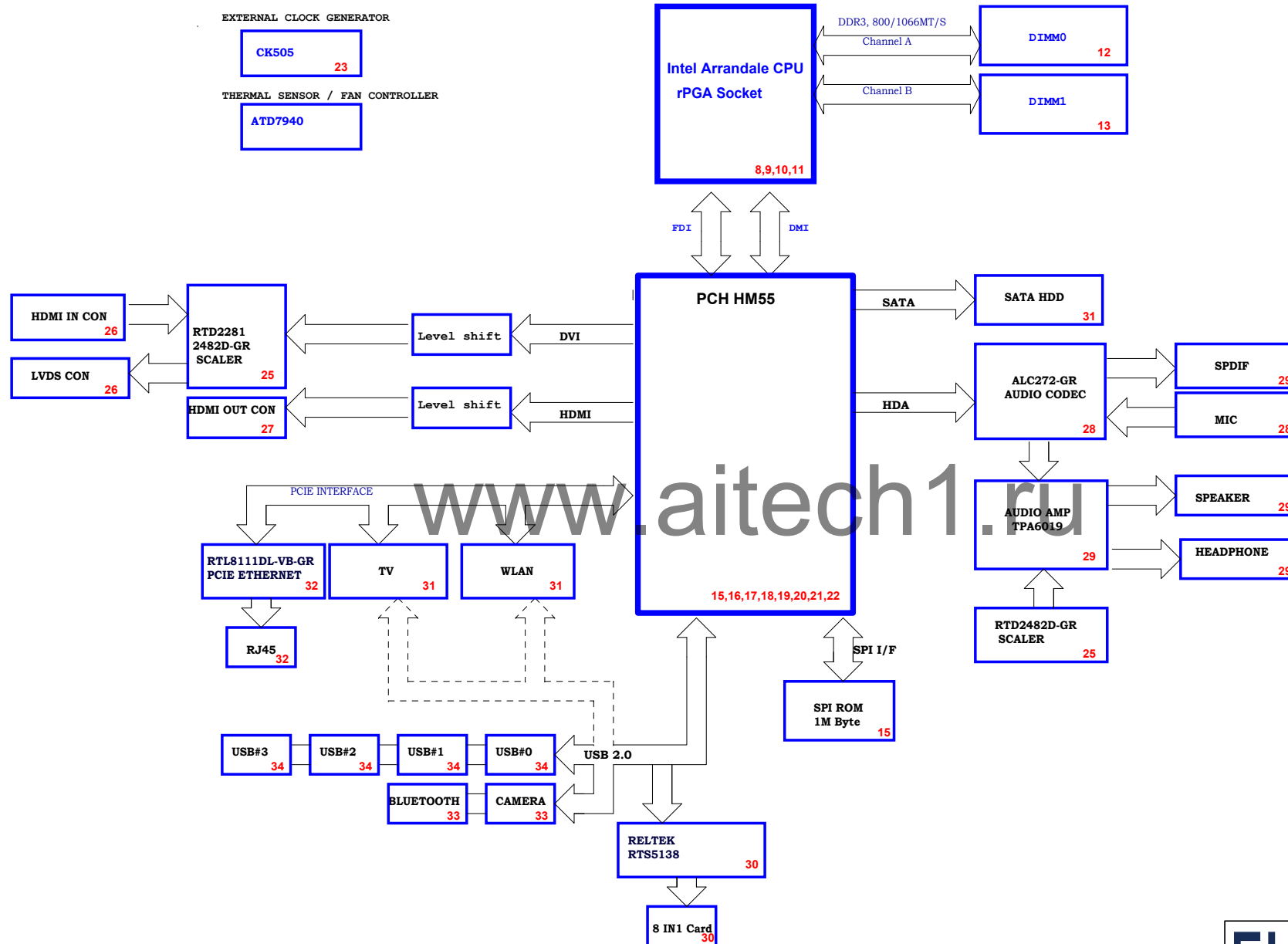
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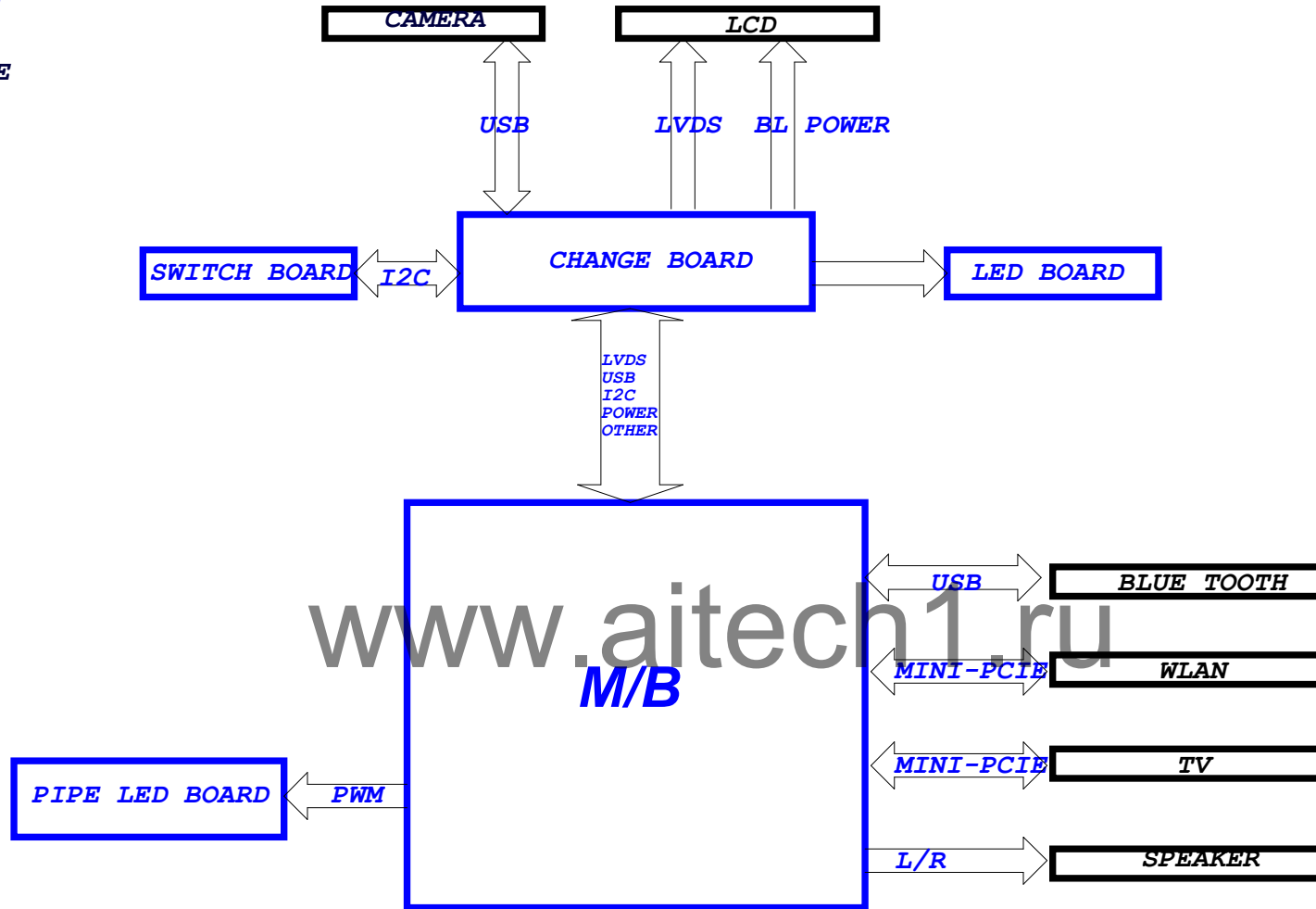
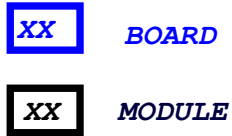
SAMUI 2.0

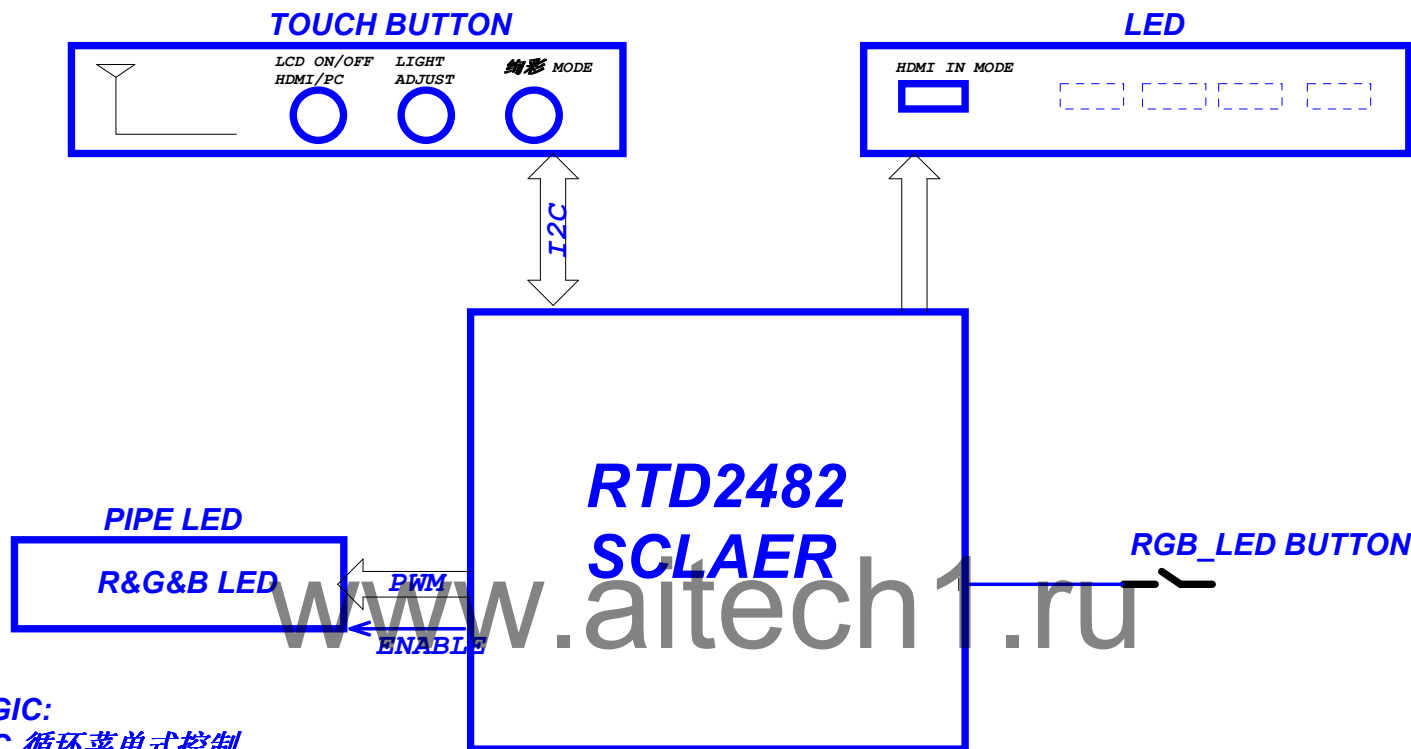
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Title SAMUI_2.0_COVER PAGE&INDEX			
Size Custom	Document Number MP-00008529-005-AK		Rev V03
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SAMUI 2.0







TOUCH BUTTON LOGIC:

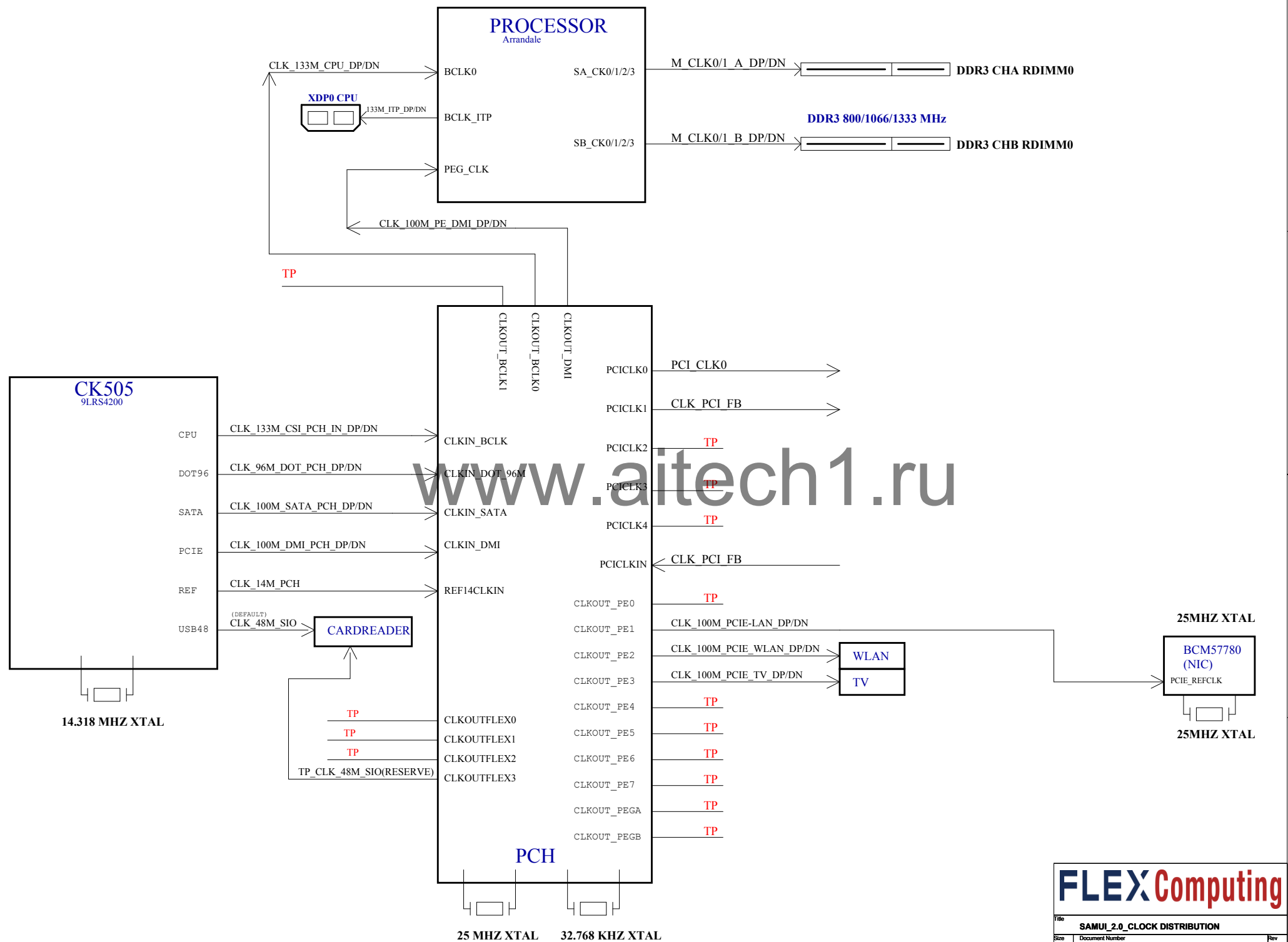
- 1, LCD on/off, HDMI /PC 循环菜单式控制。
- 2, LIGHT ADJUST: TBD
- 3, 绚彩 MODE

HDMI IN LED LOGIC:

- 1, LED ON when in HDMI IN Mode.
- 2, LED OFF when in PC&LCD OFF Mode.

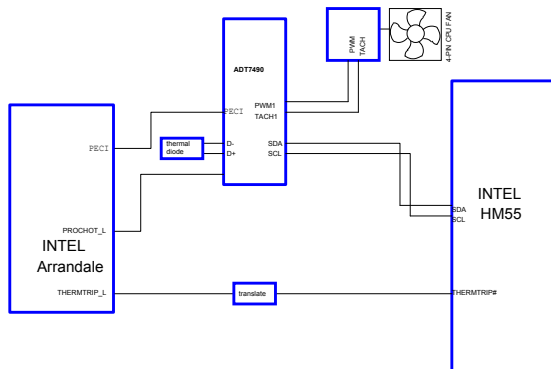
PIPE RGB BUTTON&LED LOGIC:

- 1, 系统开机后, 灯光自动做颜色循环渐变。
- 2, 用户按一下 RGB LED button, 灯光固定在当前颜色。
- 3, 再按一下 RGB LED button, 灯光关掉。
- 4, 再按一下机械开关, 灯光重新回到循环渐变。

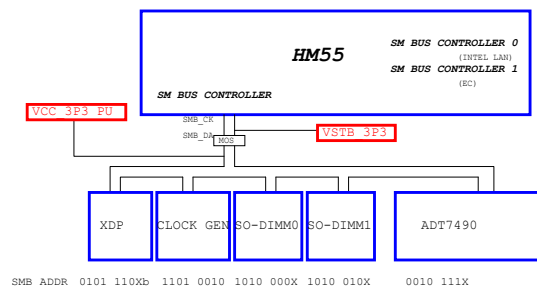


Thermal Systems

(Emergency Shutdown, Throttling, Fan Control)



SM BUS DIAGRAM



PCH_IBEX GPIO

PCH_IBEX GPIO	Use As	Signal Name	Internal & External Pull-up/down	Power
GPIO 00	-	GPIO0	EXT PU(Not used)	VCC_3P3
GPIO 01	-	TACH1/GPIO1	EXT PU(Not used)	VCC_3P3
GPIO [2:5]	Native	PCI_INT[E:H]#	EXT PU	VCC_3P3
GPIO 06	-	TACH2/GPIO6	EXT PU(Not used)	VCC_3P3
GPIO 07	-	TACH3/GPIO7	EXT PU(Not used)	VCC_3P3
GPIO 08	-	GPIO8	EXT PU(Not used)	VSTB_3P3
GPIO 09	Native	USB_OC5#	EXT PU	VSTB_3P3
GPIO 10	Native	USB_OC6#	EXT PU	VSTB_3P3
GPIO 11	-	SMBALERT#	EXT PU(Not used)	VSTB_3P3
GPIO 12	-	PM_LANPHY_EN	EXT PU	VSTB_3P3
GPIO 13	-	-	-	VSTB_3P3
GPIO 14	Native	USB_OC7#	EXT PU	VSTB_3P3
GPIO 15	-	-	-	VSTB_3P3
GPIO 16	-	SATA4GP/GPIO16	EXT PU(Not used)	VCC_3P3
GPIO 17	-	TACH0/GPIO17	EXT PU(Not used)	VCC_3P3
GPIO 18	-	CLKREQ1_LAN#	EXT PD	VCC_3P3
GPIO 19	Native	SATA1GP	EXT PU	VCC_3P3
GPIO 20	Native	CLKREQ2_WLAN#	EXT PD	VCC_3P3
GPIO 21	Native	SATA0GP	EXT PU	VCC_3P3
GPIO 22	-	GPIO22	EXT PU(Not used)	VCC_3P3
GPIO 23	-	-	-	VCC_3P3
GPIO 24	GPO	PWR_LED	-	VSTB_3P3
GPIO 25	Native	CLKREQ3_TV#	EXT PD	VSTB_3P3
GPIO 26	-	CLK_REQ4#	EXT PU(Not used)	VSTB_3P3
GPIO 27	-	-	-	VSTB_3P3
GPIO 28	GPI	BT_RST	EXT PD	VSTB_3P3
GPIO 29	-	-	-	VSTB_3P3
GPIO 30	-	-	-	VSTB_3P3
GPIO 31	Native	AC_PRESENT	EXT PU (Not used)	VSTB_3P3
GPIO 32	Native	CLKRUN#	EXT PU	VCC_3P3
GPIO 33	Native	HDA_DOCK_EN#	EXT PD	VCC_3P3
GPIO 34	Native	STP_PCI#	EXT PU	VCC_3P3
GPIO 35	GPO	SATA_CLK_REQ#	EXT PU	VCC_3P3
GPIO 36	-	GPIO36	EXT PU	VCC_3P3
GPIO 37	-	GPIO37	EXT PU	VCC_3P3
GPIO 38	GPI	PCB_ID0	EXT PD	VCC_3P3
GPIO 39	GPI	PCB_ID1	EXT PD	VCC_3P3
GPIO 40	GPI	USB_OC1#	-	-
GPIO 41	Native	USB_OC2#	EXT PU (Not used)	VSTB_3P3
GPIO 42	Native	USB_OC3#	EXT PU (Not used)	VSTB_3P3
GPIO 43	Native	USB_OC4#	EXT PU (Not used)	VSTB_3P3
GPIO 44	Native	CLK_REQ5	EXT PU (Not used)	VSTB_3P3
GPIO 45	Native	CLK_REQ6#	EXT PU (Not used)	VSTB_3P3
GPIO 46	Native	CLK_REQ7#	EXT PU (Not used)	VSTB_3P3
GPIO 47	-	CLKREQ_PEG#	EXT PD	VSTB_3P3
GPIO 48	-	GPIO48	EXT PU(Not used)	VCC_3P3
GPIO 49	-	PCH_TEMP_ALERT#	-	VCC_3P3
GPIO 50	-	PCI_REQ1#	EXT PU (Not used)	VCC_3P3
GPIO 51	-	PCI_GNT1#	EXT PU	VCC_3P3
GPIO 52	-	PCI_REQ2#	EXT PU	VCC_3P3
GPIO 53	-	PCI_GNT2#	EXT PU	VCC_3P3
GPIO 54	-	PCI_REQ3#	EXT PU	VCC_3P3
GPIO 55	Native	PCI_GNT3#	INT PU	VCC_3P3
GPIO 56	Native	CLKREQ_PEG#_R	EXT PU (Not used)	VSTB_3P3
GPIO 57	-	GPIO57	EXT PU(Not used)	VSTB_3P3
GPIO 58	Native	SML1_CLK	EXT PU	VSTB_3P3
GPIO 59	GPI	USB_OC0#	-	-
GPIO 60	-	SML0_ALERT#	EXT PU (Not used)	VSTB_3P3
GPIO 61	-	-	-	VSTB_3P3
GPIO 62	-	-	-	VSTB_3P3
GPIO 63	-	SLP_S5#	-	VSTB_3P3
GPIO 64	-	CLK_OUT0	-	VCC_3P3
GPIO 65	-	CLK_OUT1	-	VCC_3P3
GPIO 66	-	CLK_OUT2	-	VCC_3P3
GPIO 67	Native	CLK_USB48_CR	-	VCC_3P3
GPIO 72	-	BATLOW#	EXT PU (Not used)	VSTB_3P3
GPIO 73	-	CLK_REQ0#	EXT PU (Not used)	VSTB_3P3
GPIO 74	-	SML1ALERT#	EXT PU (Not used)	VSTB_3P3
GPIO 75	Native	SML1_DAT	EXT PU	VSTB_3P3

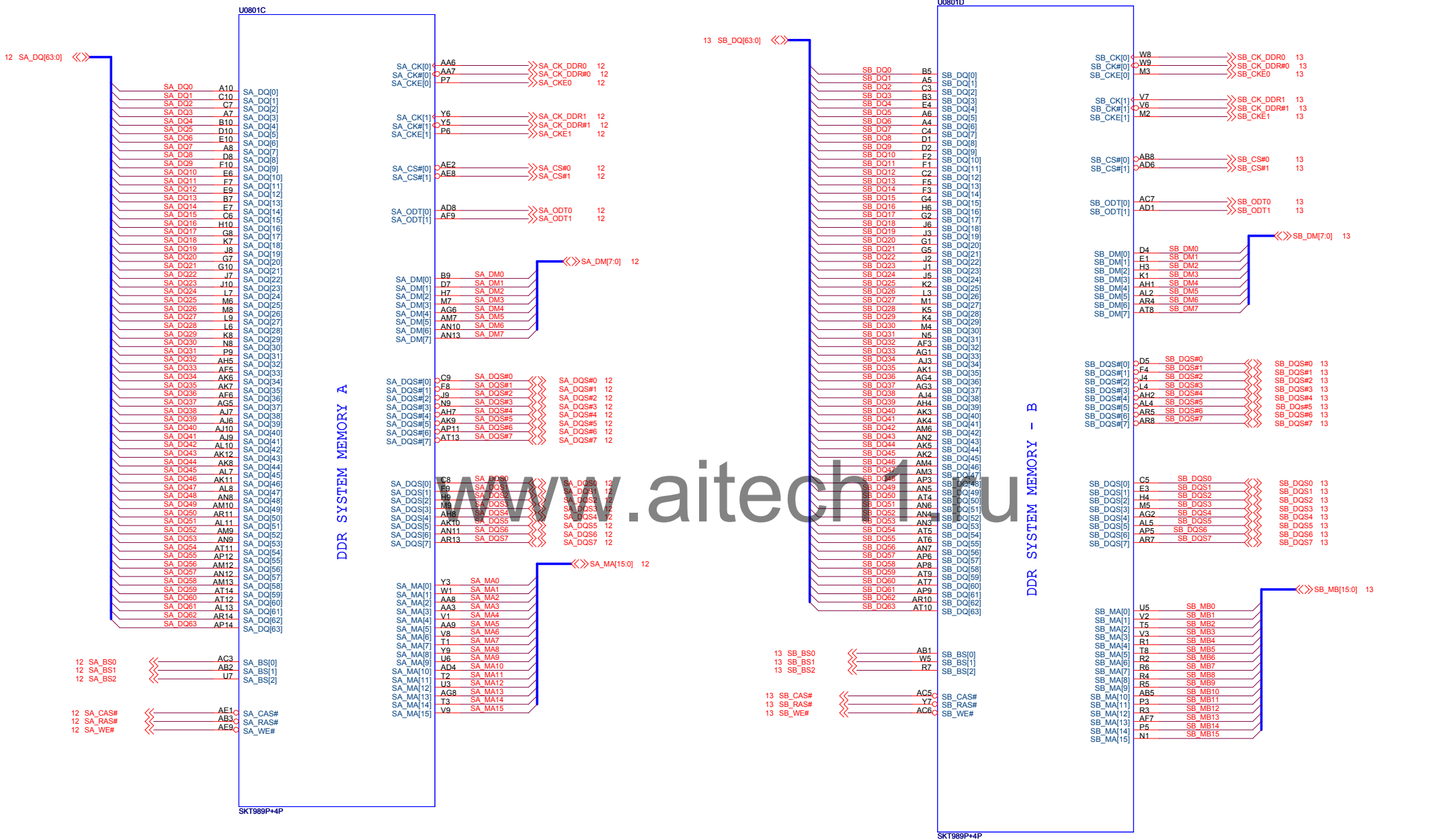
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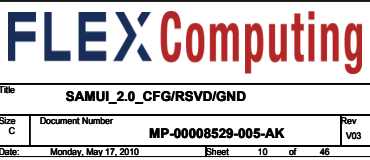
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Power Distribution

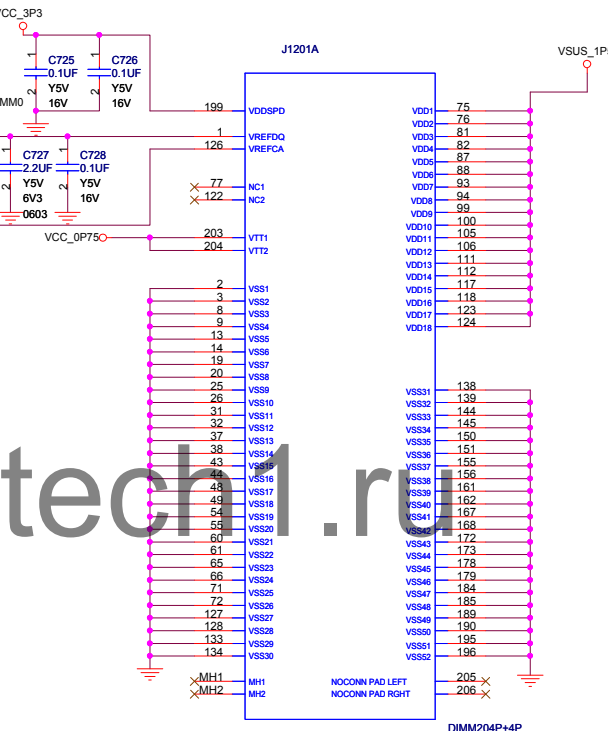
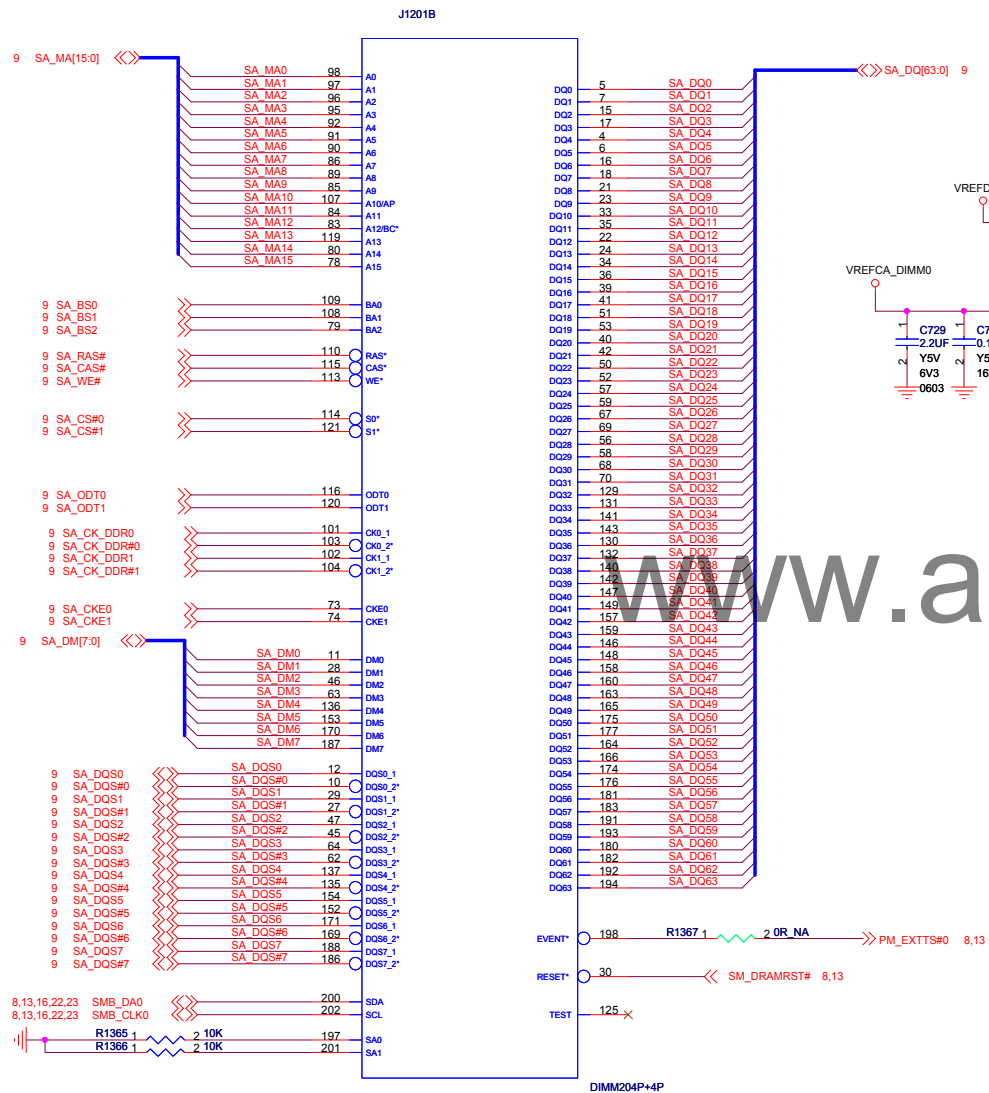
Rails	S0/M0	S3/Moff	S4/Moff	S5/Moff	G3
VBATA (VDC)	ON	ON	ON	ON	No Power
RTC Well	ON	ON (1)	ON (1)	ON (1)	ON
V5.0A	ON	ON	ON	ON	No Power
V3.3A	ON	ON	ON	ON	No Power
V3.3M	ON	OFF (2)	OFF (2)	OFF (2)	No Power
V1.1M	ON	OFF	OFF	OFF	No Power
V1.5U(VDDQ)	ON	ON	OFF	OFF	No Power
V0.75S	ON	OFF	OFF	OFF	No Power
V5.0S	ON	OFF	OFF	OFF	No Power
V3.3S	ON	OFF	OFF	OFF	No Power
V1.8S	ON	OFF	OFF	OFF	No Power
V1.5S	ON	OFF	OFF	OFF	No Power
V1.1S	ON	OFF	OFF	OFF	No Power
V1.1S_VTT	ON	OFF	OFF	OFF	No Power
VccGfx	ON	OFF	OFF	OFF	No Power
Vcore	ON	OFF	OFF	OFF	No Power

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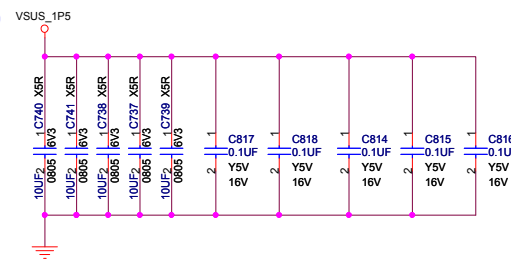




CHANNEL A & DIMMO



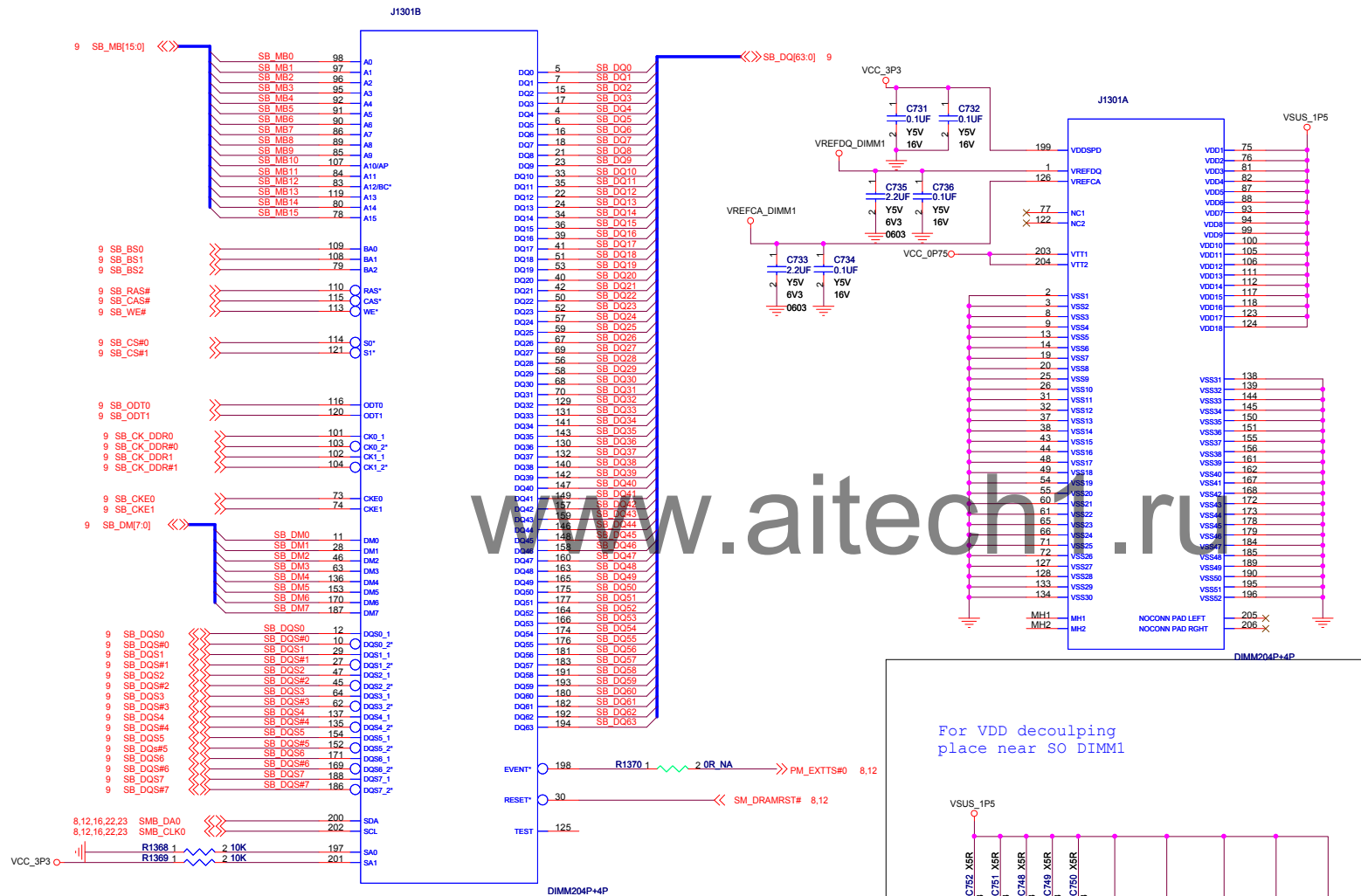
For VDD decoupling place near SO DIMMO



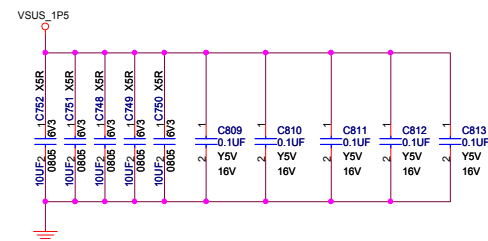
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CHANNEL B & DIMM1



For VDD decoupling
place near SO DIMM1

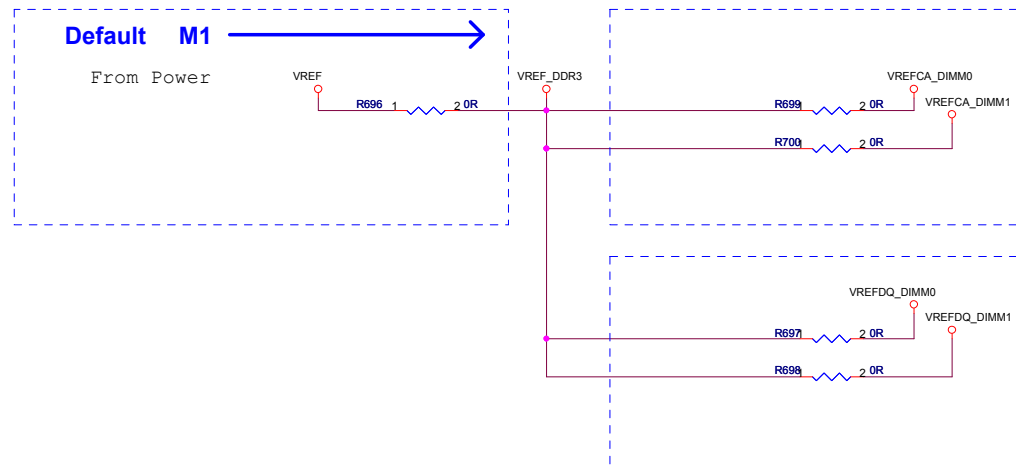


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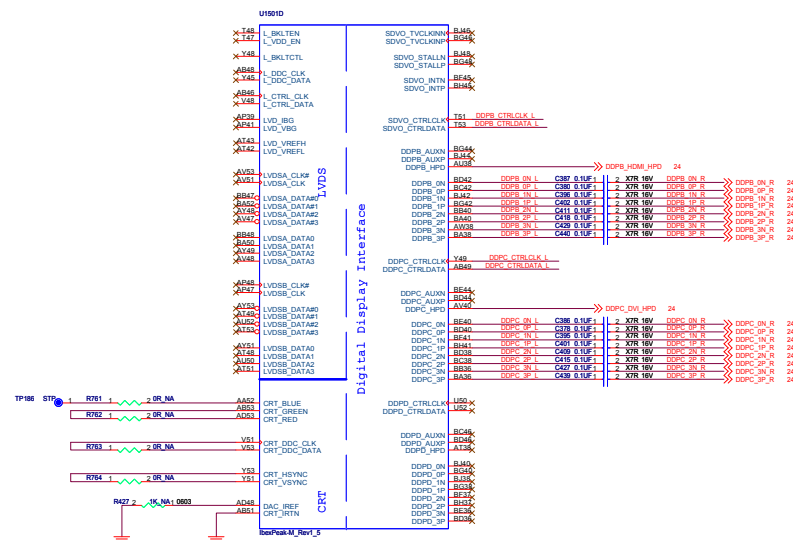
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DDR3 Vref

Intel Document Number: 400755
Calpella Clarksfield DDR3 SO-DIMM VREFDQ
Platform Design Guide Change Details

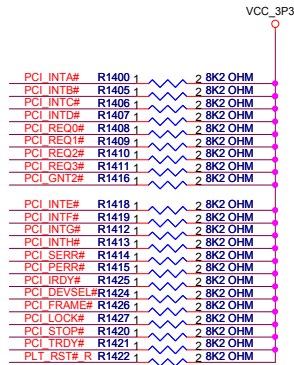


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GNT0#,GNT1#: Boot BIOS Strap.

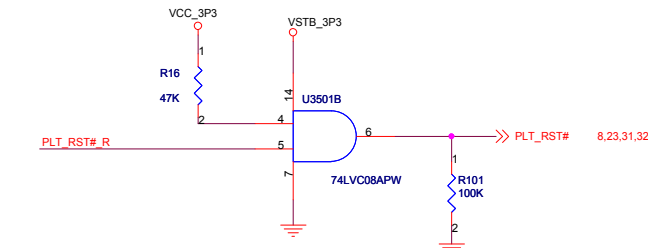
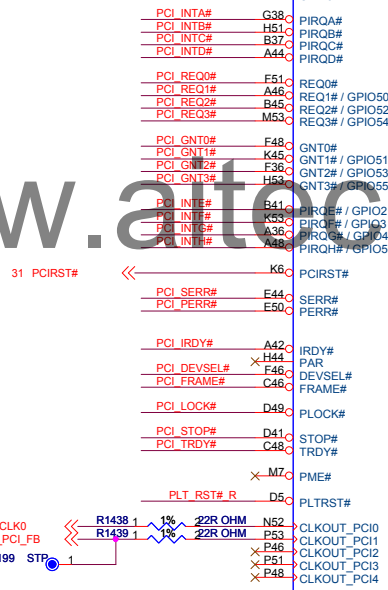
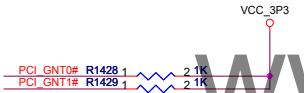
Boot BIOS Strap

PCI_GNT1#	PCI_GNT0#	Boot BIOS Location
0	0	LPC
0	1	PCI
1	0	Reserved
1	1	SPI (PCH)

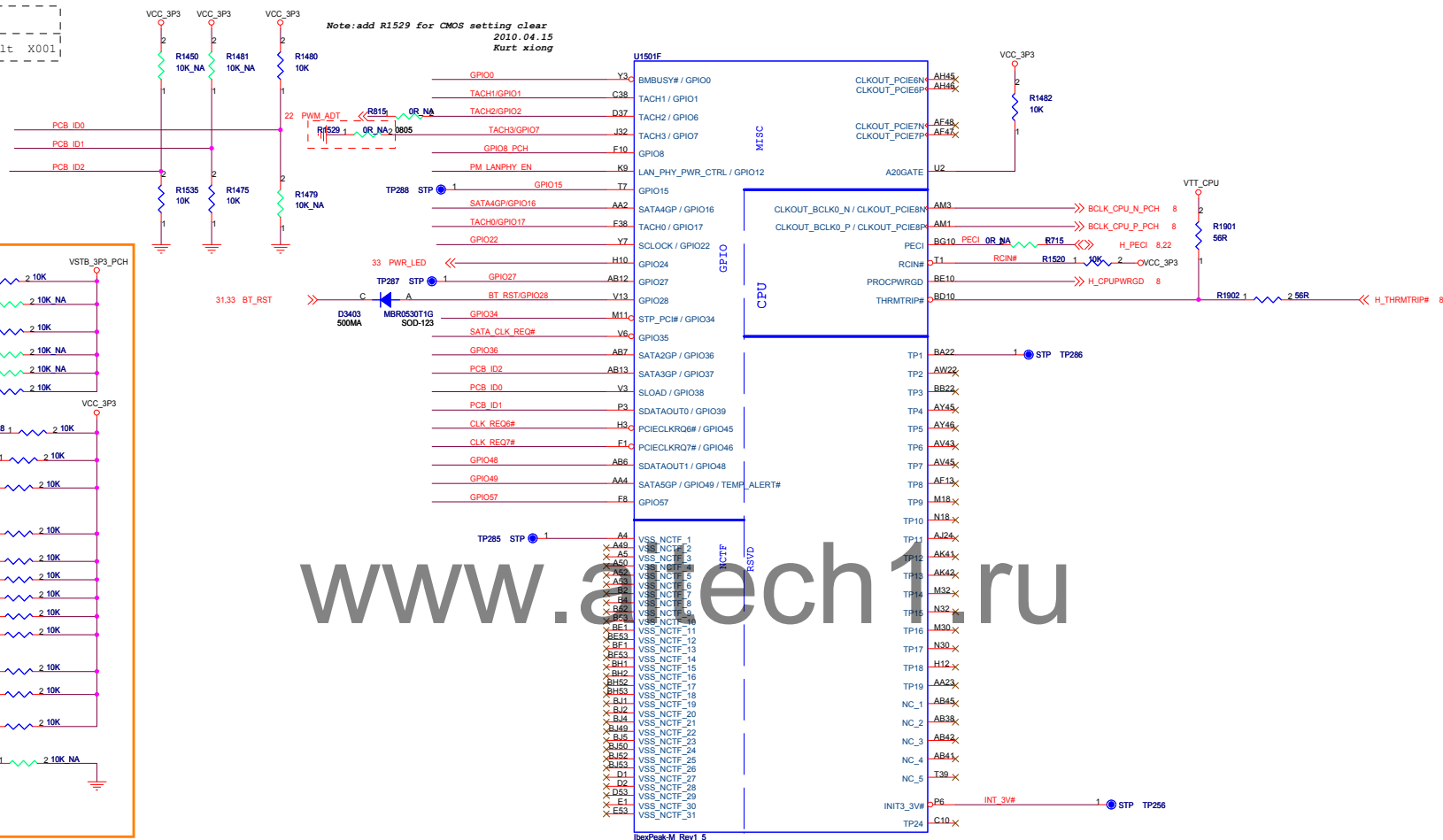
Sampled on rising edge of PWROK.

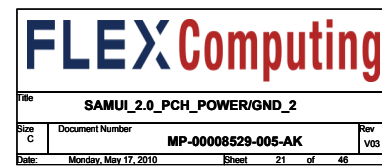
GNT3#: A16 swap override Strap/ Top-Block swap override jumper

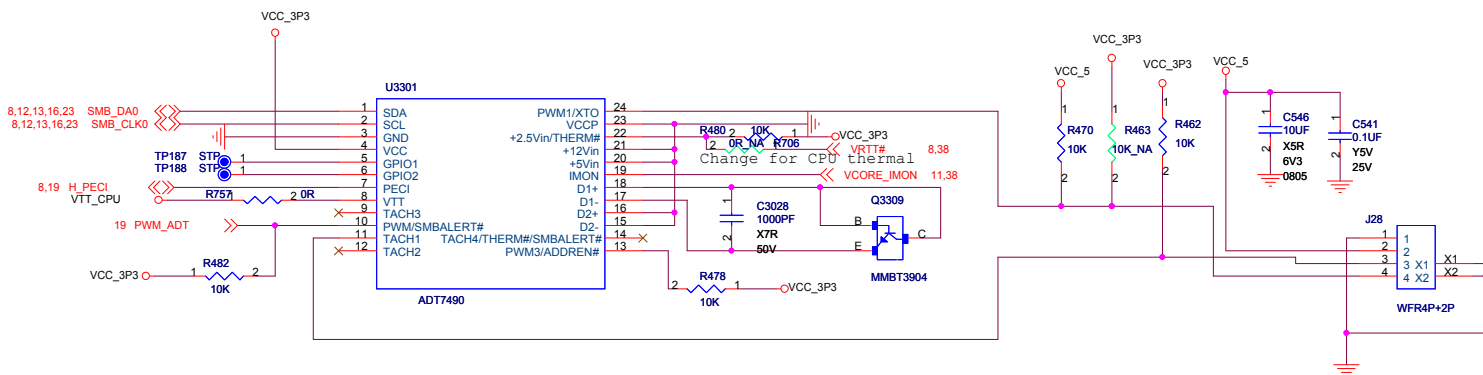
Low=Enabled A16 swap override/
Top-Block swap override



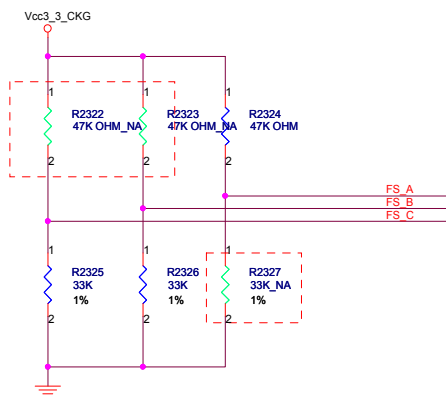
PCB_ID0	PCB_ID1	PCB_ID2
1	1	1
		Default X001





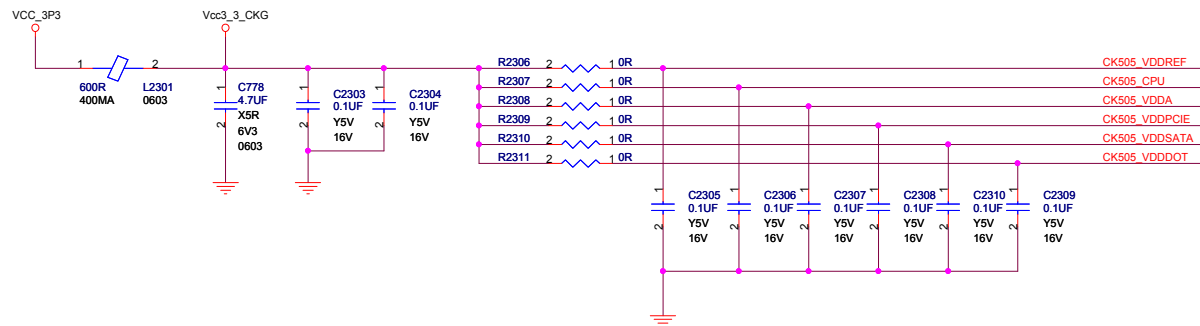
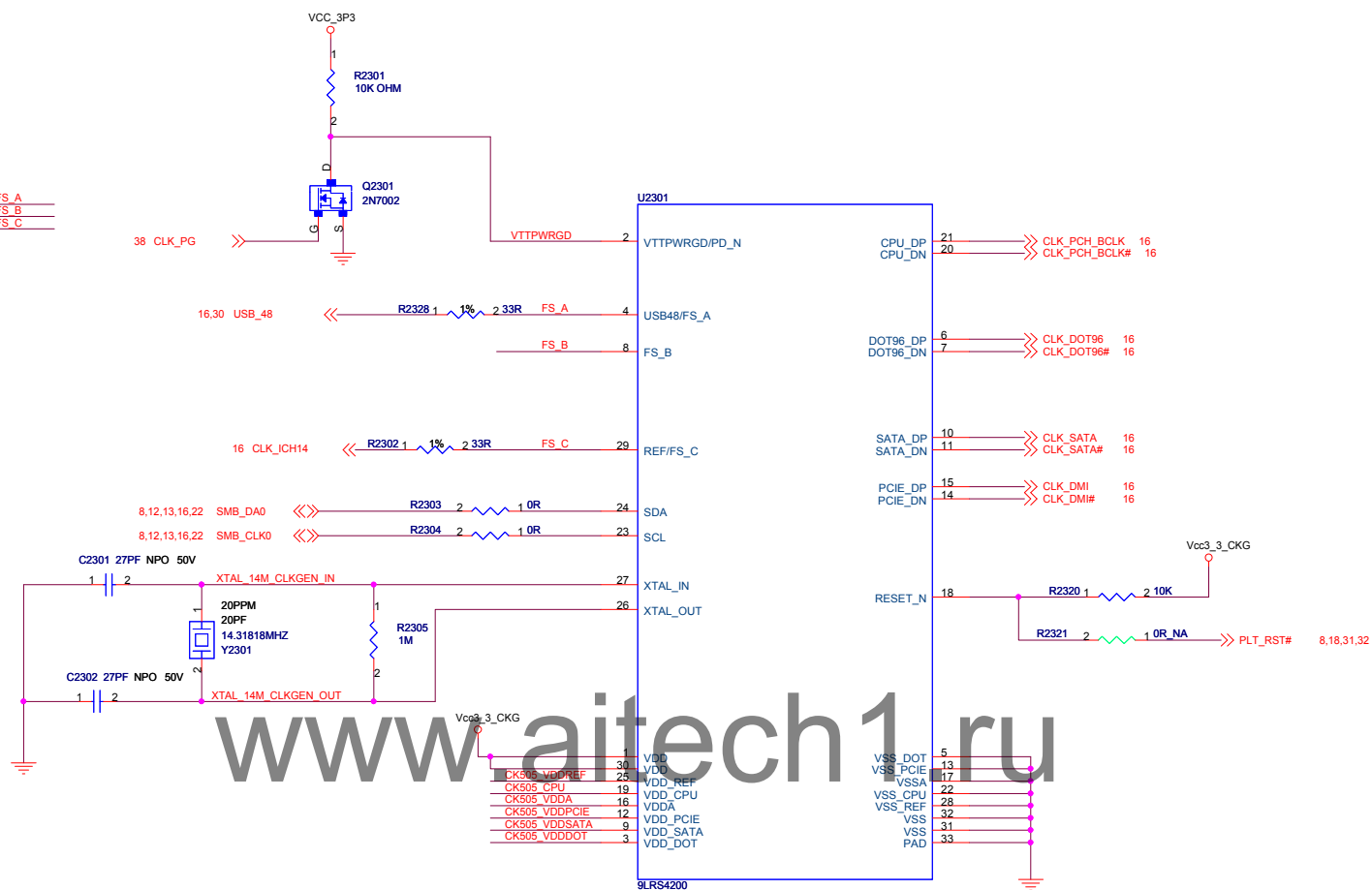


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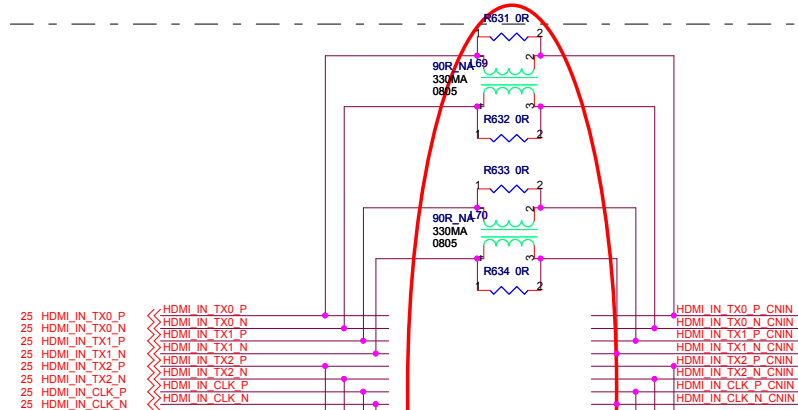
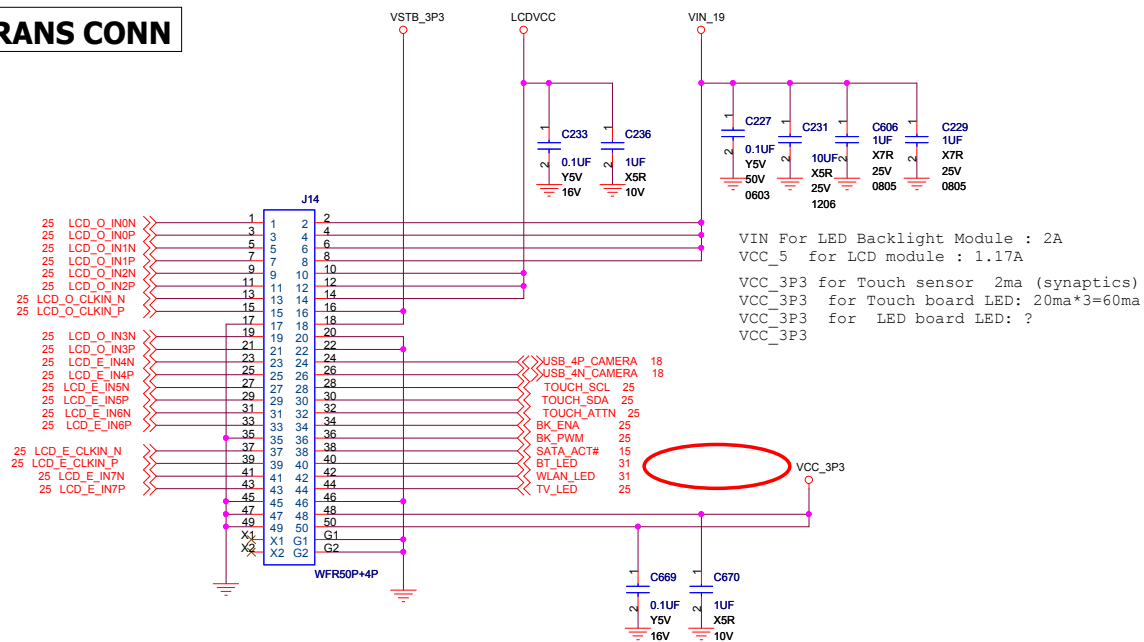
Clock selection table

FSC	FSB	FSA	CPU	PCIE	SATA
0	0	1	133	100	100
1	0	1	100	100	100

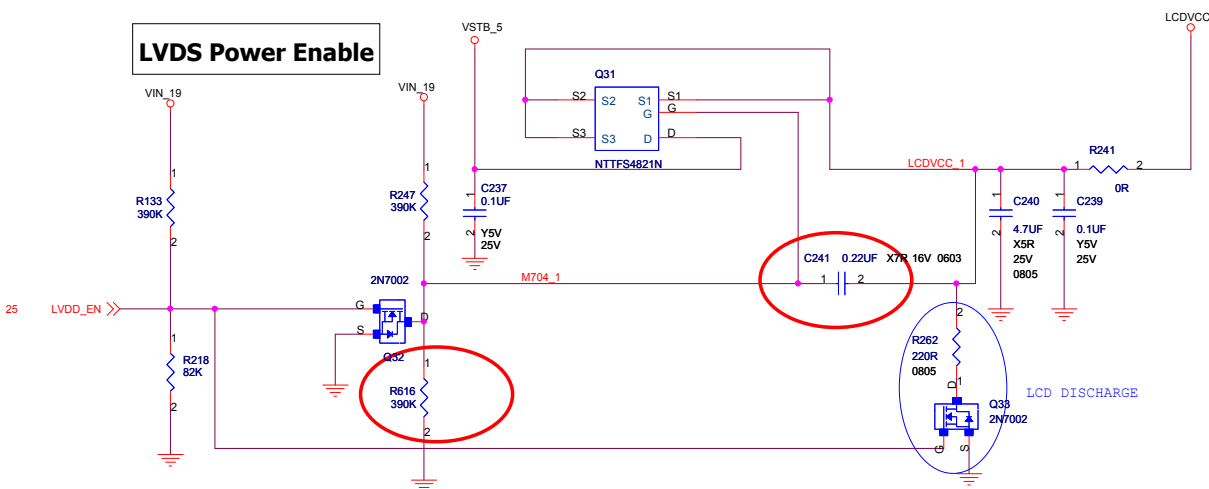




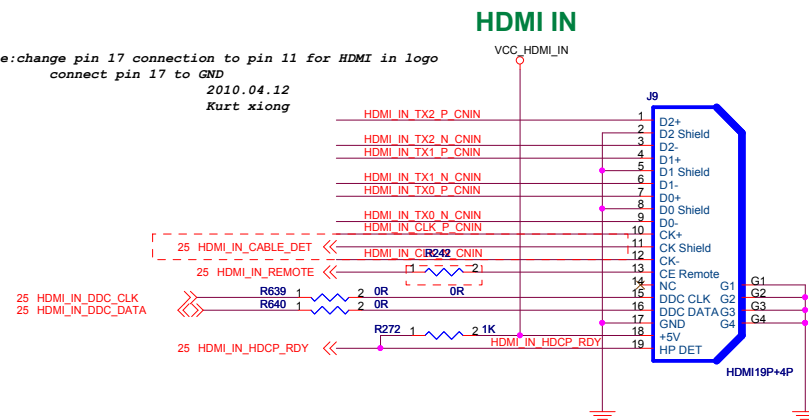
TRANS CONN



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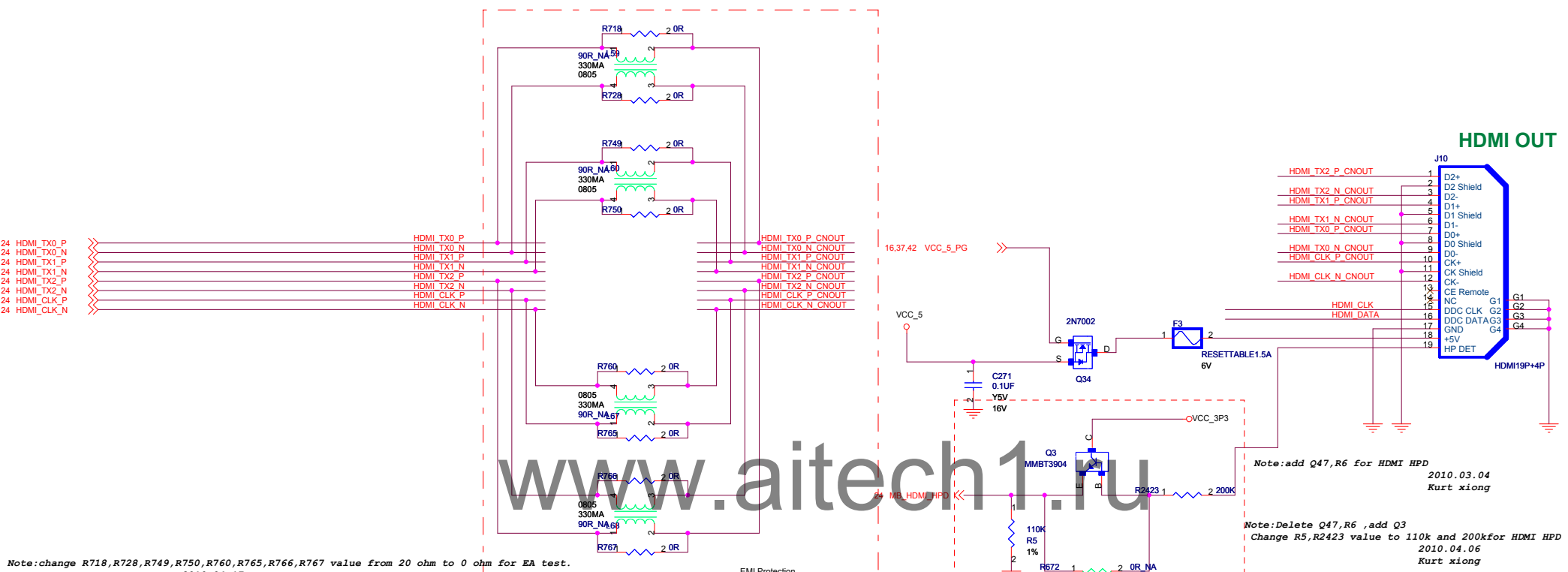


Note:change pin 17 connection to pin 11 for HDMI in logc
connect pin 17 to GND
2010.04.12
Kurt xiong



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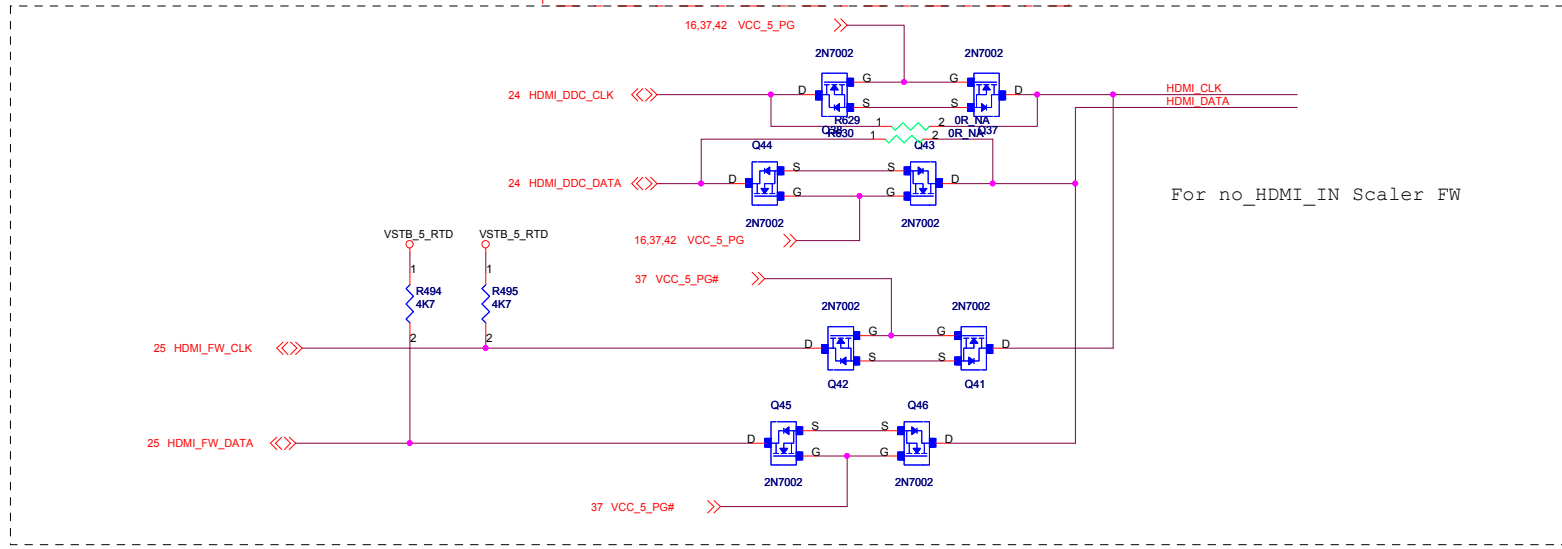
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Note:change R718,R728,R749,R750,R760,R765,R766,R767 value from 20 ohm to 0 ohm for EA test.
2010.04.17
Kurt xiong

Note:add Q47,R6 for HDMI HPD
2010.03.04
Kurt xiong

Note>Delete Q47,R6 ,add Q3
Change R5,R2423 value to 110k and 200kfor HDMI HPD
2010.04.06
Kurt xiong

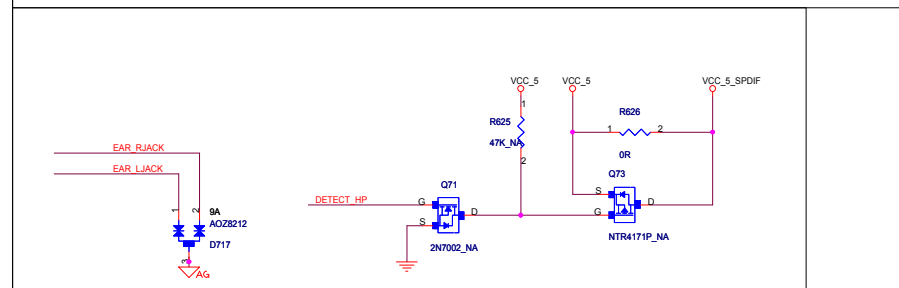
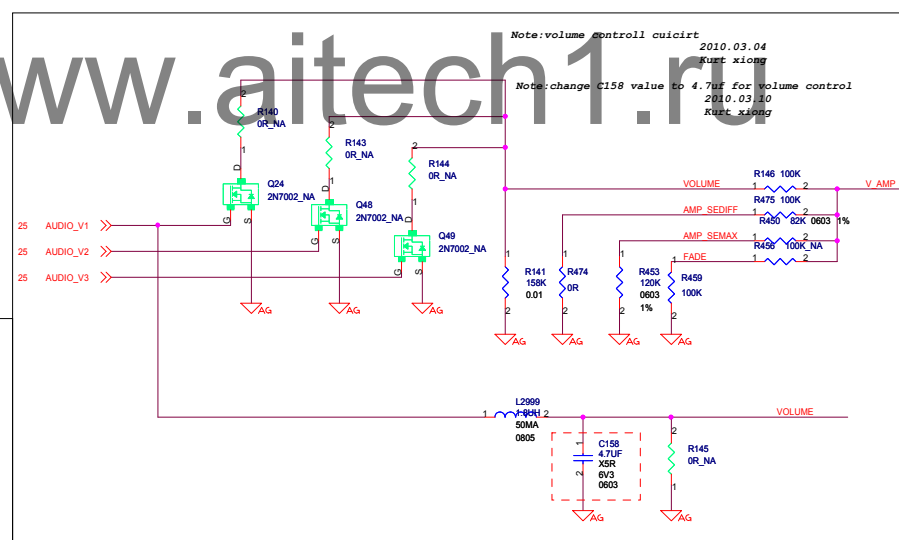
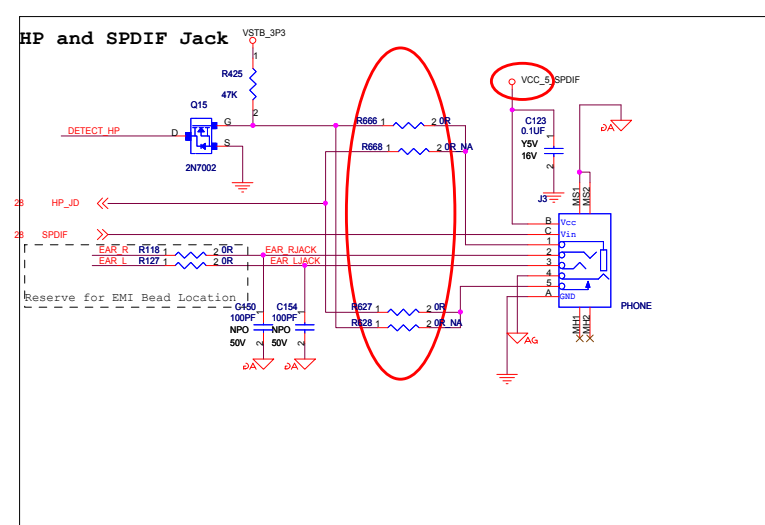
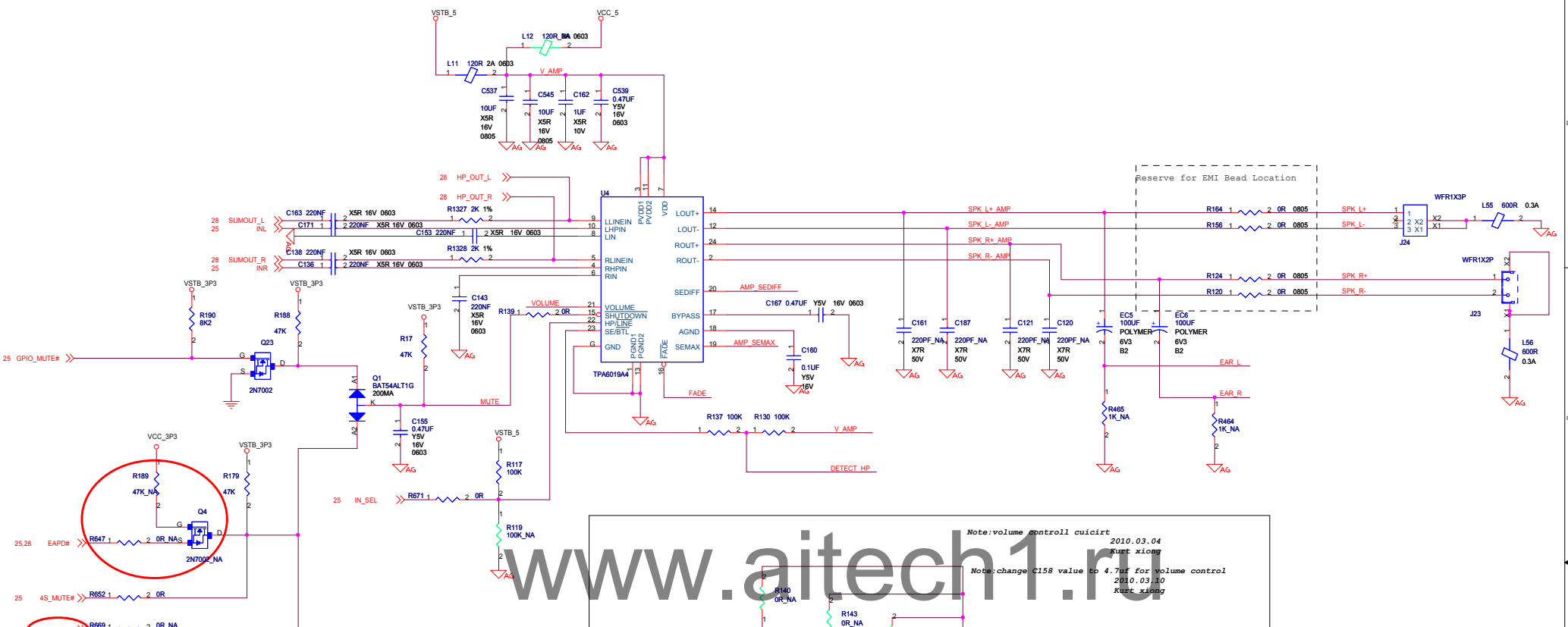


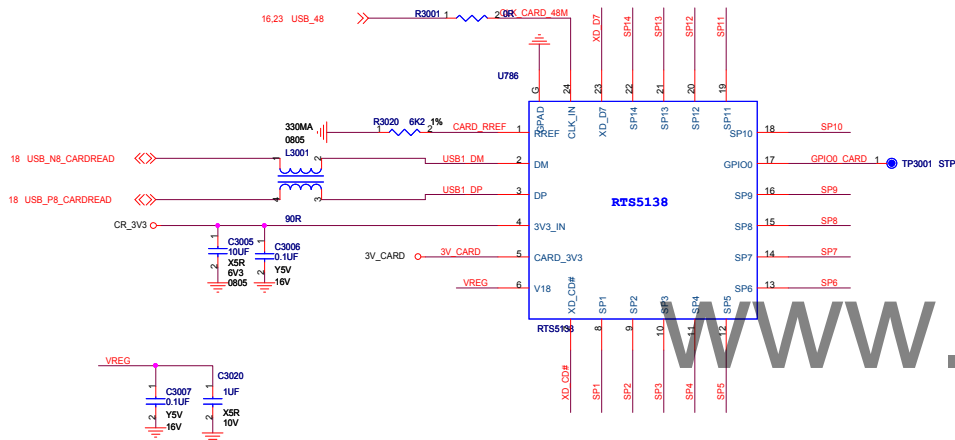
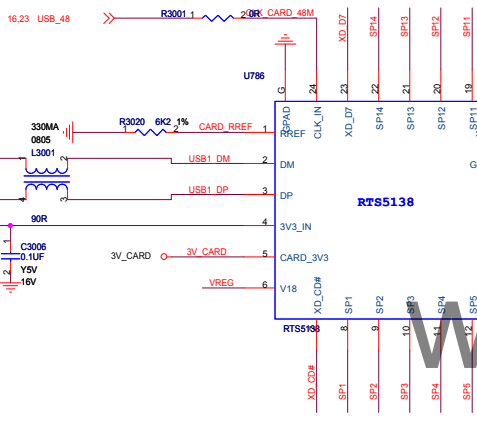
For no_HDMI_IN Scaler FW

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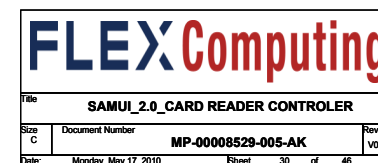
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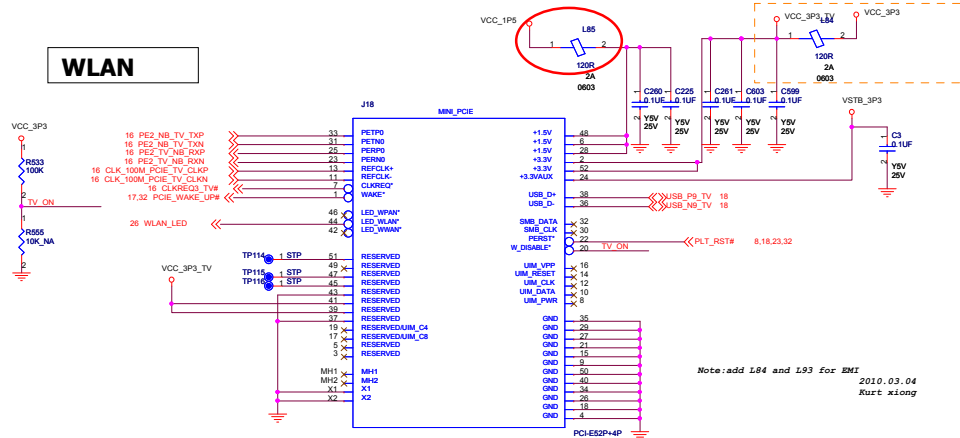




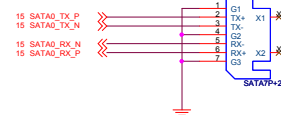
Share PIN



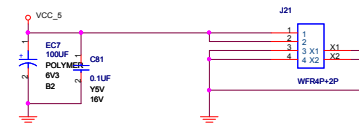
WLAN



Right Angle SATA



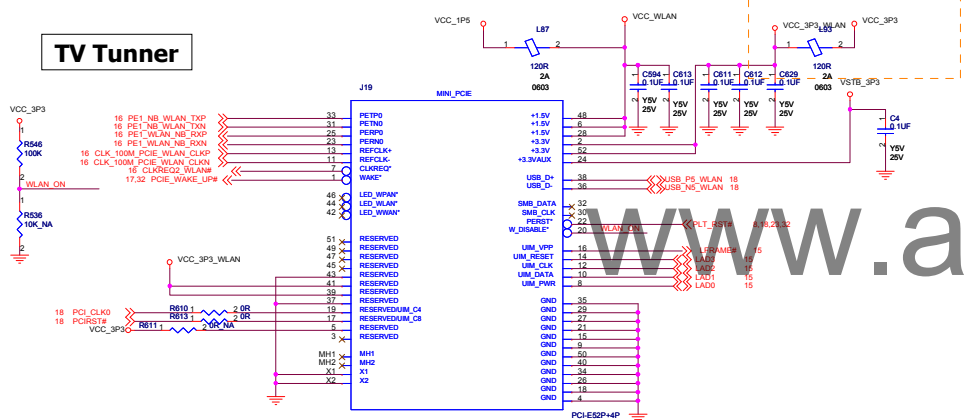
SATA POWER



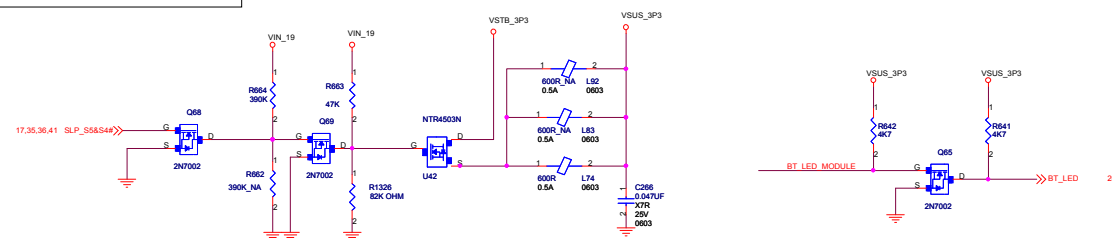
TV IN



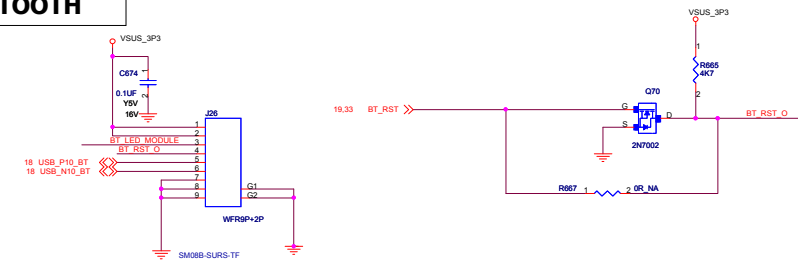
TV Tuner



BLUE TOOTH POWER



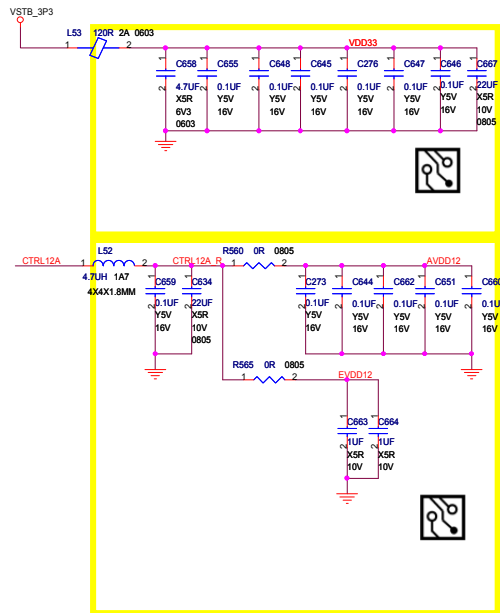
BLUE TOOTH



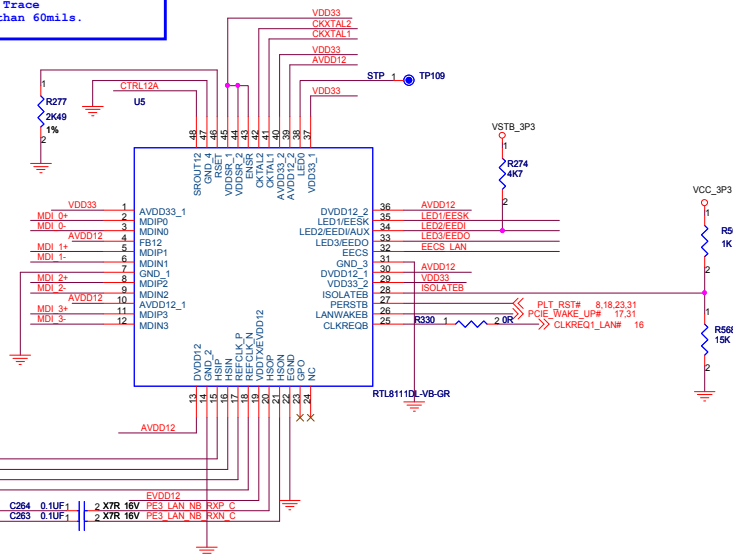
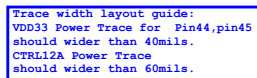
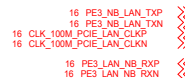
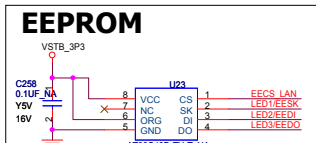
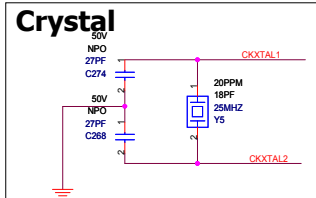
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GIGA LAN

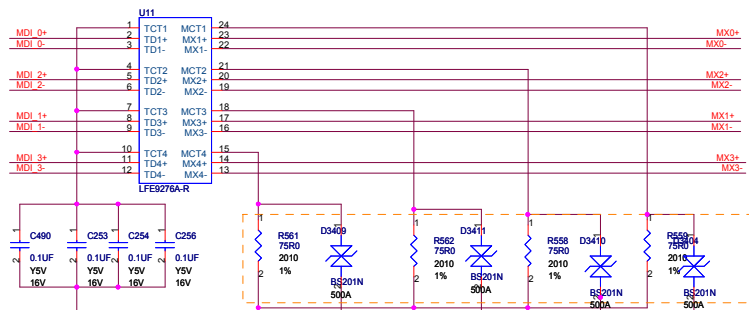


Note: according with vendor suggestion.
change C274 and C268 value from 27pf to 24 pf
2010.0417
Kurt xiong

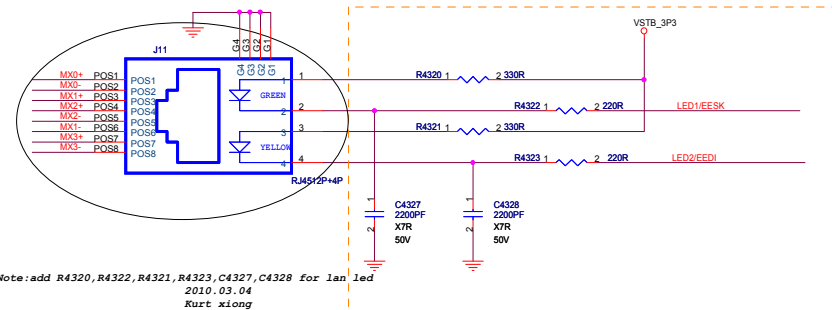
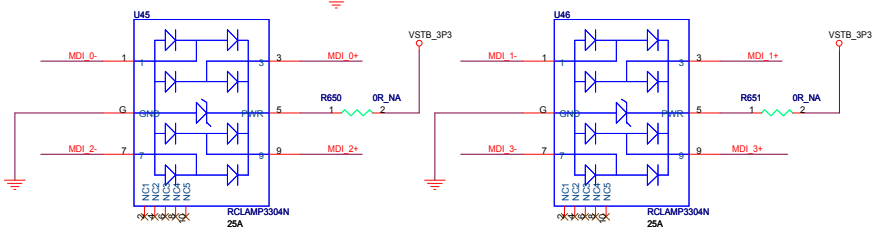


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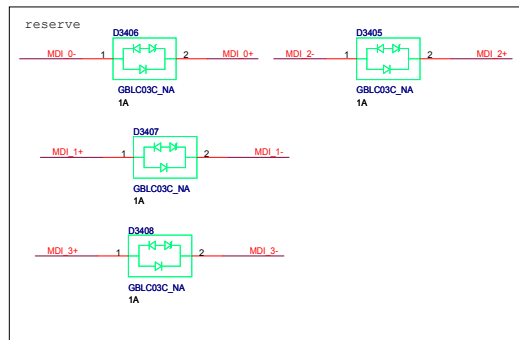
Note:modify footer for DFM request
2010.0413
Kurt.xiong



Note:add D3410/D3411/D3409,delete U49/U52 ,
stuff R561/R562R558 ,for LAN surge solution
2010.03.04
Kurt xiong



Note:add R4320,R4322,R4321,R4323,C4327,C4328 for lan lec
2010.03.04
Kurt xiong



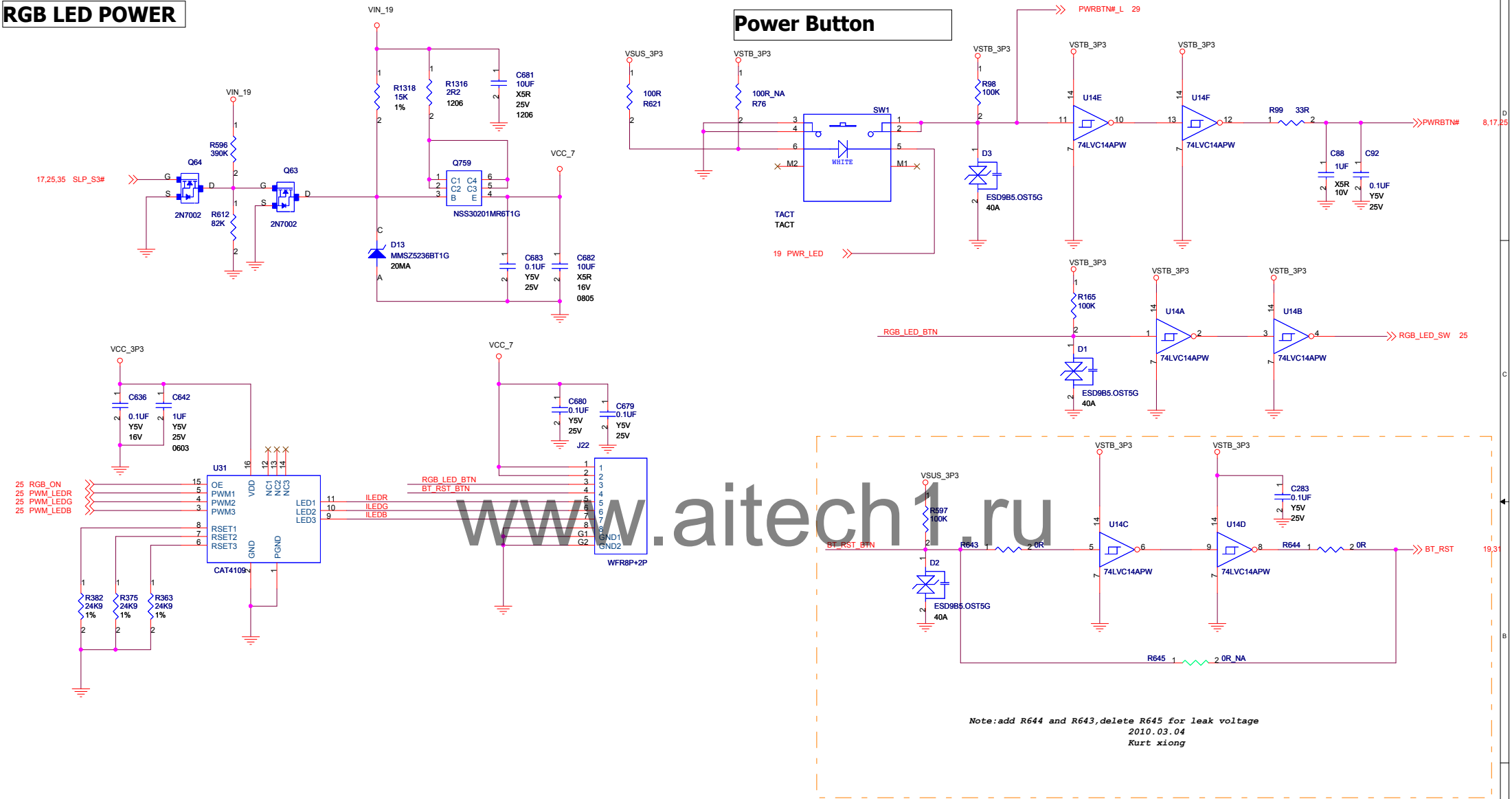
FLEX Computing

Title	SAMUI_2.0_RTL8111DL GIGA LAN
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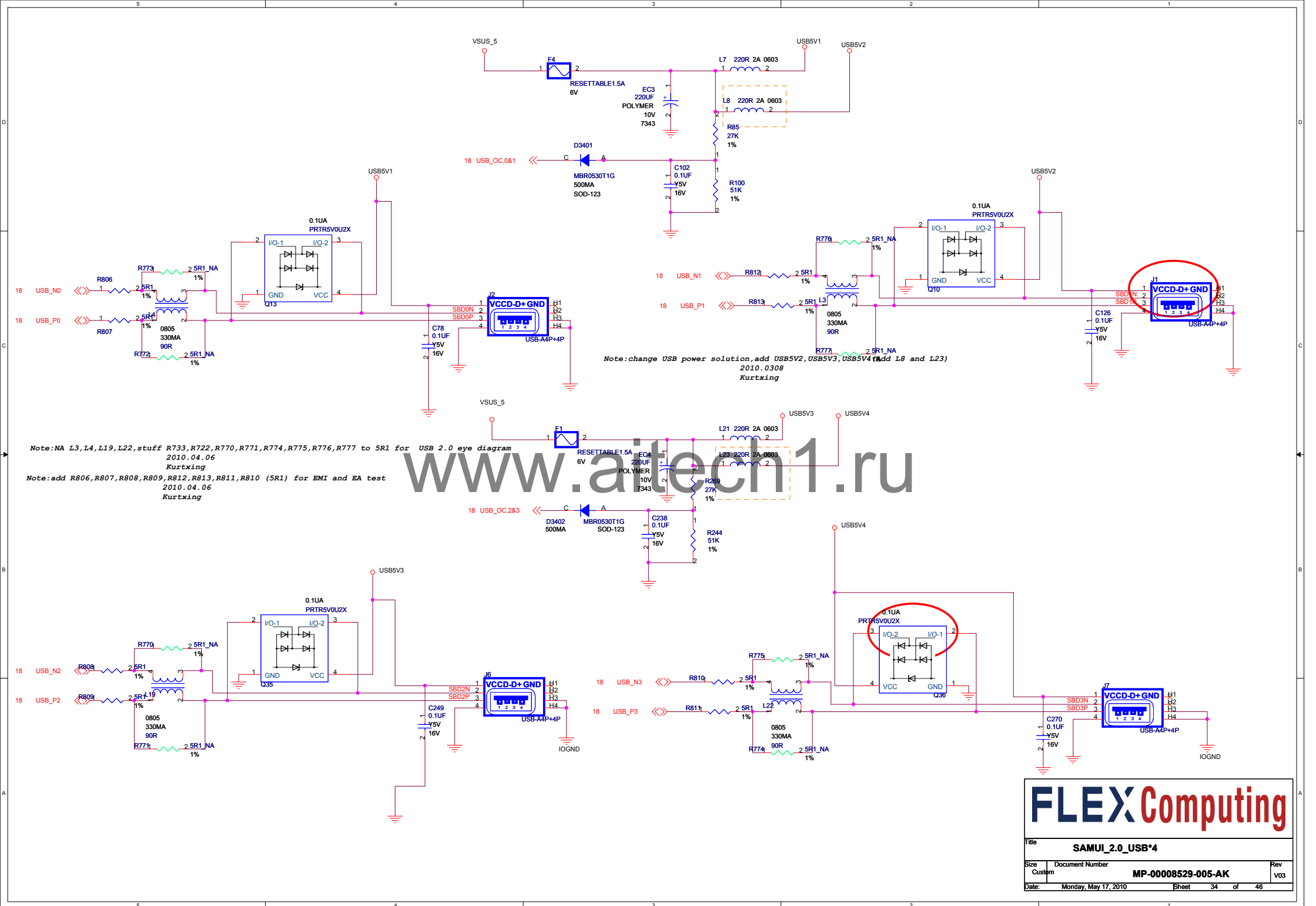
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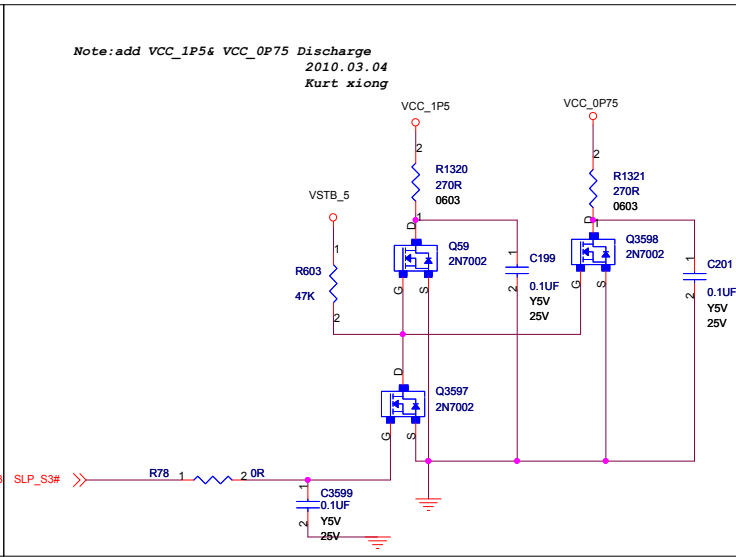
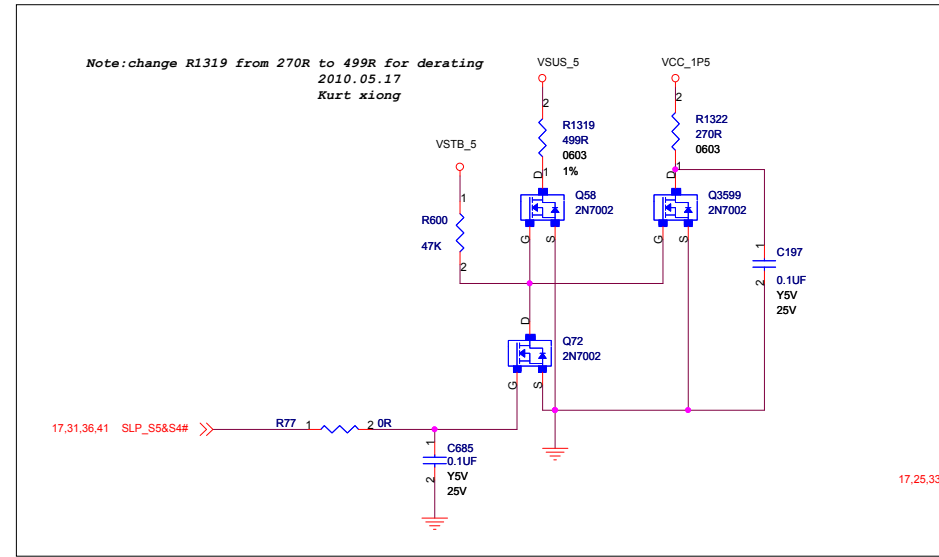
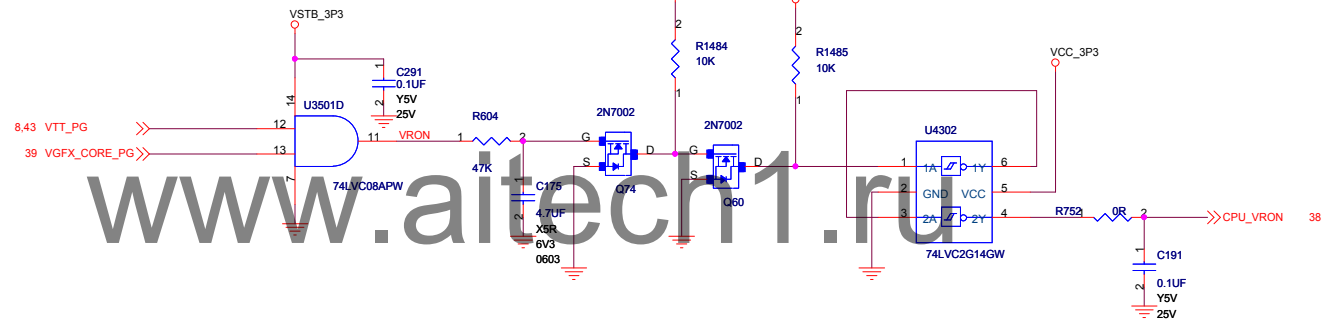
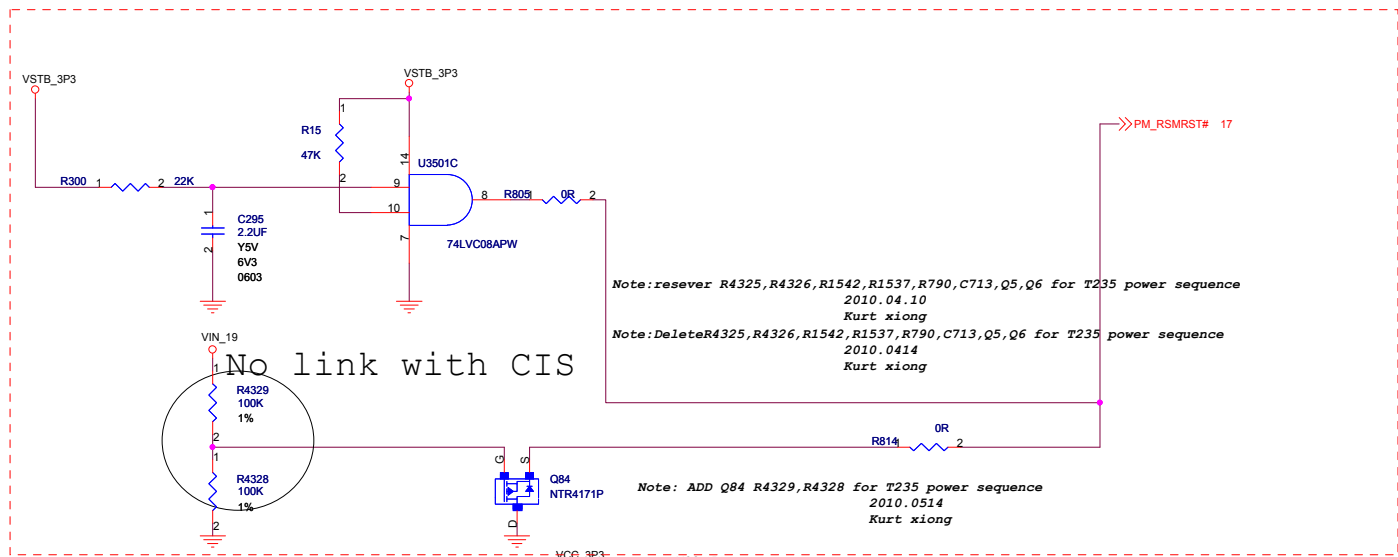
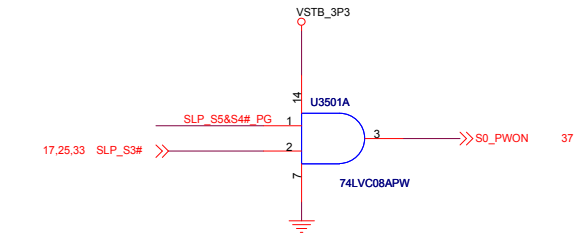
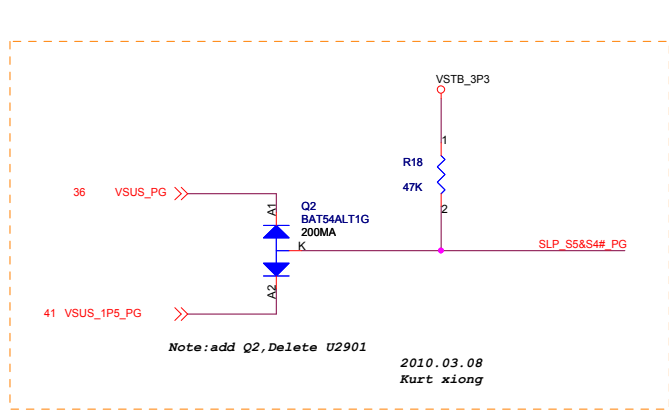
RGB LED POWER



FLEXComputing

Title						SAMUI_2.0_RGB LED&PW_BT&HW					
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VIN_19

The schematic diagram illustrates the VIN_19 power supply circuit. Key components include:

- Rectifier Bridge (U12):** A diode bridge rectifier converting the input DC to a regulated output.
- Fuse (F2):** A 125V fast-acting fuse for circuit protection.
- Capacitors:** C275 (0.01uF X7R 50V), C277 (0.1uF Y5V 50V), C282 (0.1uF Y5V 50V), C666 (0.1uF Y5V 50V), and C856 (0.01uF X7R 50V) are used for filtering and decoupling.
- MOSFET (U25):** An NTMS4178P MOSFET used for switching the power supply.
- Resistors:** R569 (47K) and R567 (47K) are used for biasing and regulation.

The output of the circuit is labeled VIN_19. Red circles highlight the rectifier bridge and a large empty space below it.

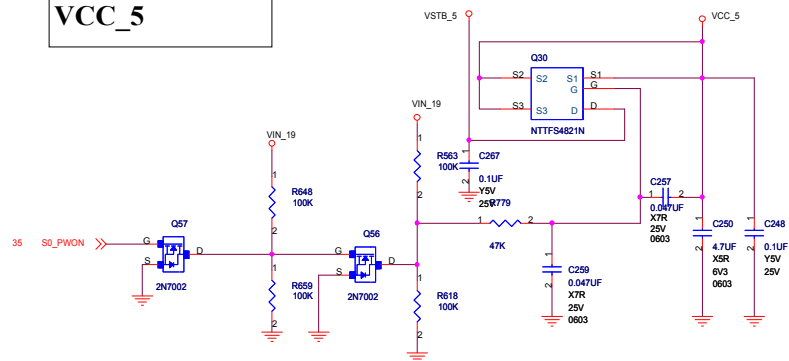
[illegible]

VSUS_PG

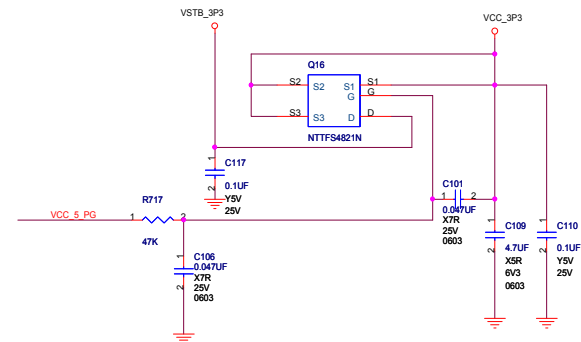
The schematic diagram illustrates the VSUS_PG circuit. It features three input nodes: VSUS_5, VIN_19, and VSTB_3P3. VSUS_5 is connected to a 4K7 resistor (R302) and a 10K resistor (R301) to ground. VIN_19 is connected to a 390K resistor (R312) and a 2N7002 MOSFET (Q39) to ground. VSTB_3P3 is connected to a 47K resistor (R54) and a 2N7002 MOSFET (Q8) to ground. The gates of Q39 and Q8 are connected to a common node labeled VSUS_PG. The drains of Q39 and Q8 are connected to a common node labeled VSUS_PG. The sources of Q39 and Q8 are connected to ground. The output of the circuit is VSUS_PG, which is connected to a 35V supply.

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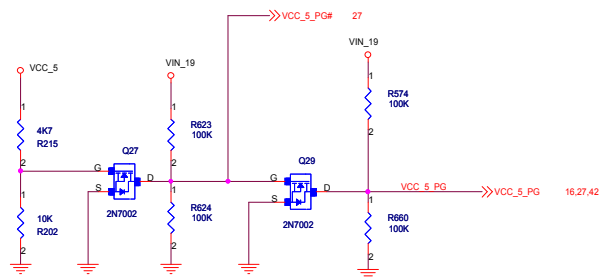
VCC_5



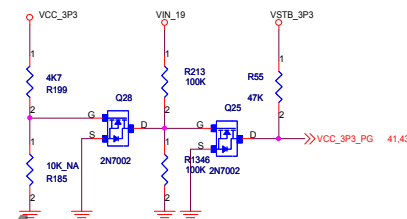
VCC_3P3



VCC_5_PG

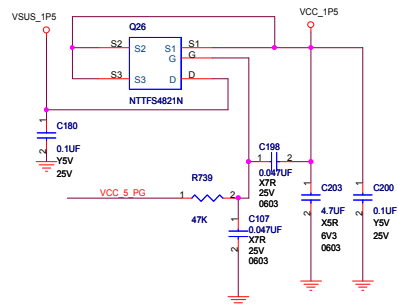


VCC_PG



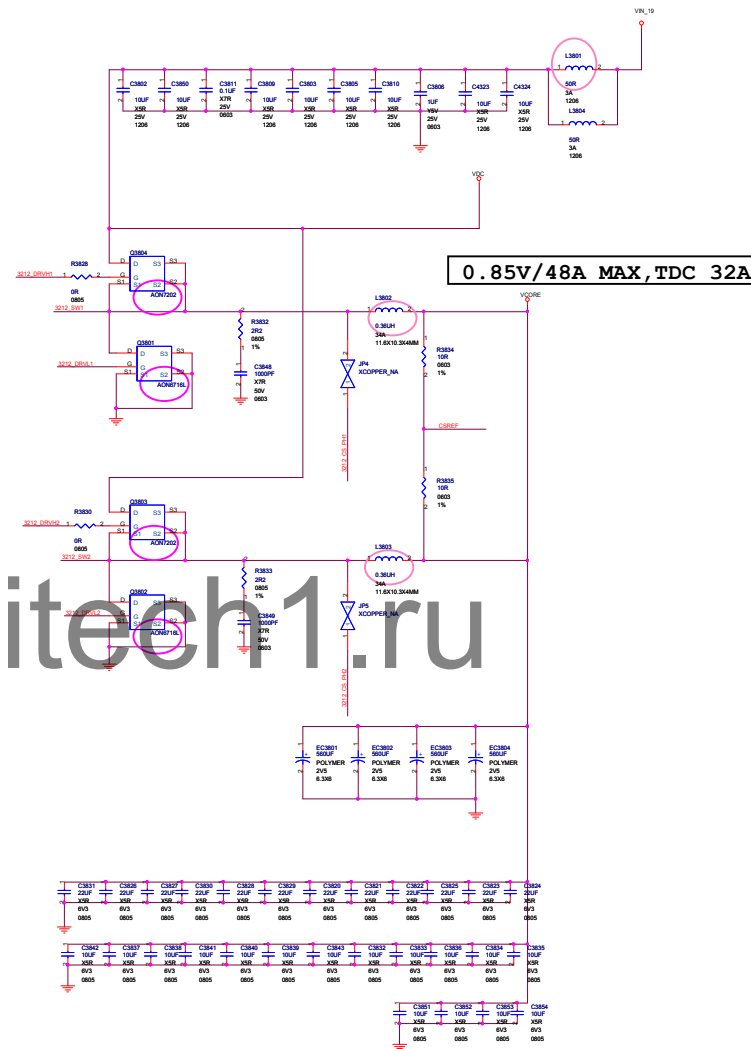
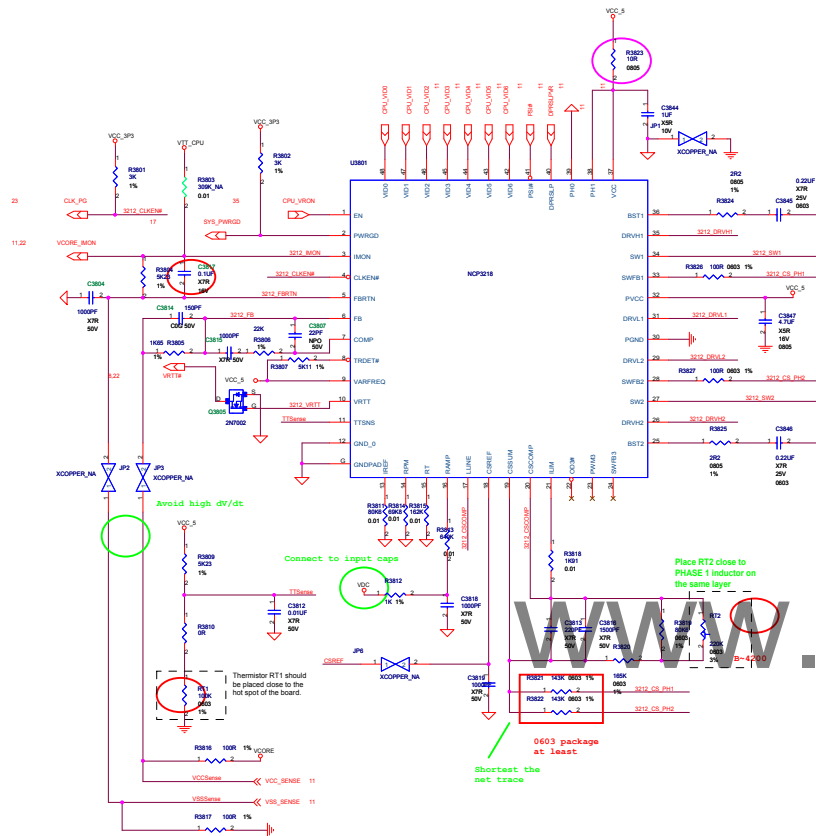
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VCC_1P5

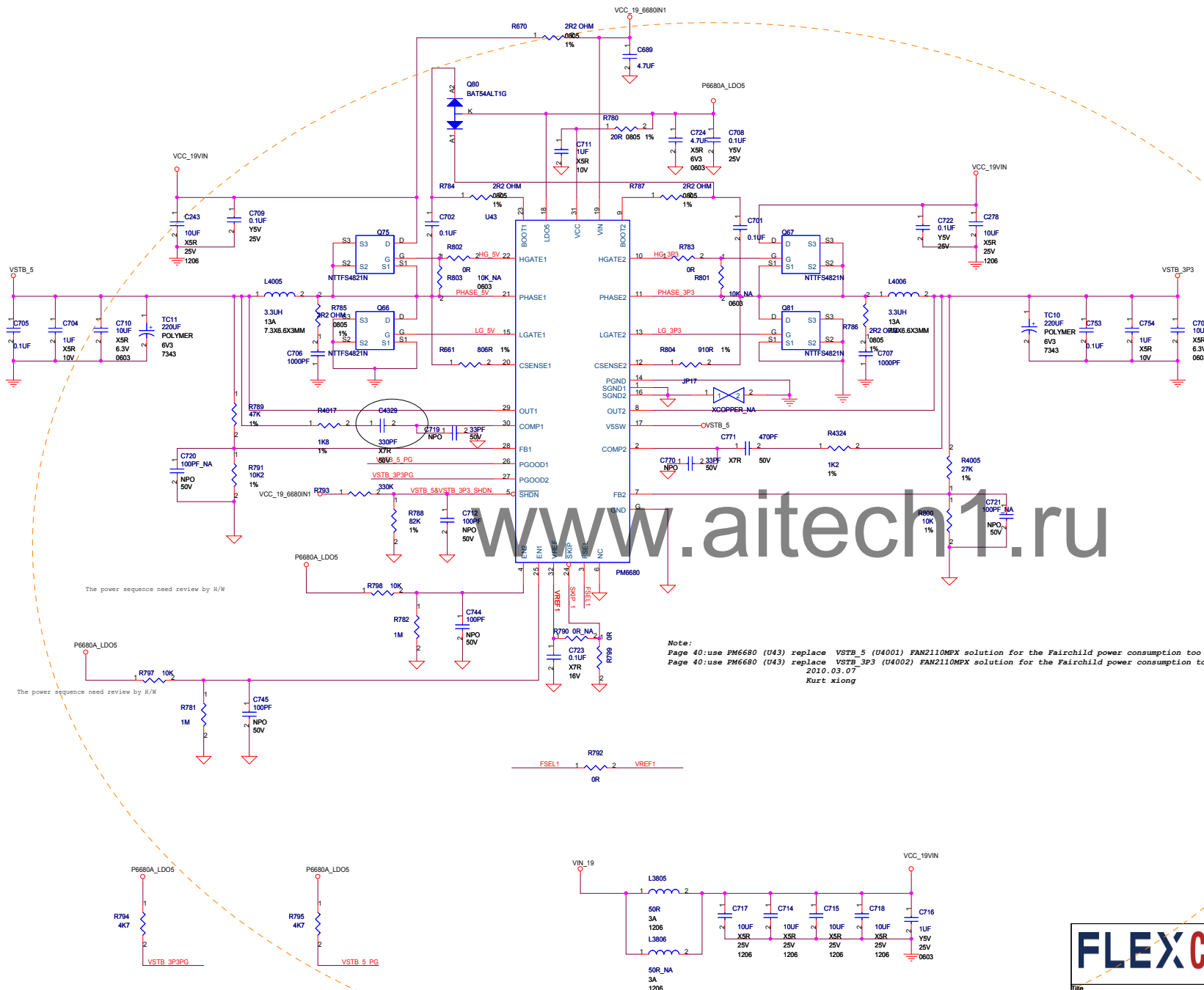


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Note:
Page 40:use PM6680 (U43) replace VSTB_5 (U4001) FAN2110MPX solution for the Fairchild power consumption too large on light load.
Page 40:use PM6680 (U43) replace VSTB_3P3 (U4002) FAN2110MPX solution for the Fairchild power consumption too large on light load.
2010.03.07
Kurt xiong

FLEXComputing

File
SAMUI_VSTB_583P3

Size
C

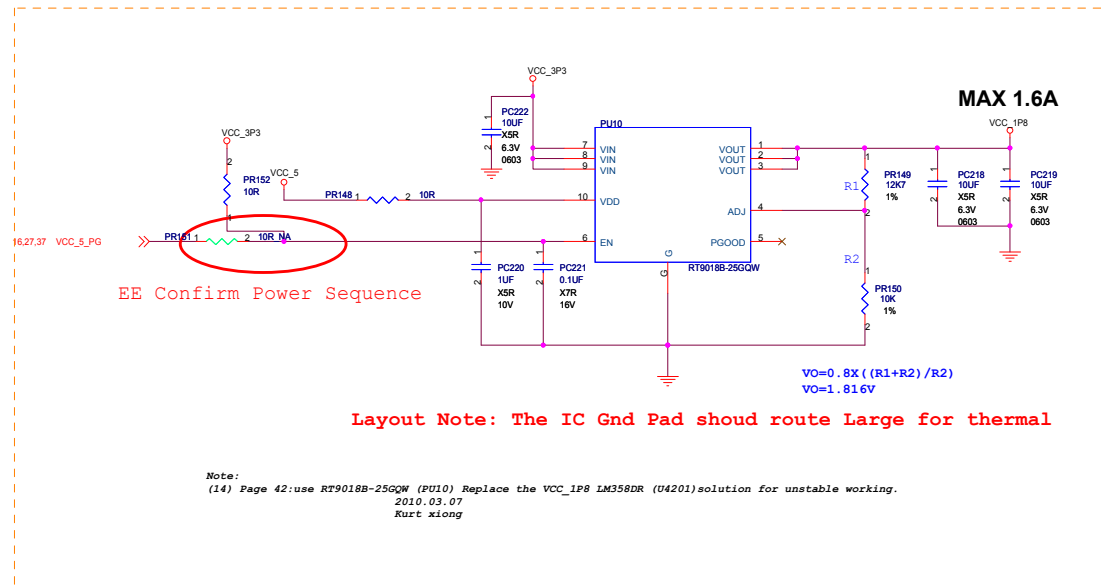
Document Number
MP-00008529-005-AK

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Monday, May 17, 2010

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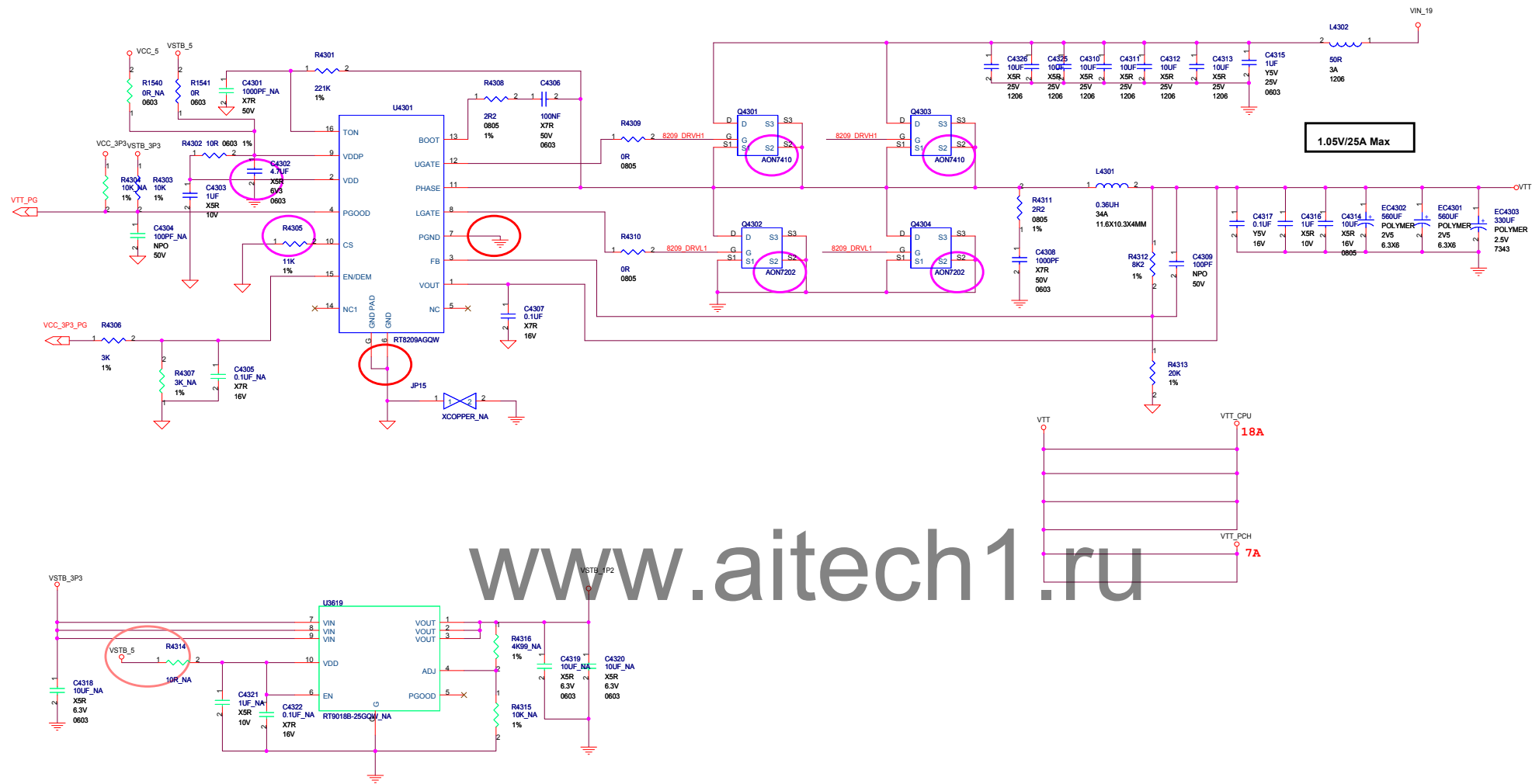
Rev
V03



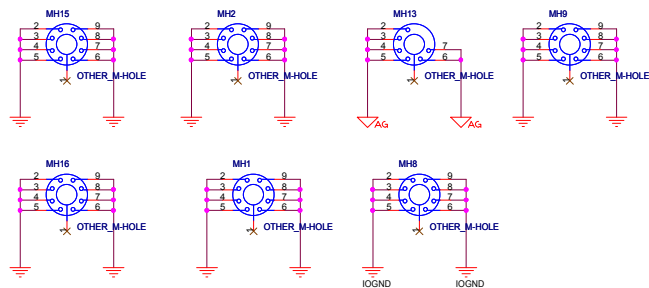
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FLEX Computing			
Title			
SAMUI_2.0_VCC_1P8			
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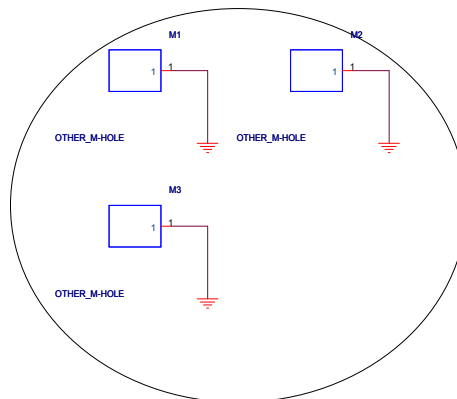
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FOR MB SCREW

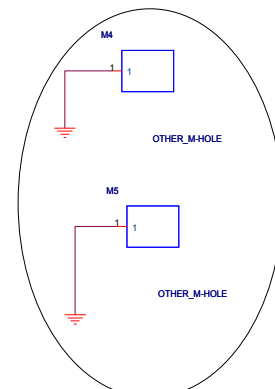


FOR CPU HINTSINK

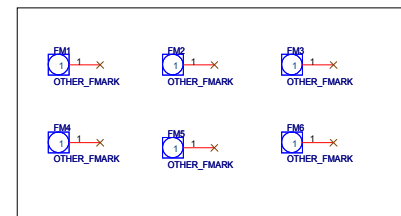


Note: Change to MP-00007842-000, modify footprint for DFM request
2010.0413
Kurt.xiong

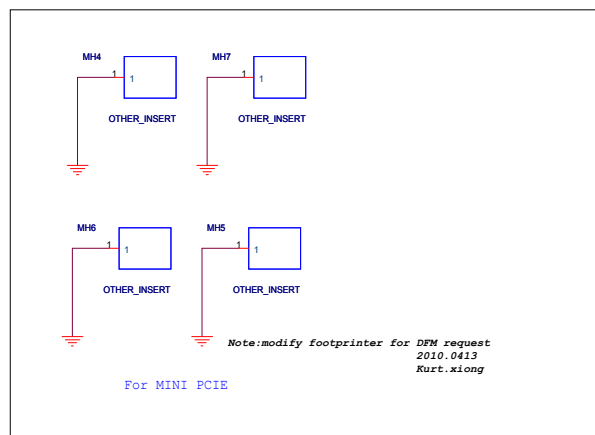
FOR PCH HINTSINK



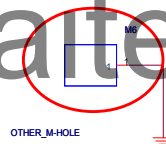
FD Mark



FOR MINI PCIE SCREW



FOR BLOWER



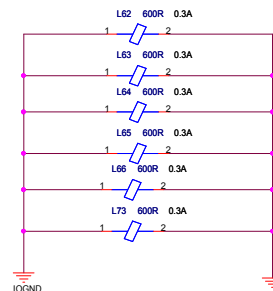
Mylar



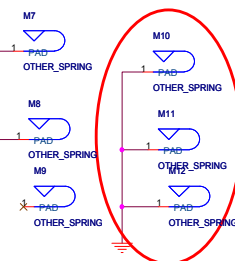
BIOS Label



Cable Holder



Note: Add cable holder



2010.0413
Kurt.xiong

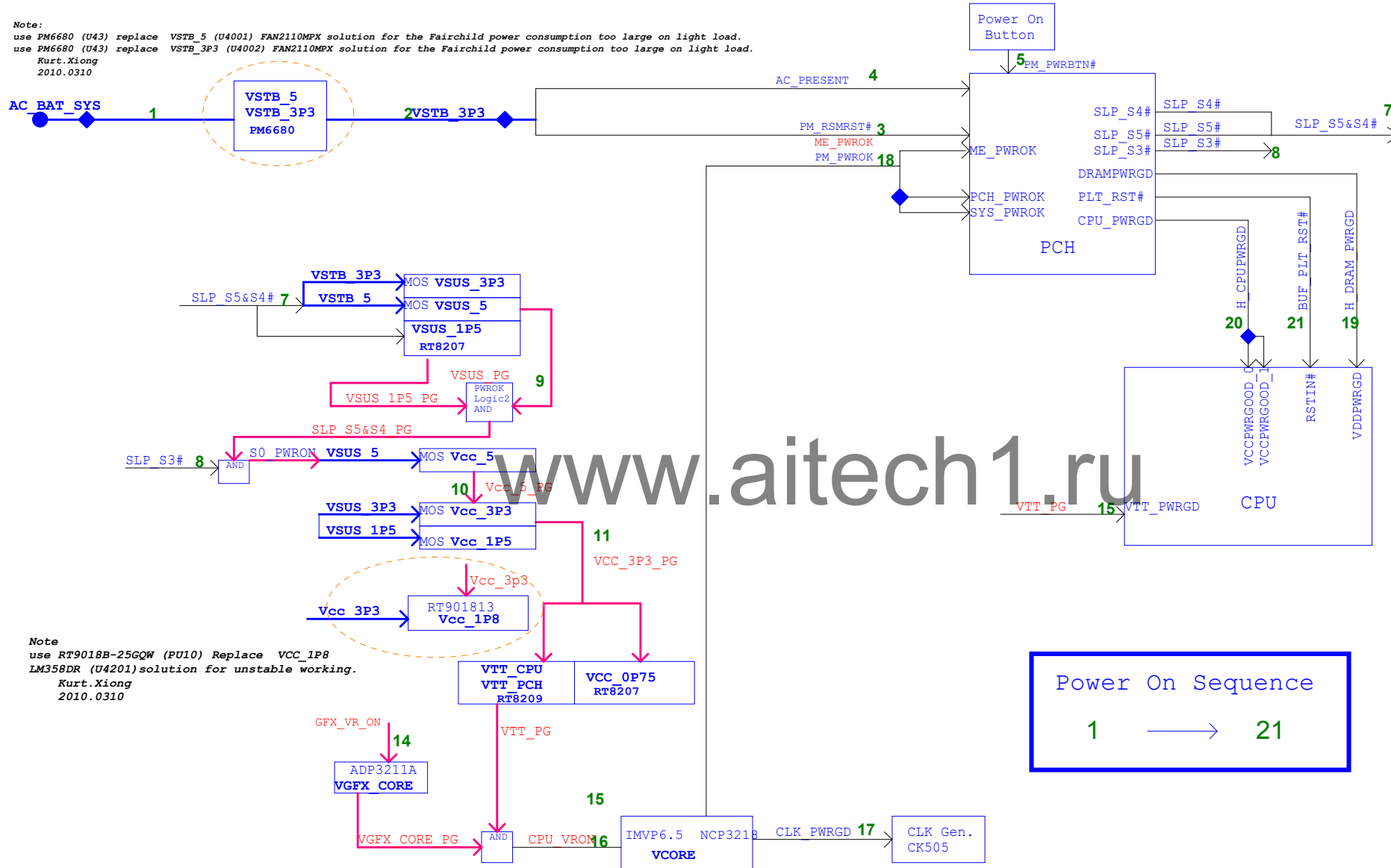
FLEX Computing

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Power On Sequence Diagram Rev. 0.1

XX POWER
XX SIGNAL NET
XX POWER GOOD/ENABLE SIGNAL

Note:
use PM6680 (U43) replace VSTB_5 (U4001) FAN2110MPX solution for the Fairchild power consumption too large on light load.
use PM6680 (U43) replace VSTB_3P3 (U4002) FAN2110MPX solution for the Fairchild power consumption too large on light load.
Kurt.Xiong
2010.0310



Note
use RT9018B-25GQW (PU10) Replace VCC_1P8
LM358DR (U4201) solution for unstable working.
Kurt.Xiong
2010.0310

Power On Sequence
1 → 21

FLEXComputing

File: SAMUI_2.0_POWER_SEQUENCE			
Size: C	Document Number: MP-00008529-003-AK	Rev: V03	
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0309
(1) Page 08: add Q78, Q79, R217, R219 for VTT_PG_CPU to CPU level
(2) Page 16: PCIe port2, 3 pull up change to VCC_3P3 for VSTB_3P3 leak voltage
(3) Page 24: add R2428 for DVI HDP
(4) Page 25: swap HDMI IN DDC CLK/HDMI IN DDC data and DVI DDP CLK/DVI DDC data for circuit mistake
(5) Page 25: add R188 for other panel type
(6) Page 29: add PWM solution (add L2999/C1518/R145) for volume control
(7) Page 30: add GPIO solution (Q24/Q48/Q45/R140/R143/R144) for volume control
(8) Page 31: add L84 and L93 for TV/WLAN port power EMI
(9) Page 33: swap LPD signal and wlan led for TV tuner (J19) and Wi-Fi (J18) connector placement error
(9) Page 33: add R4320, R4322, R4321, R4323, C4327, C4328 for lan led
(10) Page 33: add R644 and R643, delete R645 for VSUS_3P3 leak voltage
(11) Page 35: add Q2_Delete U2901 for EUP
(12) Page 36: change USB power solution, add USB5V2, USB5V3, USB5V4 (add L8 and L23)
(13) Page 25: add Q47, R6 for HDMI HDP
(14) Page 35: delete R1320/R1321/R1322 for VSUS_5 discharge
(14) Page 35: delete Q197/R1320 for VCC_1P5 discharge
(14) Page 35: delete Q3598/C201/R1321 for VCC_0P75 discharge
(14) Page 35: delete Q3599/C197/R1322 for VCC_1P5 discharge
(15) Page 32: add D3410/D3411/D3409, delete U49/U52/C689, stufR R561/R562/R558 ,
change C650 footprint to 1808 for lan surge solution
connect MD1_0+/- and MD1_2 +/- to U46
connect MD1_+/- and MD1_3 +/- to U46
(16) Page 25: stufR Q37/R461/R182/R183 for HDMI IN EDID
(17) Page 37: add R779 for VCC_5 power up soft start
change R739 value from 0 to 47 K for VCC_1P5 power up soft start
add R717 for VCC_3P3 power up soft start
(18) Page 45: modify power sequence , including VSTB_5/VSTB_3P3/VCC_1P8
(19) Page 8: un-stuff J0801

```

Based on the Samui 2.0 Ver. 1.0, the power solution has three solution changed.

(20) Page 42: Use RT9018B-25GQW (F010) Replace VCC_IP8 LM358DR (U4201) solution for unstable working. (Note: total solution)

(21) Page 40: Use PM6680 (U43) replace VSTB_5 (U4001) FAN2110MXP solution for the Fairchild power consumption too large on light load. (Note: total solution)

(22) Page 40: Use PM6680 (U43) replace VSTB_3P3 (U4002) FAN2110MXP solution for the Fairchild power consumption too large on light load. (Note: total solution)

(23) Page 24: stuff R2405,R2407,R2409,NA R2404,R2406 for HDMI EA test
(24) Page 24: add R2428 for HDMI HPD
(25) Page 27: Delete Q47,R6, add R52,R53,R54,R55,R56,R57,R58,R59,R60,R61,R62,R63,R64,R65,R66,R67,R68,R69,R70,R71,R72,R73,R74,R75,R76,R77 for HDMI HPD
(26) Page 34: NA L3,L4,L19,L22,stuff R733,R722,R770,R771,R774,R775,R776,R777 to SRI for USB 2.0 eye diagram
(27) Page 15: change R4317 value from 374 to 33 for driving strength
(28) Page 15: Del socket,stuff SPI from desicrity in SPI test
(29) Page 27: change c158 value to 4.7uf from 4.7uf for volume control
(30) Page 26: change pin 17 connection to pin 11 for HDMI in Logo,connect pin 17 to GND
(31) Page 26: add R1329 for CMOS sensing clear
(32) Page 24: reserve pull up/down for TMDS signal driving adjust
(33) Page 24: add P33V4D1LL1ST to p8101 for HDMI EMI issue
(34) Page 26: change R718,R728,R748,R750,R760,R765,R766,R767 value from 20 ohm to 0 ohm for EA test.
(35) Page 24: add R816,R807,R810,R811,R810 (SRI) for EMI and EA test.
(36) Page 35: reserve R4326,R4326,R1542,R3790,C713,05,06 for T235 power supply
(37) Page 25: according with vendor suggestion,change C193 and C194 value from 8pf and 10pf to 6.8 and 15 pf
(38) Page 25: according with vendor suggestion,change C70 and C83 value from 8pf and 10pf to 6.8 and 15 pf
(39) Page 26: according with vendor suggestion,change C70 and C83 value from 8pf and 10pf to 6.8 and 15 pf

```
(40)R4305 25.5K change to 1N402 1N3 (MP-00002134-000) for adjust VTT OCP
(41)RT3 100K change to 220K 0603 NTC (MP-00002461-000) for GFX Power current monitor
(42)RT2 100K change to 220K 0603 NTC (MP-00002461-000) for CPU Core Power current monitor
(43)R321 147K change to 143K 0603 1N (MP-00006223-000) for CPU Core Power drop adjust
(44)R322 147K change to 143K 0603 1N (MP-00006223-000) for CPU Core Power drop adjust
(45)R323 150P change to 150P 0603 1N (MP-00007570-000) for CPU Core Power compensation adjust
(46)R315 150P change to 1nF 402 XTR (MP-00000750-000) for CPU Core Power compensation adjust
(47)C307 12pF change to 22pF 402 NPO (MP-00000310-000) for CPU Core Power compensation adjust
(48)R304 5.3K 9K change to 5.23K 0402 1N (MP-00002461-000) for CPU Core Power Imom Voltage adjust
```

(49) 2010.05.13 Page 35: ADD Q84 R4329,R4328 for T235 power sequence
(50) 2010.05.13 Page 25: delete d17,Add R1530 for hdmi in
(51) 2010.05.13 Page 35: DeleteR4325,R4326,R1542,R1537,R790,C713,Q5,Q6 for T235 power sequence
(52) 2010.05.13 Page 25: Add R466 for hdmi in test
(53) 2010.05.17 Page 24: Stuff R2420,NA R2439 for HDMI eye digram test
(54) 2010.05.17 Page 35: change R1319 from 270R to 499R for derating