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MICOM / BIOS

# SCALA2-AMD

CPU : ZACATE
Chip Set : HUDSON-M1
GFX : SEYMOUR-S3
Remarks : AMD Brazos Platform

Model Name : SCALA2-AMD
PBA Name : MAIN
PCB Code : BA41-01533A (GCE)
BA41-01534A (NY)
BA41-01532A (HAN)

Dev. Step : MP
Revision : 1.0
T.R. Date : 2011.03.11

| Design | CHECK | APPROVAL |
|---|---|---|
| *Cun jia jun* | *Lei Guo* | *BC LEE* |
| | | |

■ ***Owner : SEC IT Solution N/P LAB Signature : wanni***

sheet01 : Cover
sheet02 : BLOCK DIAGRAM
sheet03 : BOARD INFORMATION
sheet04 : POWER DIAGRAM
sheet05 : POWER RAILS
sheet06 : POWER SEQUENCE
sheet07 : CLOCK DISTRIBUTION
sheet08 : Thermal Sensor
sheet09 : CPU
sheet10 : CPU
sheet11 : CPU
sheet12 : DDR3 SODIMM #0
sheet13 : DDR3 SODIMM #1
sheet14 : FCH-HUDSON
sheet15 : FCH-HUDSON
sheet16 : FCH-HUDSON
sheet17 : FCH-HUDSON
sheet18 : FCH-HUDSON
sheet19 : 80 port/BIOS
sheet20 : SEYMOUR S3_XT
sheet21 : SEYMOUR S3_XT
sheet22 : SEYMOUR S3_XT
sheet23 : SEYMOUR S3_XT
sheet24 : SEYMOUR S3_XT
sheet25 : SEYMOUR S3_XT
sheet26 : GFX memory
sheet27 : GFX memory
sheet28 : LVDS / CAMERA
sheet29 : CRT
sheet30 : HDMI
sheet31 : MICOM
sheet32 : MICOM Glue Logic (KBD / TP)
sheet33 : TOUCHPAD
sheet34 : TOUCHPAD
sheet35 : Audio - HP/MIC
sheet36 : Audio - HP/MIC
sheet37 : LAN (Realtek 8111E)
sheet38 : WLAN
sheet39 : SATA interface
sheet40 : SATA ODD SUB
sheet41 : 3-in-1 card
sheet42 : USB/POWER SW SUB BD
sheet43 : USB connector
sheet44 : Power - charger
sheet45 : Power - P3.3V_AUX / P5.0V_AUX
sheet46 : Power - P1.05V (Chipset Power)
sheet47 : Power - DDR3
sheet48 : Power - P1.1V_AUX(Chipset power)
sheet49 : Power - CPU VRM
sheet50 : Power - EGFX_CORE
sheet51 : Power - P1.8V /P1.0V
sheet52 : Power - Switched Power
sheet53 : Power - Power Discharge
sheet54 : MOUNT HOLE

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|---|---|---|---|
| DRAW: Cunjiajun | DATE: 03/11/2011 | TITLE: SCALA2-AMD MAIN COVER | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 1 OF 54 | |

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# BLOCK DIAGRAM

P5V_AUX
P3.3V_AUX
P1.5V_AUX
P1.1V_AUX

P5.0V / P3.3V
P1.0V / P1.8V
P1.5V / P1.1V
P1.05V

FAN
PG 8

CPU
Thermistor
PG 8

**Mobile Processor**
AMD Brazos CPU
(FT1 BGA Ontario)
413 balls
PG 9~11

CPU VRM
Charging Circuit
Smart Battery Module
P1.5V_AUX
P3.3V
P1.8V
P1.05V

Channel A (Reverse) DDR3 800/1067/1333
Dual channel
Channel B (Reverse) DDR3 800/1067/1333

DDR3 SODIMM 0
DDR3 SODIMM 1
DDR3 Power

HyperTransport Gen3

PG 36 HDMI
PG 34 LCD
PG 34 Camera
HDMI
LCD
CRT
PG 35

GFX CORE
Ext. PEG
Park_XT
PG 18 ~ 22
PEG x16
External Graphics

**FCH**
**Hudson-M1**

PCIE x1 Lane 2
RTL8111E
RJ45

PCIE x1 Lane 0
Mini Card 1 (WLAN)
ANT
52P

USB 8

High Definition Audio
HDAUDIO
PG 38 INT MIC
HP
MIC-IN
Audio
ALC269
PG 37
HD Primary

USB 0,1,4
USB 0,1,4
PG 46, 58

PG 33 SPI ROM
SPI
USB 2
Bluetooth
ANT PG 47

USB 5
3 IN 1
AU6347
PG 40

4P
PG 37
SPKR R
SPKR L

PG 42 SATA HDD
SATA 0
PG 42 SATA ODD
13P
SATA 1
PG 59

LPC

3.3V LPC, 33MHz
MICOM
MEC1308
PG 43
Touch PAD
KBD
PG 44

80 Port
LED
PG 45,58

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|---|---|---|---|
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| CHECK: Guolei | DEV. STEP: MP | | |
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# BOARD INFORMATION

## SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

| Voltage Rails | | Active in |
|---|---|---|
| VDC | Primary DC system power supply (7 to 21V) | S4 - S5 |
| P12.0V_ALW | 12.0V always power rail | |
| P3.3V_MICOM | 3.3V always power rail (for Micom) | |
| P5.0V_ALW | 5.0V always power rail | |
| P5.0V_STB | 5.0V always power rail | |
| P5.0V_AUX | 5.0V switched on power rail (off in S4-S5) | S3 |
| P3.3V_AUX | 3.3V switched on power rail (off in S4-S5) | |
| P1.5V_AUX | 1.5V power rail for DDR (off in S4-S5) | |
| P5.0V | 5.0V switched power rail (off in S3-S5) | S0 |
| P3.3V | 3.3V switched power rail (off in S3-S5) | |
| P1.8V | 1.8V switched power rail (off in S3-S5) | |
| P1.5V | 1.5V switched power rail (off in S3-S5) | |
| P1.05V | 1.05V power rail for chipset (off in S3-S5) | |
| P0.75V | 0.9V power rail for DDR (off in S3-S5) | |
| VCC_CORE | Core Voltage for CPU | S0 |
| IGFX_CORE | Core Voltage for IGFX | |
| EGFX_CORE | Core Voltage for GPU | |
| P1.05V (VCCP) | VCC for Arrandale & IBEX Peak | |

### Crystal / Oscillator

| TYPE | FREQUENCY | DEVICE | USAGE |
|---|---|---|---|
| Crystal | 32.768KHz | IBEX-PEAK | Real Time Clock |
| Crystal | 14.318MHz | CLOCK-Generator | CK-505 |
| Crystal | 25MHz | LAN | Intel LAN |

### LCD Pannel Detect

| Devices | Resolution | PANNEL_DETECT_0 |
|---|---|---|
| LTN140AT17 | HD(1366x768) | SEC3250 |

### I²C / SMB Address

| Devices | Address | Hex | Bus |
|---|---|---|---|
| IBEX PEAK | Master | - | SMBUS Master |
| CPU Thermal Sensor | 0111 101x | 7Ah | Thermal Sensor |
| SODIMM0 | 1010 000x | A0h | - |
| SODIMM1 | 1010 010x | A4h | - |
| Thermal Sensor on SODIMM0 | 0011 000x | 30h | - |
| Thermal Sensor on SODIMM1 | 0011 010x | 34h | - |
| CK-505M Shrink(Clock Generator) | 1101 001x | D2h | Clock, Unused Clock Output Disable |
| Thermal Sensor on board | 1101 100x | 98h | |
| Power thermal management TS | 1101 011x | 96h | |

### USB PORT Assign

| PORT # | ASSIGNED TO |
|---|---|
| 0 | SYSTEM PORT 0 |
| 1 | SYSTEM PORT 1 |
| 2 | Mini PCI Express |
| 3 | Multi Memory Card Controller |
| 4 | NC |
| 5 | NC |
| 6 | NC (N/A WITH HM55) |
| 7 | NC (N/A WITH HM55) |
| 8 | NC |
| 9 | SYSTEM PORT 2 (SUB BOARD) |
| 10 | Bluetooth |
| 11 | Camera |
| 12 | NC |
| 13 | NC |

### PCI Express Assign

| PORT # | ASSIGNED TO |
|---|---|
| 1 | Mini Card 1 (WLAN) |
| 2 | NC |
| 3 | NC |
| 4 | LAN CONTROLLER |
| 5 | NC |
| 6 | NC |
| 7 | NC (N/A WITH HM55) |
| 8 | NC (N/A WITH HM55) |

### SATA PORT Assign

| PORT # | ASSIGNED TO |
|---|---|
| 0 | HDD |
| 1 | ODD |
| 2 | (N/A WITH HM55) |
| 3 | (N/A WITH HM55) |
| 4 | |
| 5 | |

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| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: undefined | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 3 OF 54 | |

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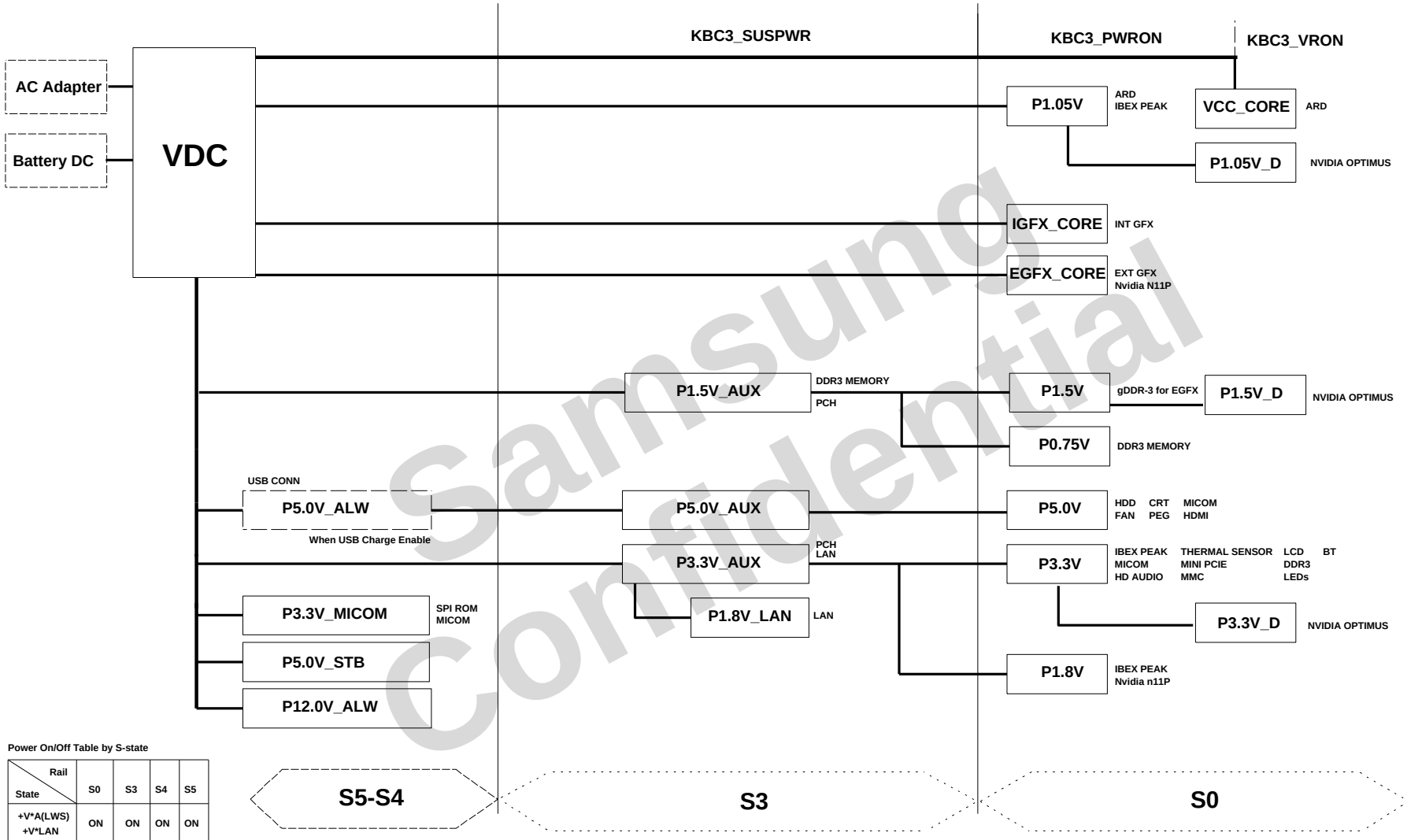
# POWER DIAGRAM

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**Power On/Off Table by S-state**

| Rail / State | S0 | S3 | S4 | S5 |
|---|---|---|---|---|
| +V*A(LWS) +V*LAN | ON | ON | ON | ON |
| +V*AUX | ON | ON | — | — |
| +V | ON | — | — | — |
| +V* (CORE) | ON | — | — | — |

| | | | |
|---|---|---|---|
| DRAW: Cunjiajun | DATE: 5/10/2010 | TITLE: SCALA2-AMD / MAIN / POWER DIAGRAM | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: undefined | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 4 OF 54 | |

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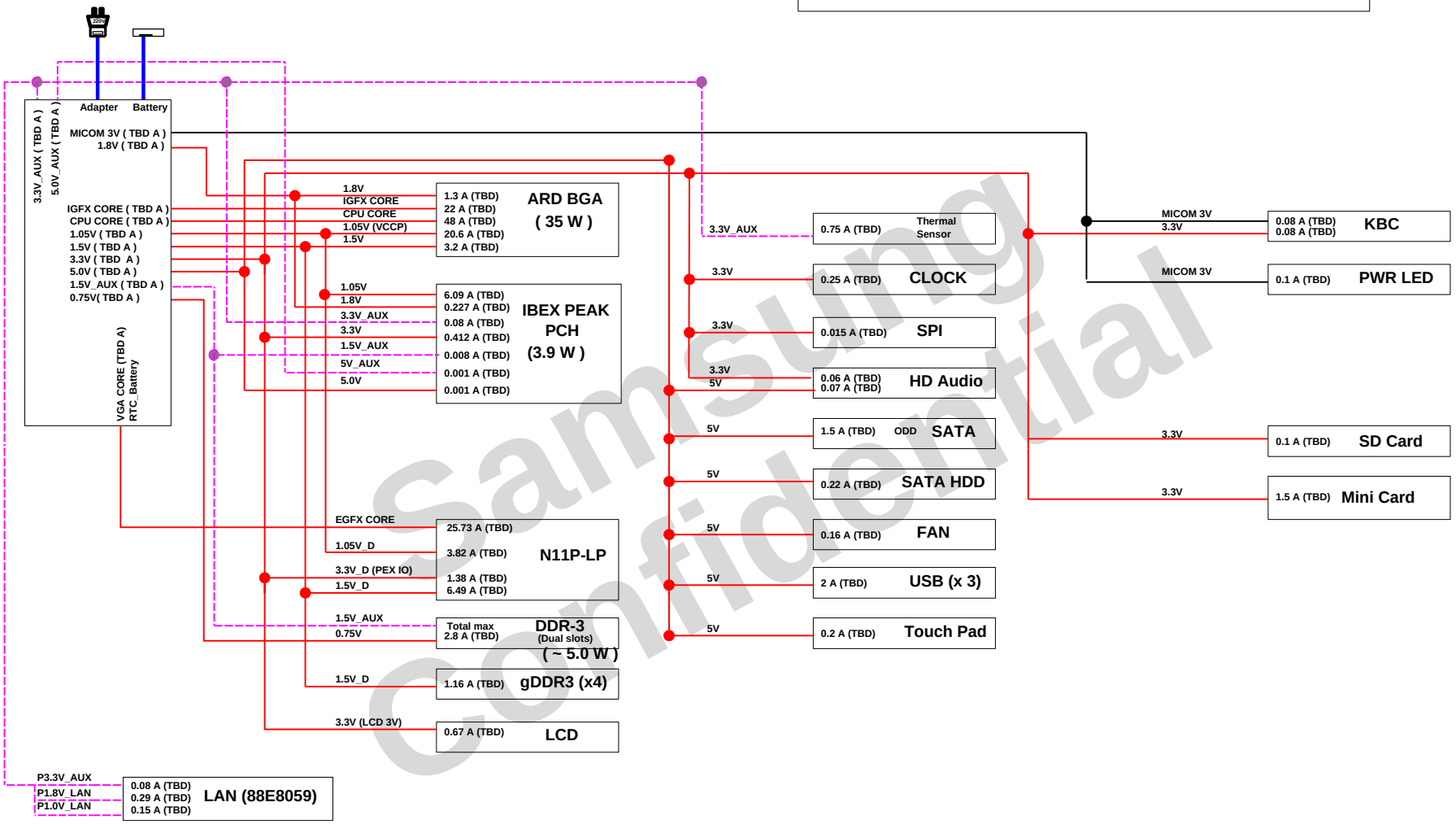
# POWER RAILS ANALYSIS

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|---|---|---|---|
| DRAW: Cunjiajun | DATE: 5/10/2010 | TITLE: SCALA2-AMD MAIN POWER RAILS | SAMSUNG ELECTRONICS |
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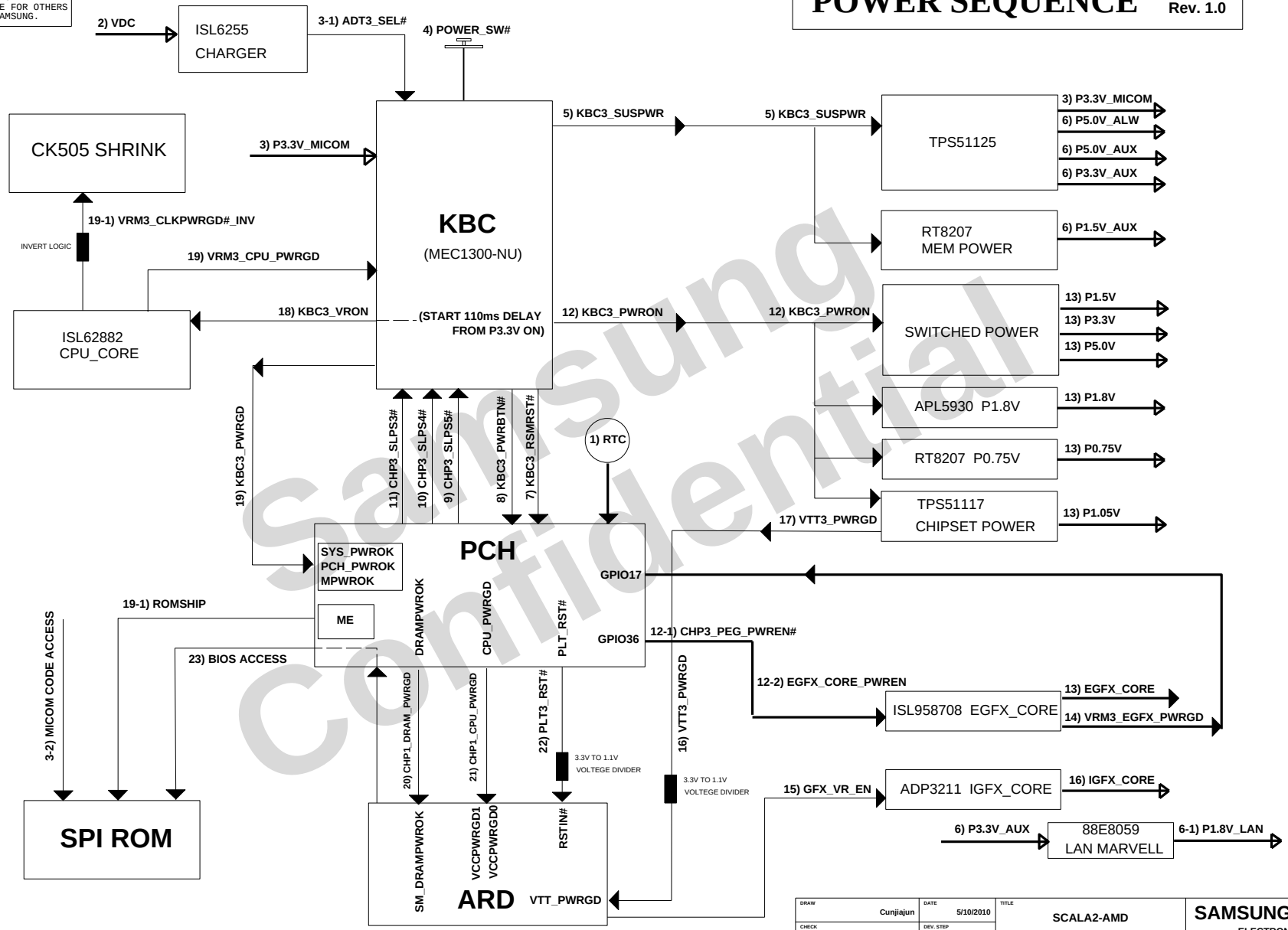
# POWER SEQUENCE Rev. 1.0

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| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
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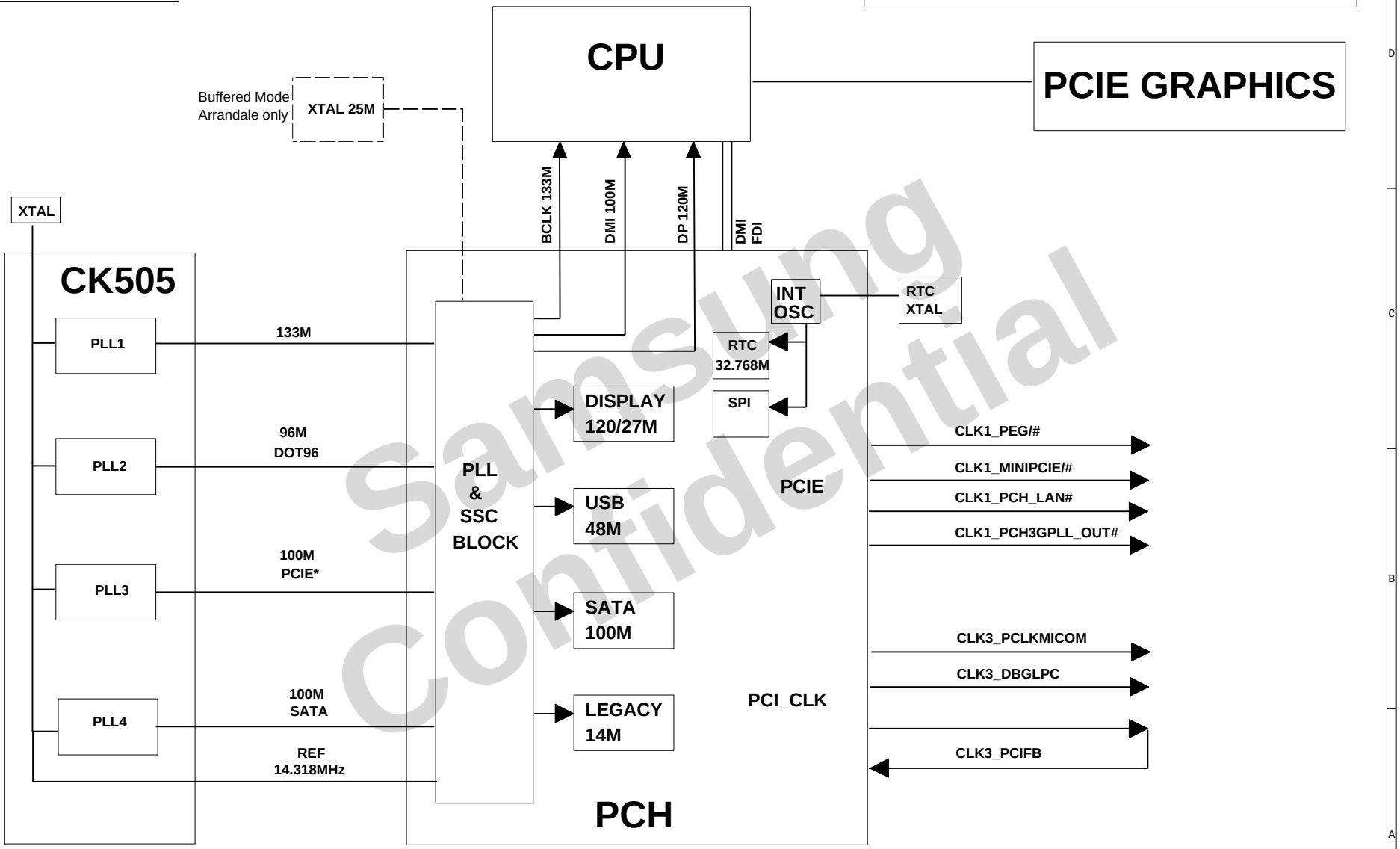
# CLOCK DISTRIBUTION Rev. 1.0

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|---|---|---|---|
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| CHECK: Guolei | DEV. STEP: MP | | |
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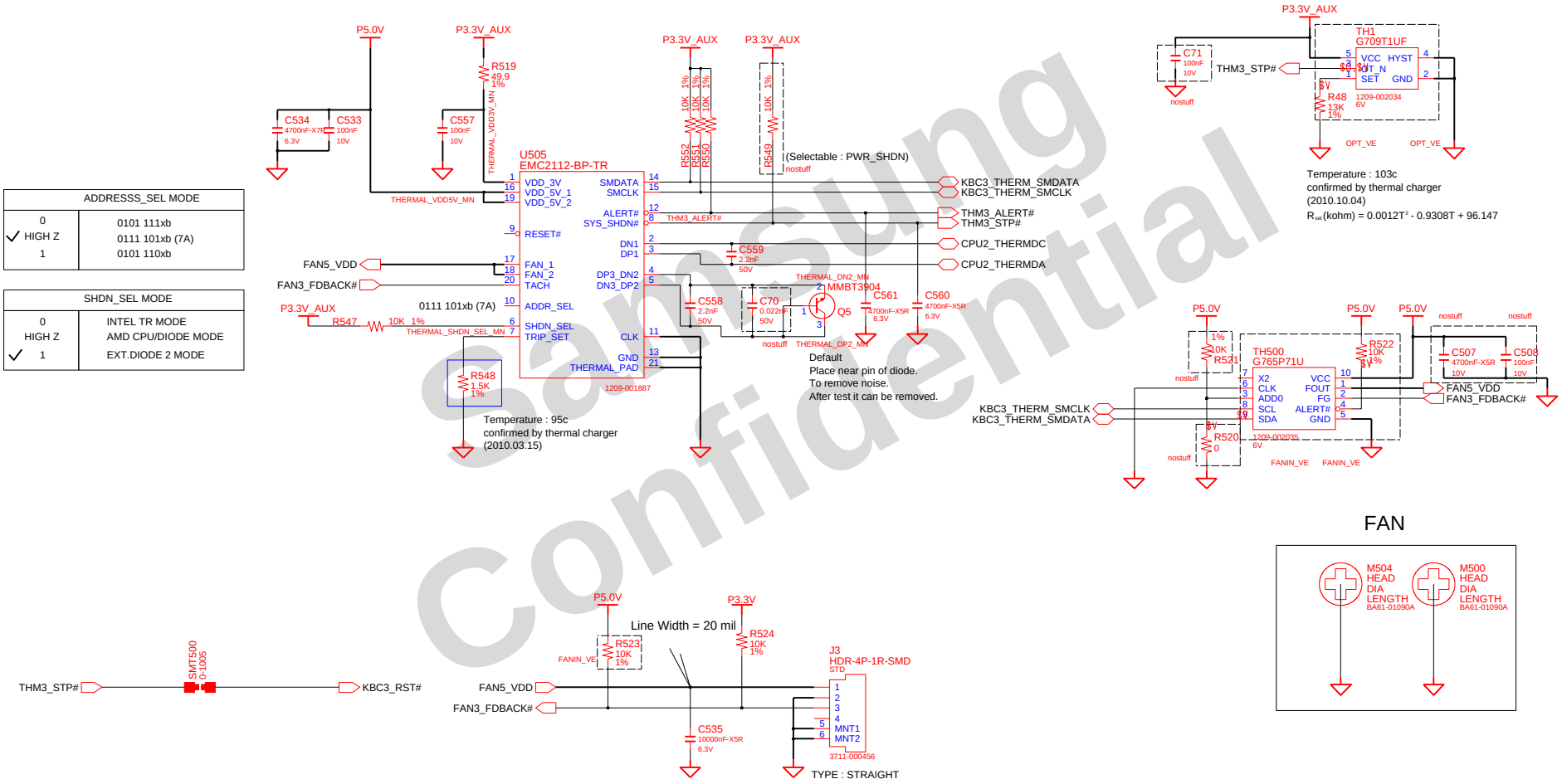
# THERMAL SENSOR & FAN CONTROL

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|---|---|---|---|
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| CHECK: Guolei | DEV. STEP: MP | THERMAL SENSOR EMC2112 | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 8 OF 54 | |

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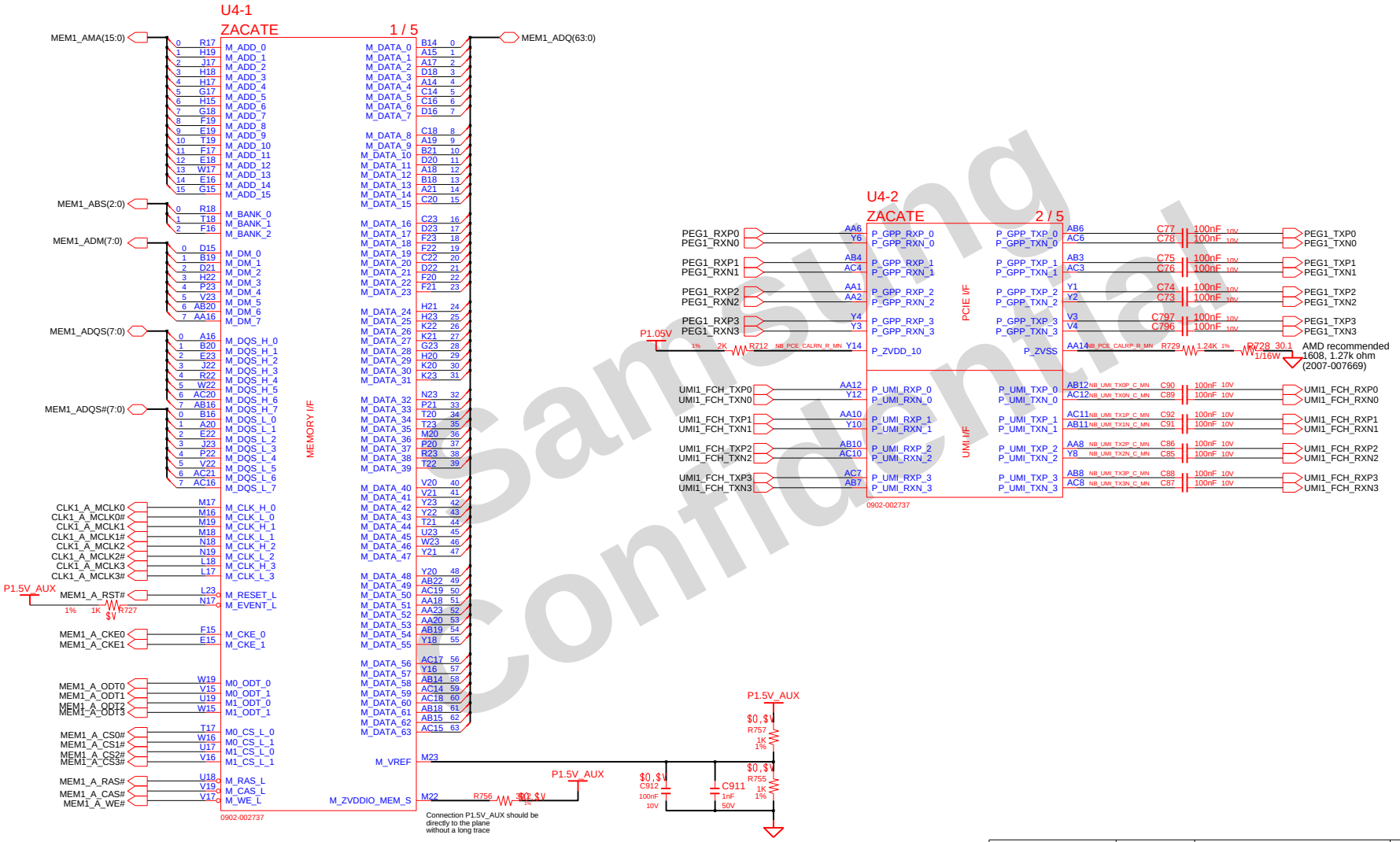
# CPU_ZACATE

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| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: undefined | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 9 OF 54 | |

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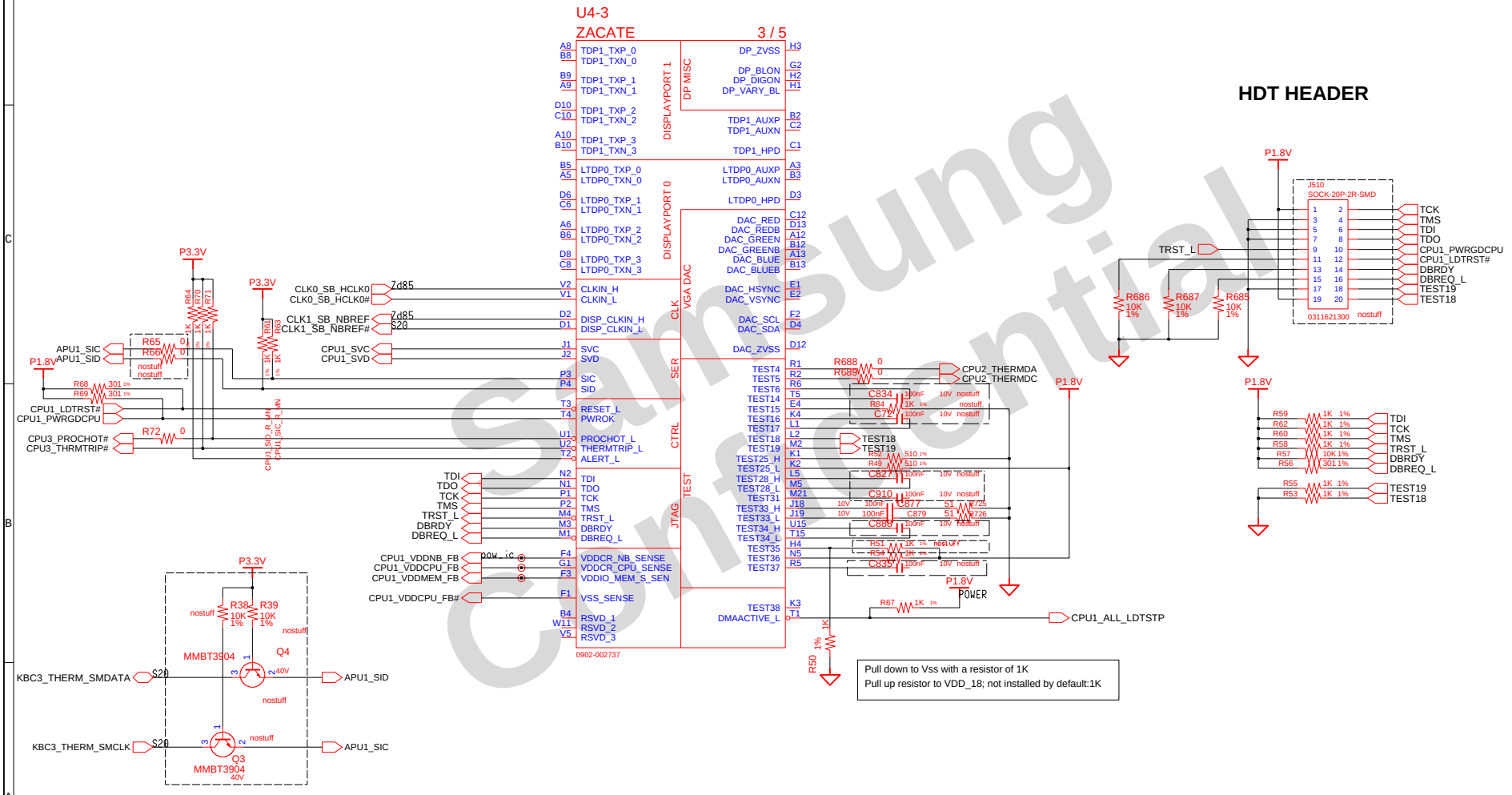
# CPU_ZACATE

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| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: undefined | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 10 OF 54 | |

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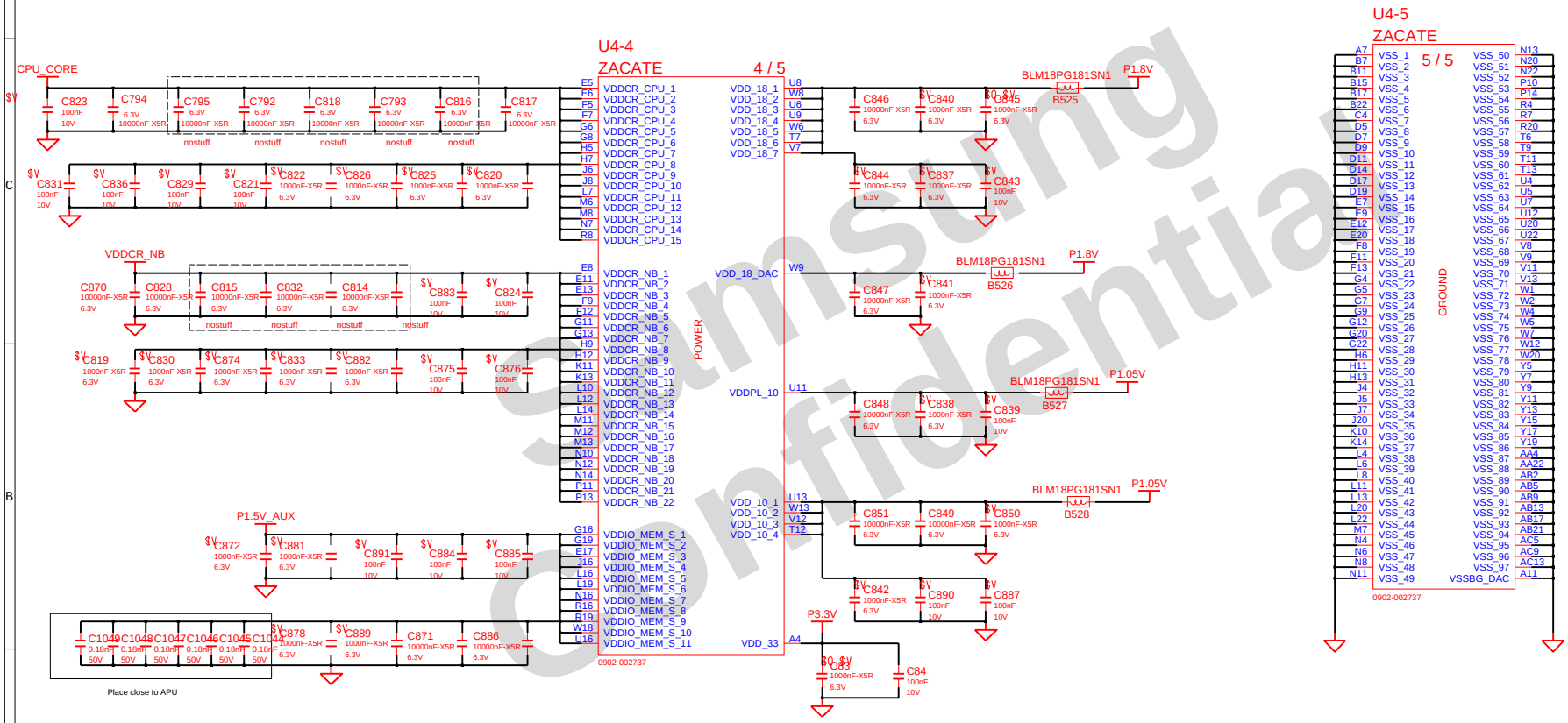
# CPU_ZACATE

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| CHECK: Guolei | DEV. STEP: MP | | PART NO.: BA41-0XXXXXA |
| APPROVAL: BC LEE | REV: rev. 1.0 | | |
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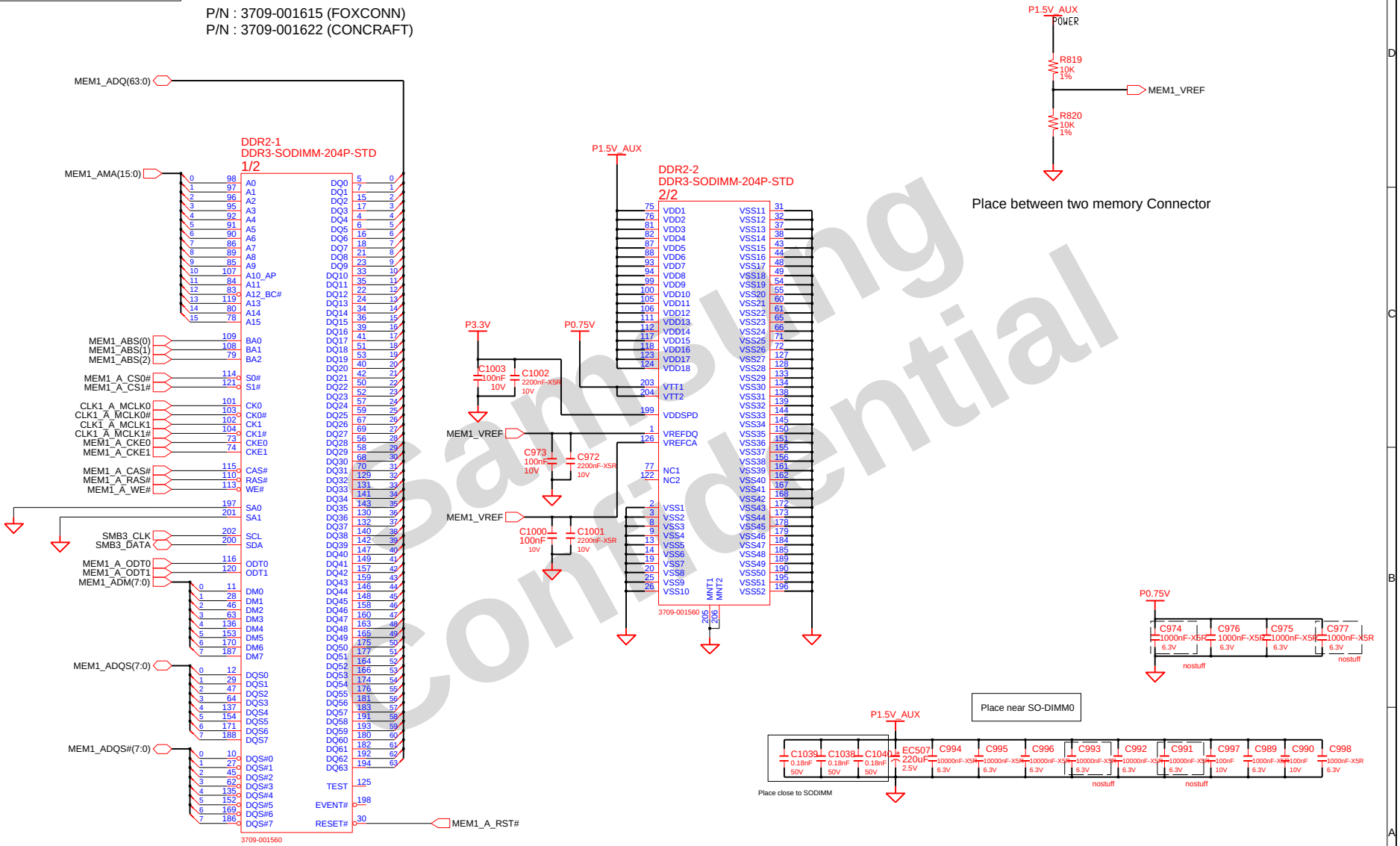
# DDR SO-DIMM #0

Height : 8 mm (STANDARD)

P/N : 3709-001615 (FOXCONN)
P/N : 3709-001622 (CONCRAFT)

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|---|---|---|---|
| DRAW: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | SODIMM B | |
| APPROVAL: BC LEE | REV: rev. 1.0 | DDR3 | PART NO.: BA41-0XXXXA |
| MODULE CODE: | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 12 OF 54 | |

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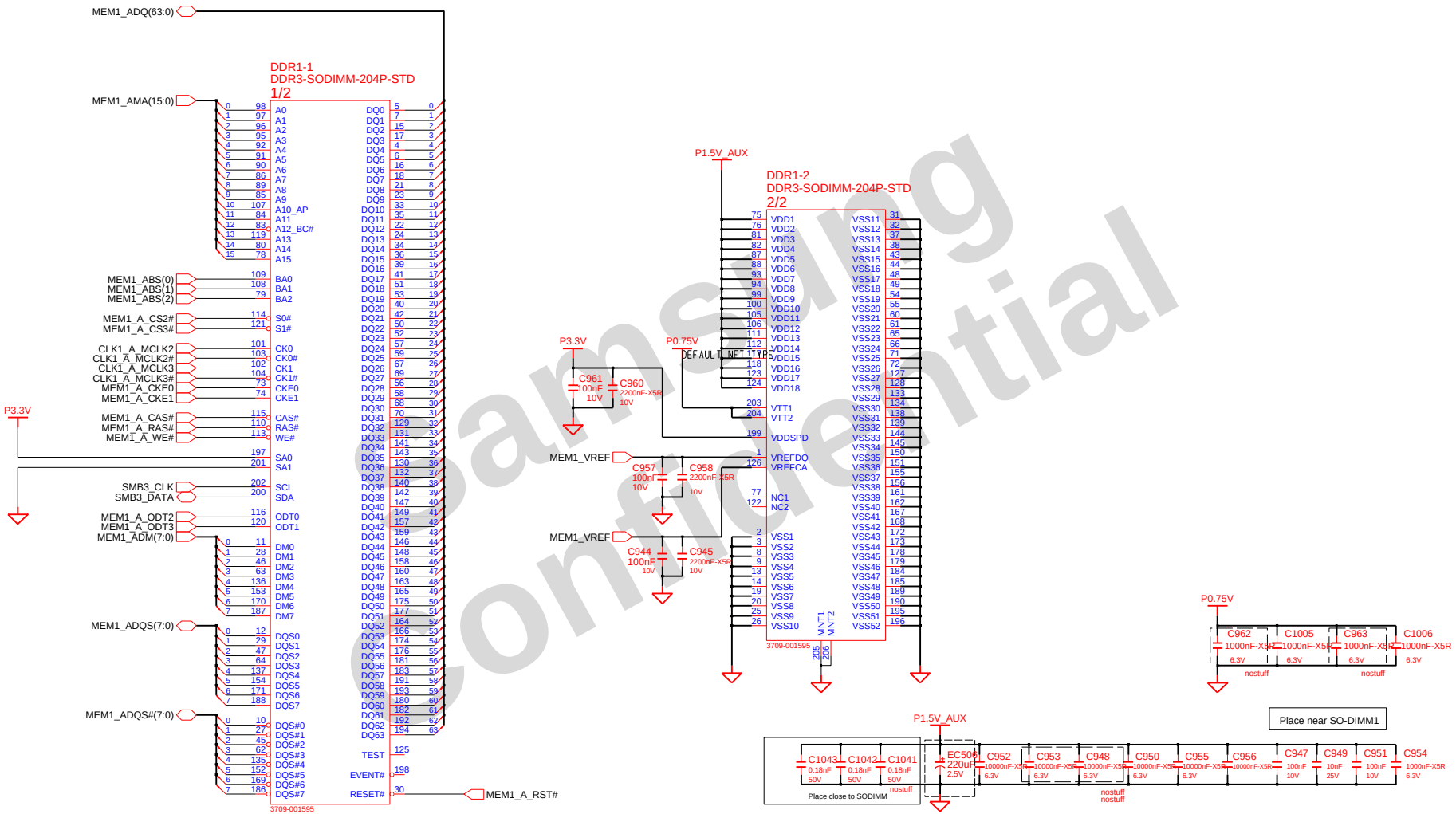
# DDR SO-DIMM #1

Height : 4 mm (STANDARD)

P/N : 3709-001560 (FOXCONN)
P/N : 3709-001607 (CONCRAFT)

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| DRAW: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD SODIMM A DDR3 | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 13 OF 54 | |

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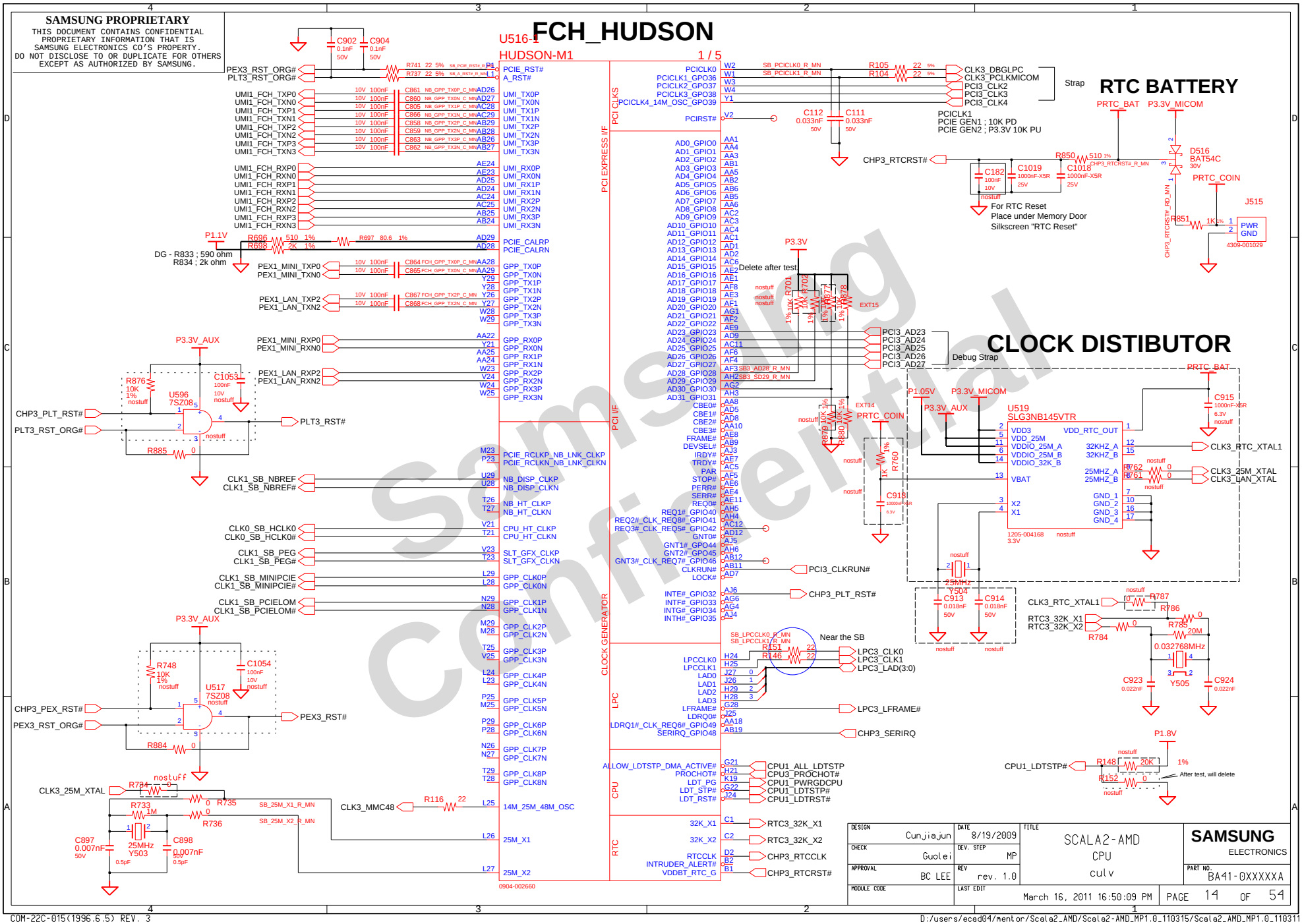
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FCH_HUDSON
U516-1
HUDSON-M1
1 / 5
RTC BATTERY
CLOCK DISTIBUTOR
Strap
Debug Strap
Delete after test
Near the SB
For RTC Reset
Place under Memory Door
Silkscreen "RTC Reset"
PCIE EXPRESS I/F
PCI CLKS
PCI I/F
CLOCK GENERATOR
LPC
CPU
RTC
SLG3NB145VTR
Samsung Confidential
DESIGN Cunjiajun
CHECK Guolei
APPROVAL BC LEE
MODULE CODE
DATE 8/19/2009
DEV. STEP MP
REV rev. 1.0
LAST EDIT March 16, 2011 16:50:09 PM
TITLE SCALA2-AMD CPU culv
SAMSUNG ELECTRONICS
PART NO. BA41-0XXXXXA
PAGE 14 OF 54
0904-002660
COM-22C-015(1996.6.5) REV. 3
D:/users/ecad04/mentor/Scala2_AMD/Scala2-AMD_MP1.0_110315/Scala2_AMD_MP1.0_110311

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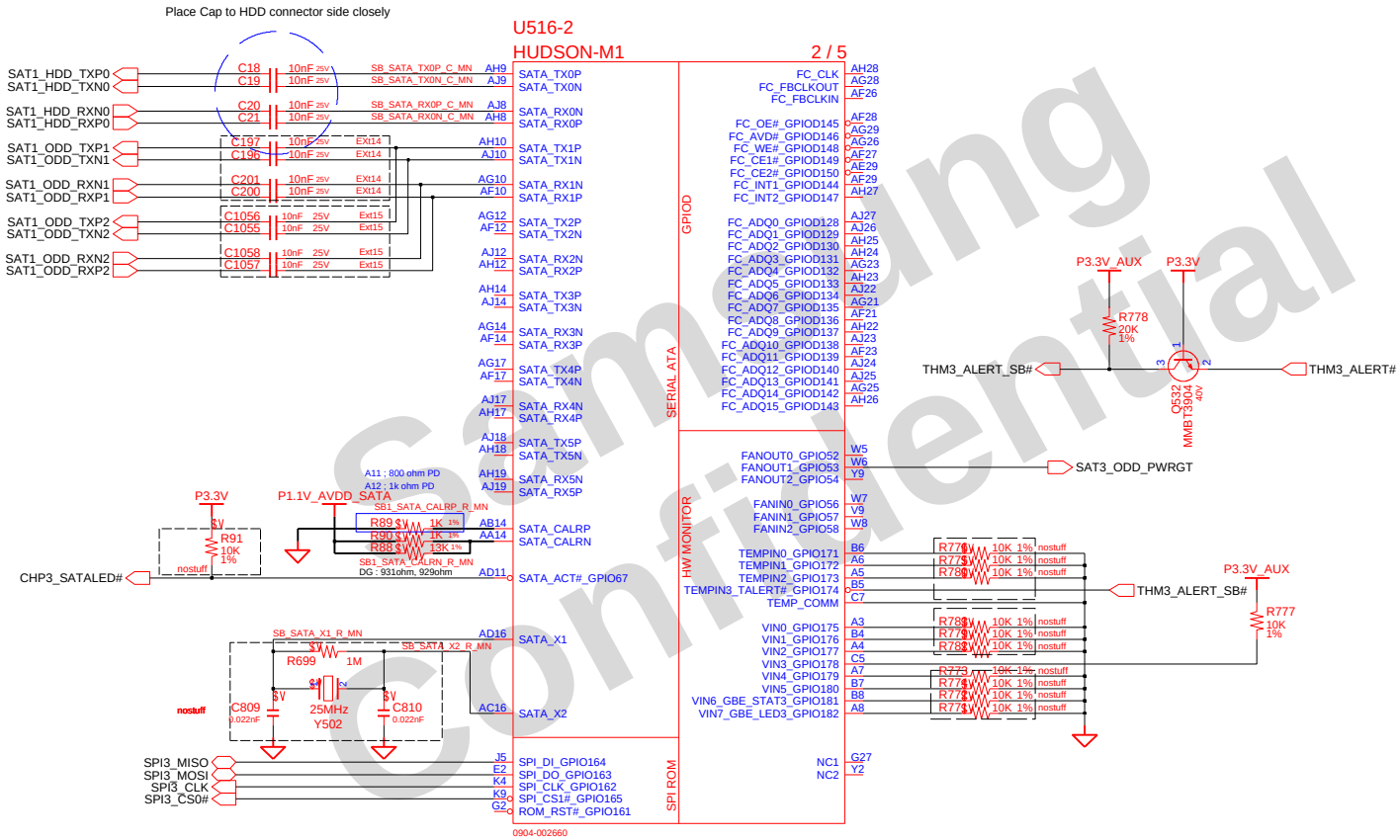
# FCH_HUDSON

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| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXXA |
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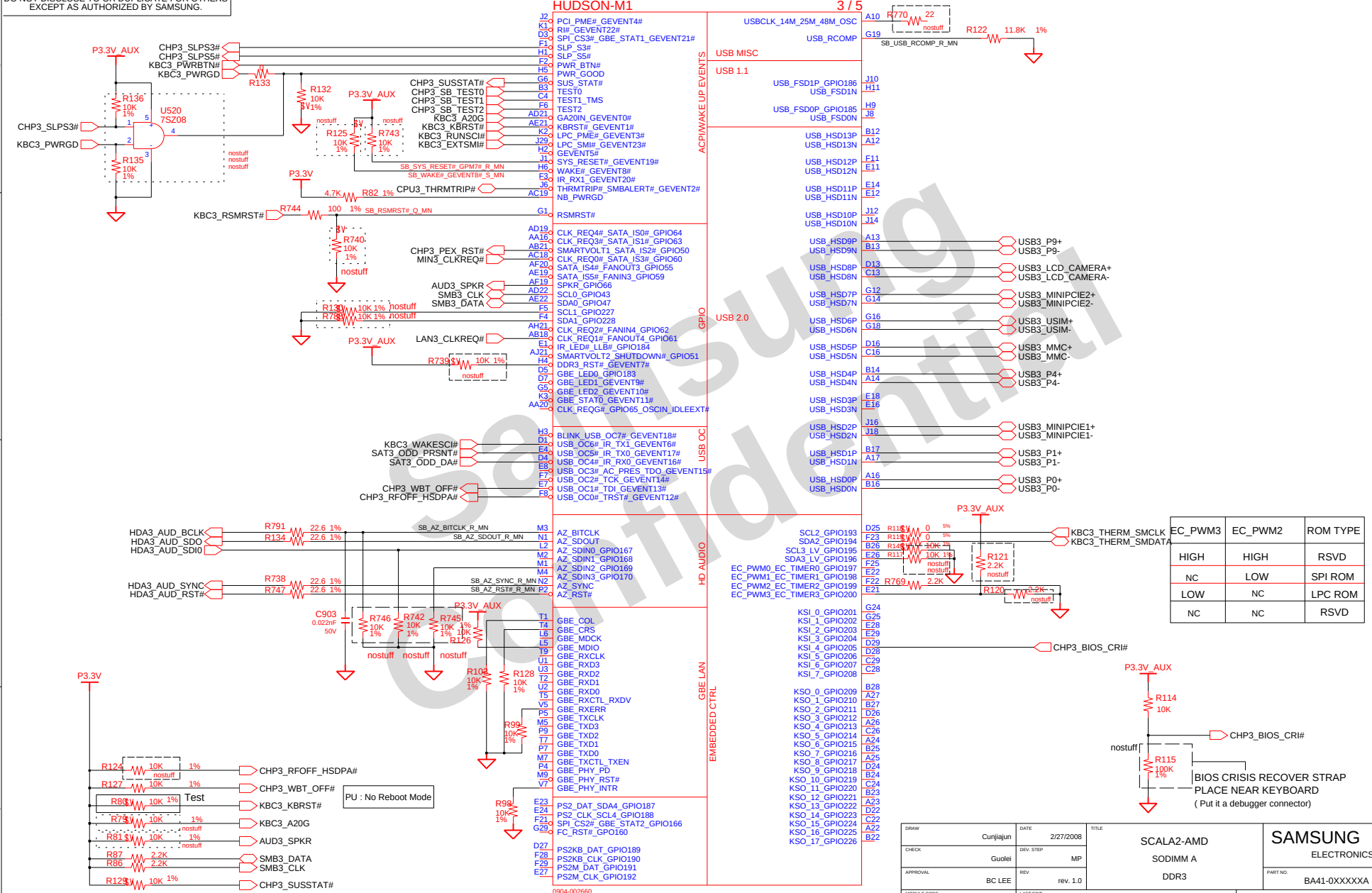
# FCH_HUDSON

U516-3

HUDSON-M1 3 / 5




| EC_PWM3 | EC_PWM2 | ROM TYPE |
|---|---|---|
| HIGH | HIGH | RSVD |
| NC | LOW | SPI ROM |
| LOW | NC | LPC ROM |
| NC | NC | RSVD |

PU : No Reboot Mode

BIOS CRISIS RECOVER STRAP
PLACE NEAR KEYBOARD
( Put it a debugger connector)

| | | | |
|---|---|---|---|
| DRAW: Cunjiajun | DATE: 2/27/2008 | TITLE: SCALA2-AMD SODIMM A DDR3 | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 16 OF 54 | |

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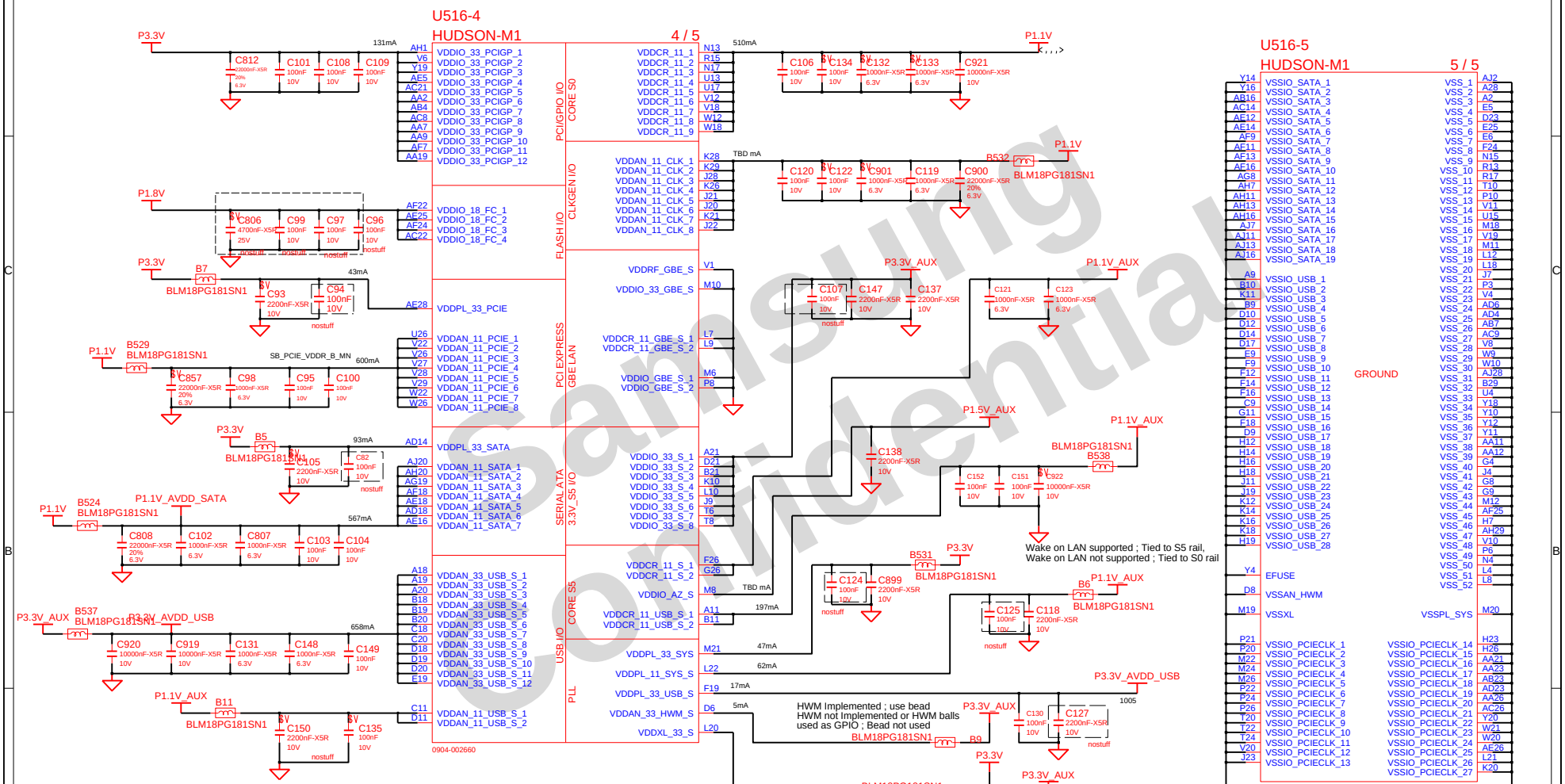
# FCH_HUDSON

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| | | | |
|---|---|---|---|
| DRAW: Cunjiajun | DATE: 2/27/2008 | TITLE: SCALA2-AMD SODIMM B DDR3 | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 17 OF 54 | |

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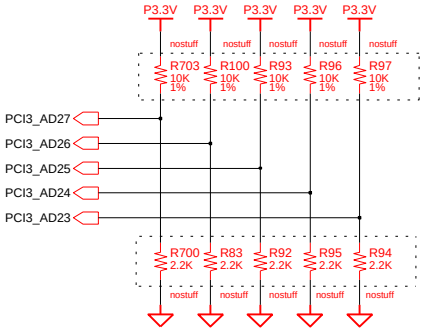
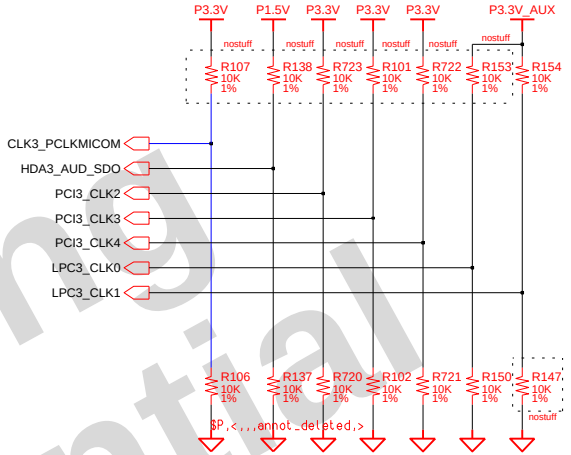
# Strap

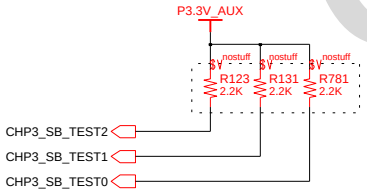



## DEBUG STRAPS

| | PCI3_AD(27) | PCI3_AD(26) | PCI3_AD(25) | PCI3_AD(24) | PCI3_AD(23) |
|---|---|---|---|---|---|
| | Bypass PCI PLL | ILA auto run Enable | Bypass FC CLK | I2C ROM Enable | Booting from PCI memory |
| STRAP HIGH | USE PCI PLL DEFAULT | DISABLE ILA AUTORUN DEFAULT | USE FC PLL DEFAULT | USE DEFAULT PCIE STRAPS DEFAULT | DISABLE PCI MEM BOOT DEFAULT |
| STRAP LOW | BYPASS PCI PLL | ENABLE ILA AUTORUN | BYPASS FC PLL | USE EEPROM PCIE STRAPS | ENABLE PCI MEM BOOT |

| | HDA3_AUD_SDO AZ_SDOUT | PCI3_CLK2 | PCI3_CLK3 | PCI_CLK4 | LPC3_CLK0 | LPC3_CLK1 |
|---|---|---|---|---|---|---|
| PULL HIGH | LOW POWER MODE | Watchdog Timer Enabled | USE DEBUG STRAP | non_Fusion CLOCK MODE | EC ENABLE | CLKGEN ENABLE DEFAULT |
| PULL LOW | PERFORMANCE MODE DEFAULT | Watchdog Timer Disabled DEFAULT | IGNORE DEBUG STRAP DEFAULT | FUSION CLOCK MODE DEFAULT | EC DISABLED DEFAULT | CLKGEN DISABLED |




Remove SB_TEST pins for mass production. (For ASIC debug only - AMD)

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD CPU BGA CPU (4/5) | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 18 OF 54 | |

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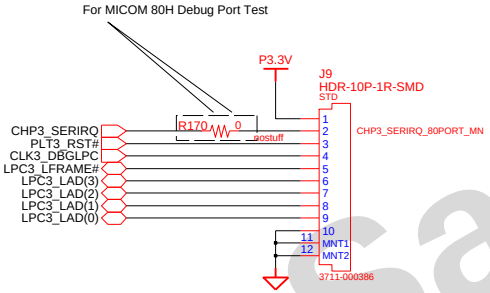
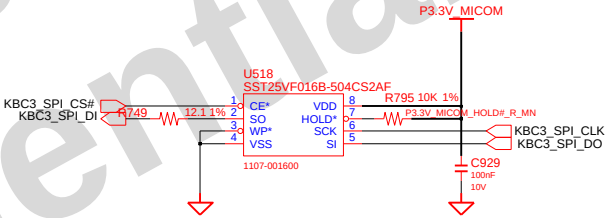
# 80H PORT DEBUG




BE CAUTION SPI ROM SIZE!!

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD DEBUG PORT 80H DECODER | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 19 OF 54 | |

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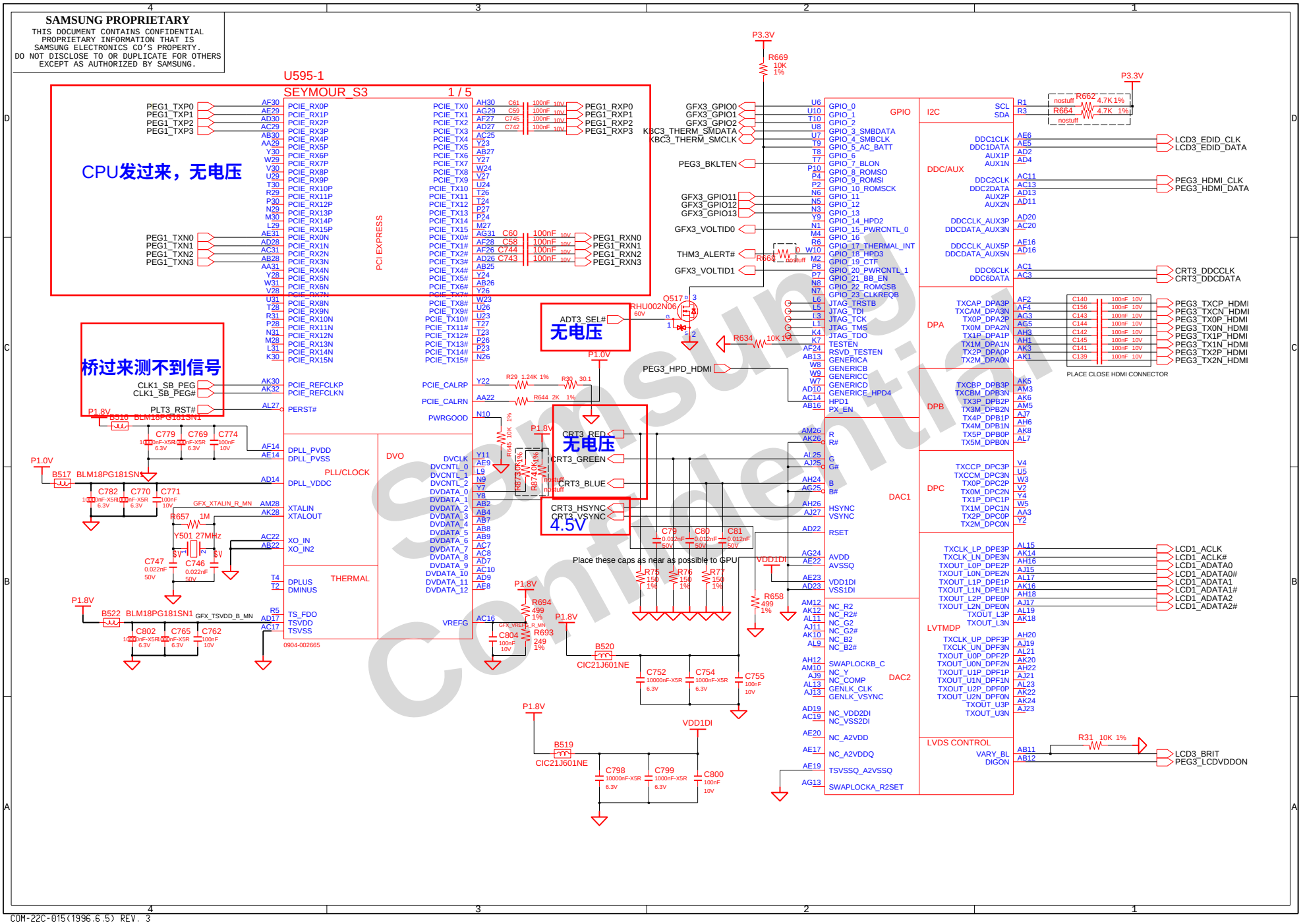


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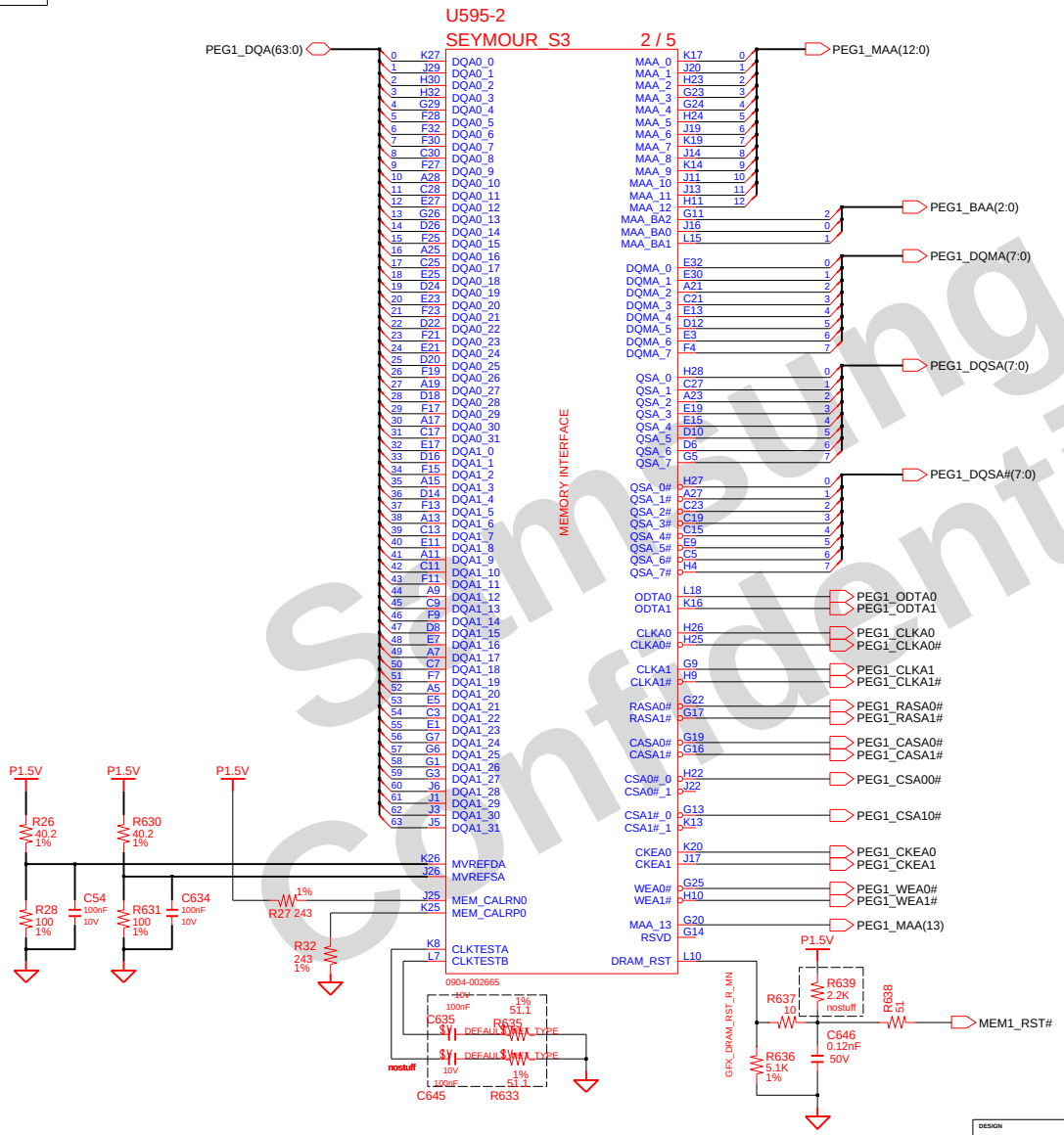


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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 09/16/2010 | TITLE: SCALA2-AMD Programmable Oscillator | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 21 OF 54 | |

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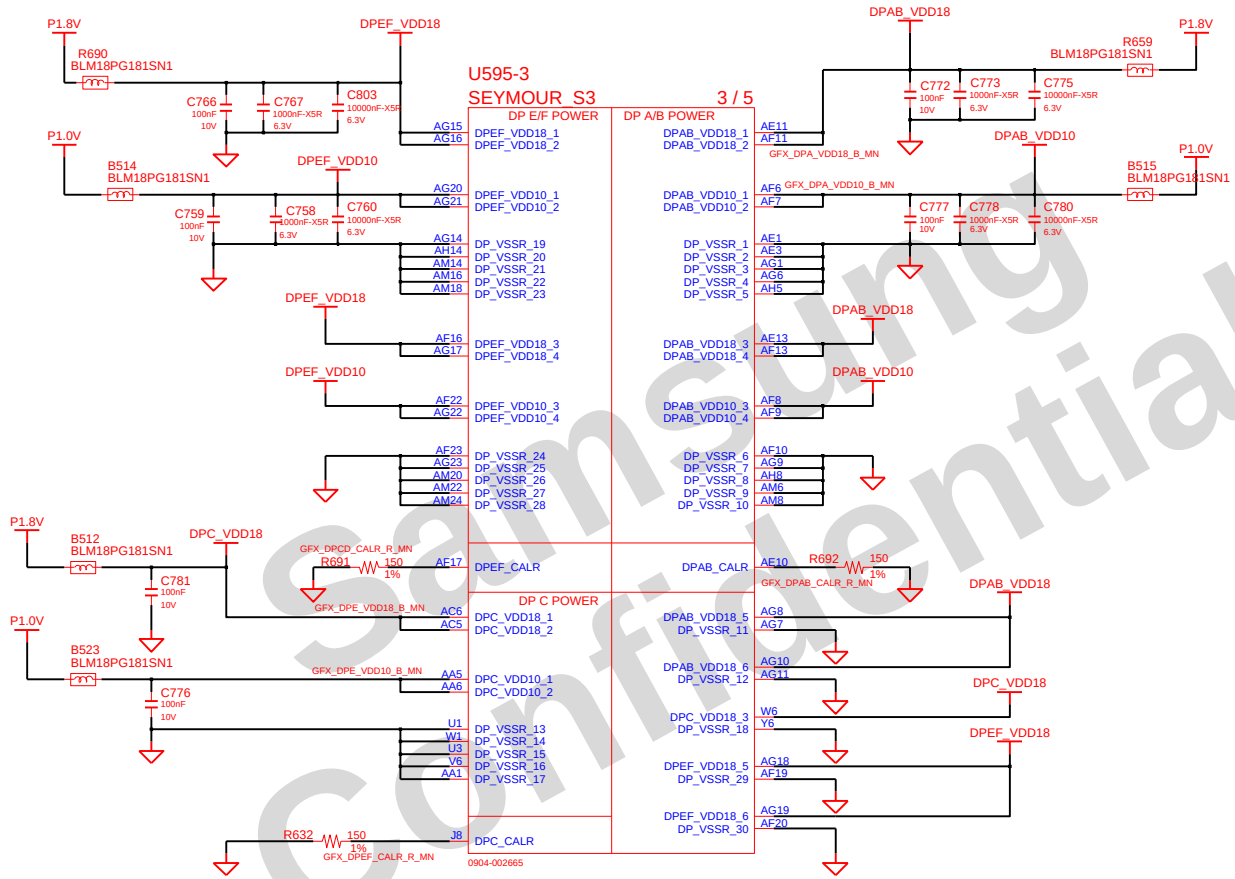


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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 09/16/2010 | TITLE: SCALA2-AMD Programmable Oscillator | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 22 OF 54 | |

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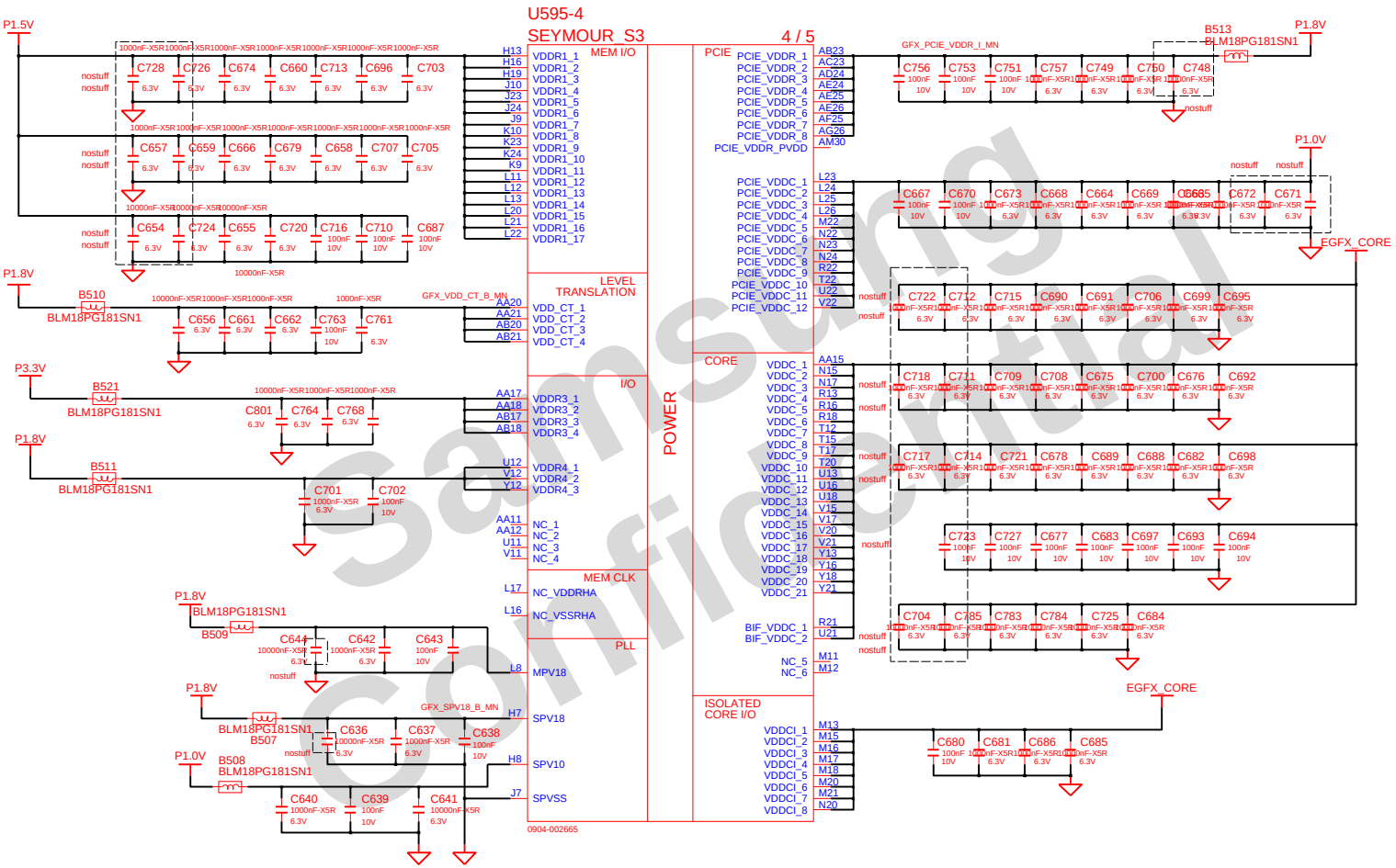


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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 09/16/2010 | TITLE: SCALA2-AMD Programmable Oscillator | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 23 OF 54 | |

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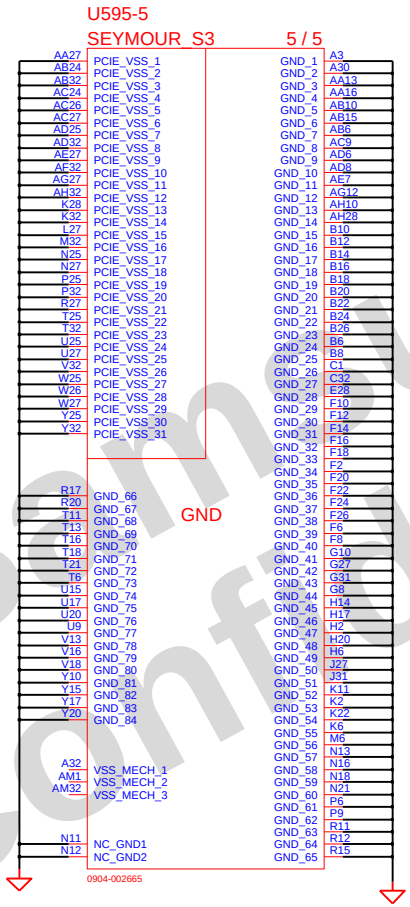


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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 09/16/2010 | TITLE: SCALA2-AMD Programmable Oscillator | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 24 OF 54 | |

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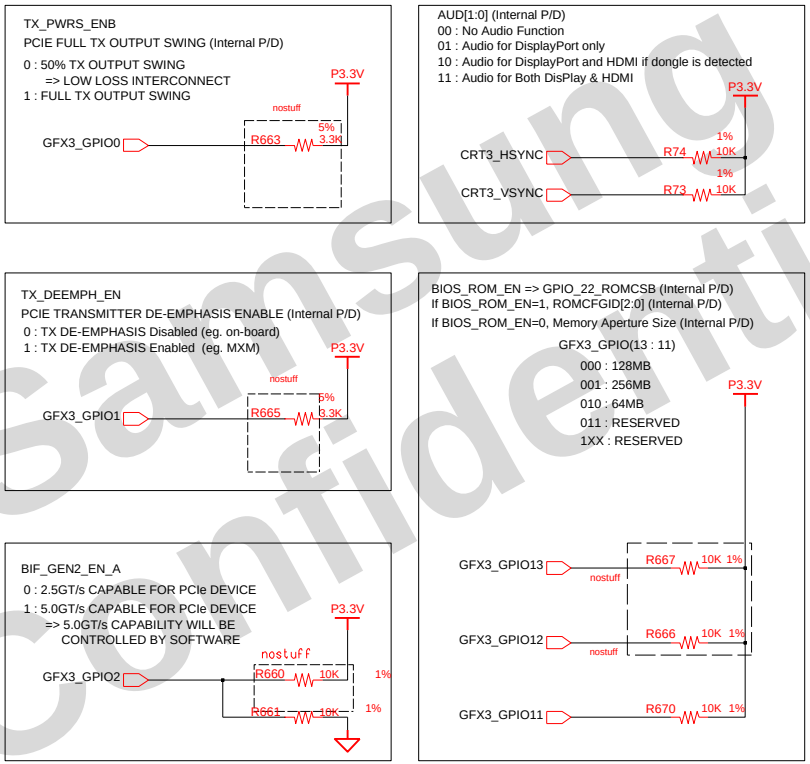
# SEYMOUR/WHISTLER S3 Straps

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 9/3/2009 | TITLE: SCALA2-AMD ICH SB710 (1/5) | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | PART NO.: BA41-0XXXXXA |
| APPROVAL: BC LEE | REV: rev. 1.0 | | |
| MODULE CODE: | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 25 OF 54 | |

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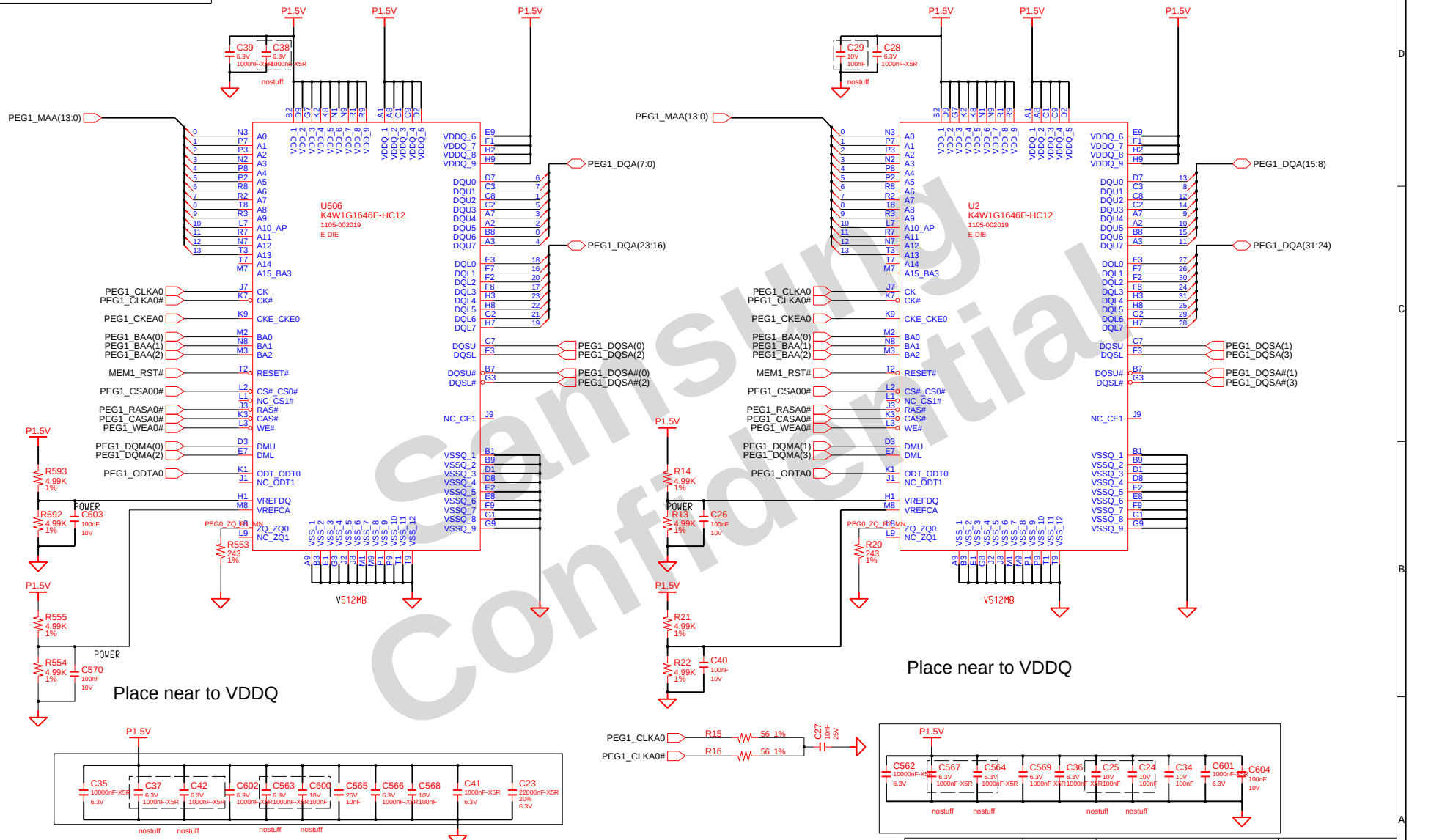
# A-Channel #0

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD N11X_40NM(5/5) N11X_40NM(5/5) | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 26 OF 54 | |

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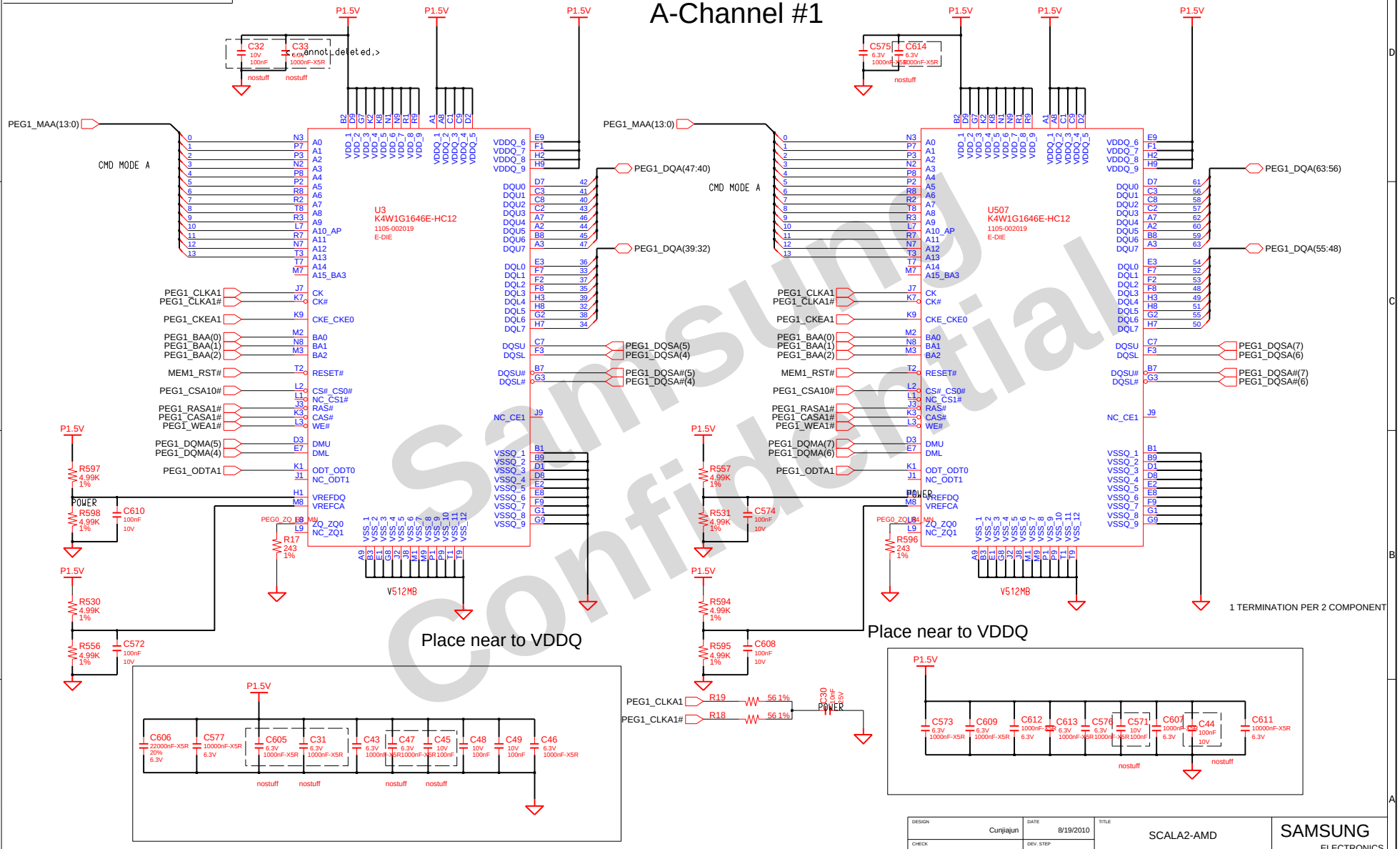
# A-Channel #1

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD GRAPHIC_MEM A#0 GRAPHIC_MEM A#0 | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 27 OF 54 | |

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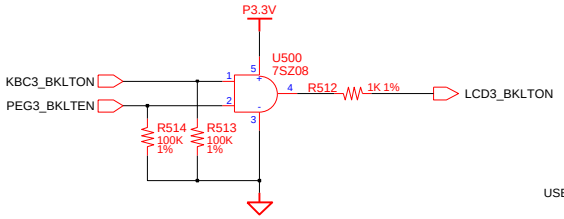
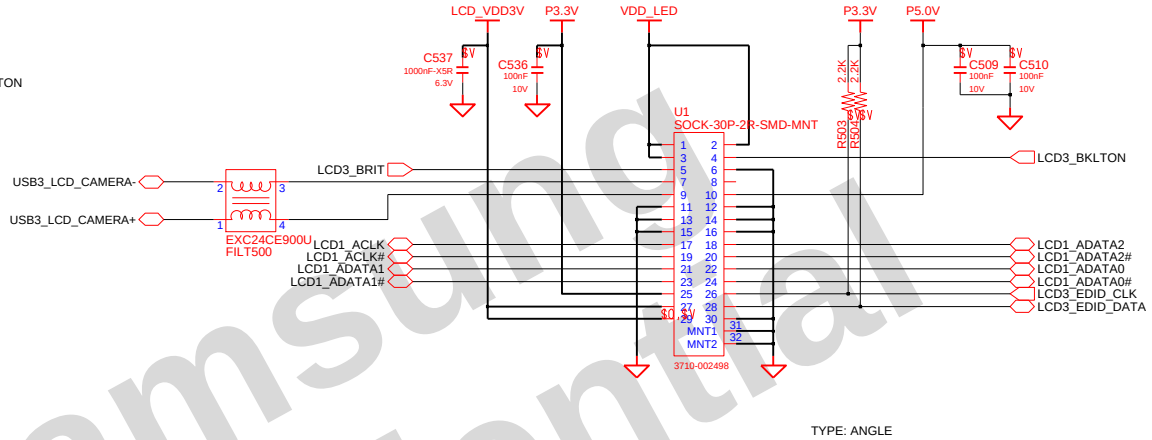
# LVDS LOGIC

## Backlight On

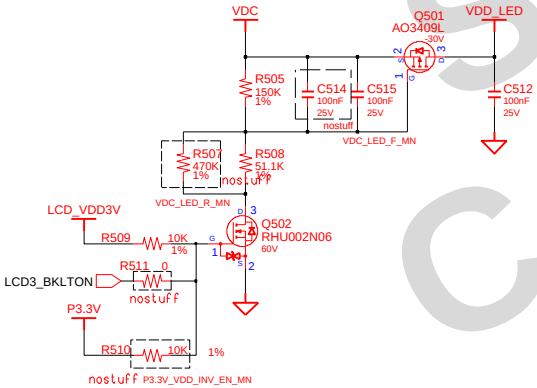



## LCD Connector + CAMERA

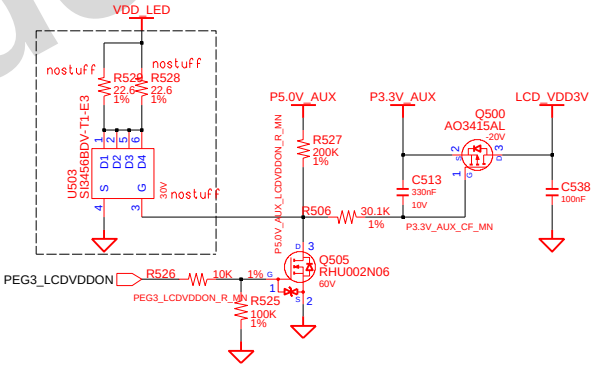



TYPE: ANGLE

## LED Power




## LCD Power

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD GRAPHICS_IF LVDS | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 28 OF 54 | |

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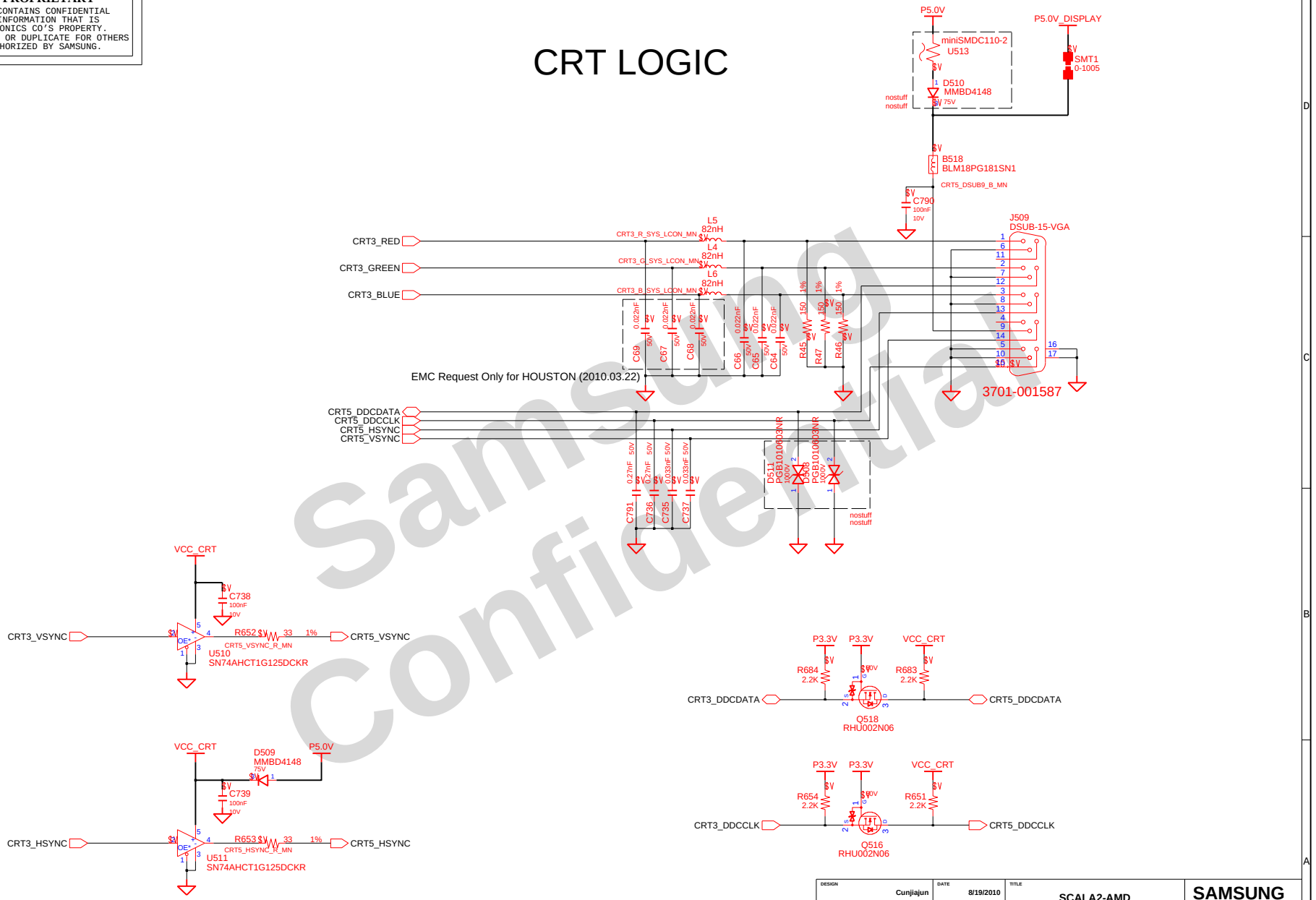
# CRT LOGIC

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD GRAPHICS_IF CRT | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXXA |
| MODULE CODE: | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 29 OF 54 | |

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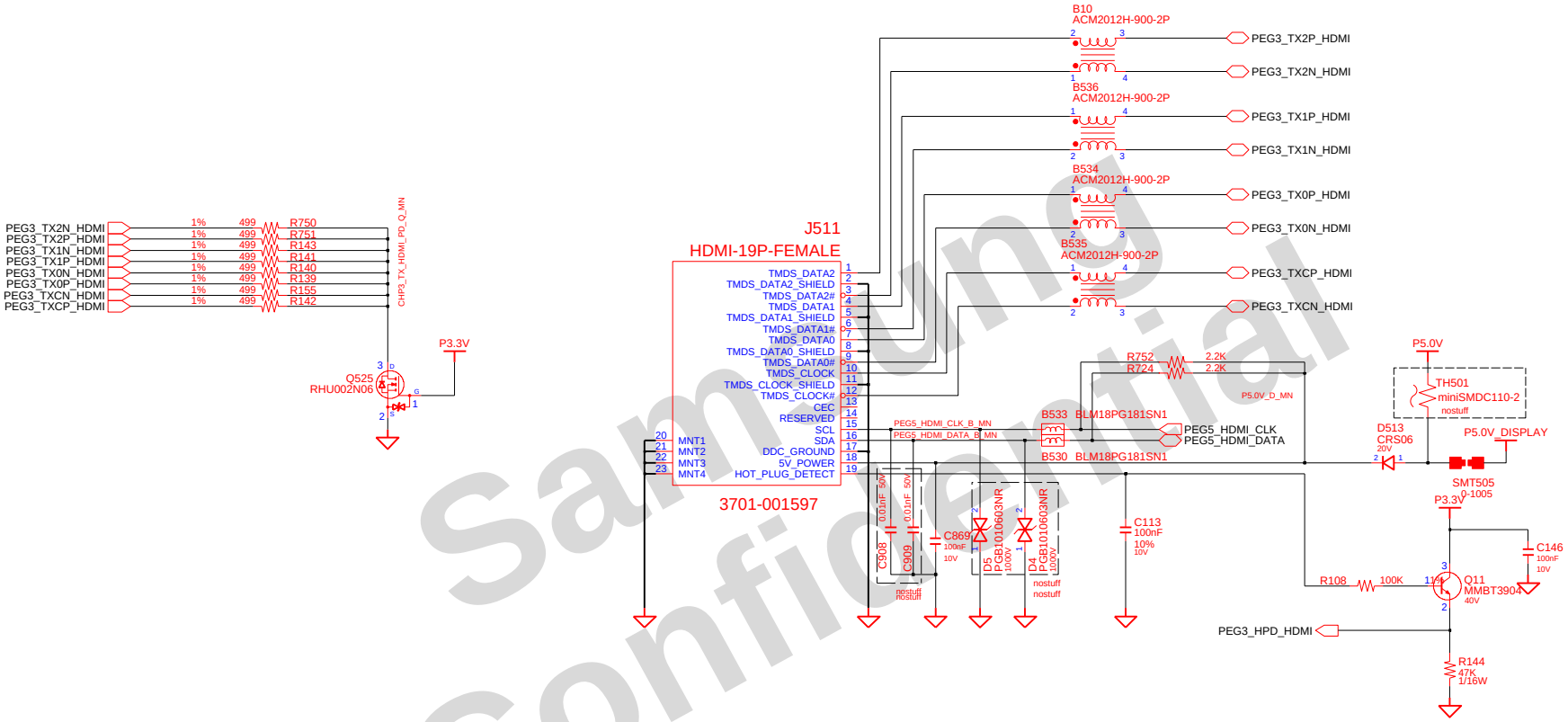
After checking, Houston need to use CMC for each signal.

(EMC request at 2010.04.15)

# HDMI Graphic

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD GRAPHICS_IF HDMI | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 30 OF 54 | |

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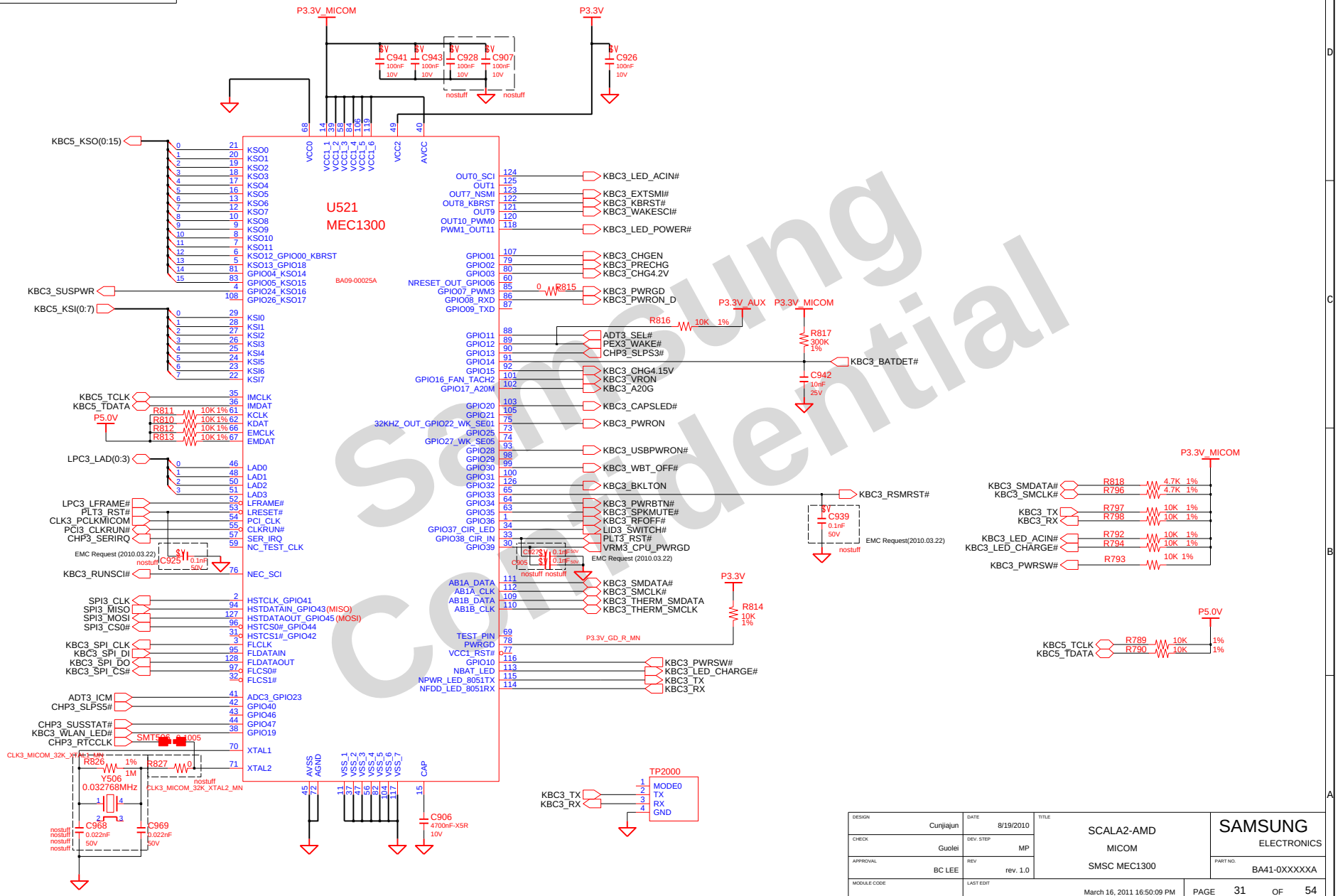
# MAIN BOARD (MICOM)

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD MICOM SMSC MEC1300 | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 31 OF 54 | |

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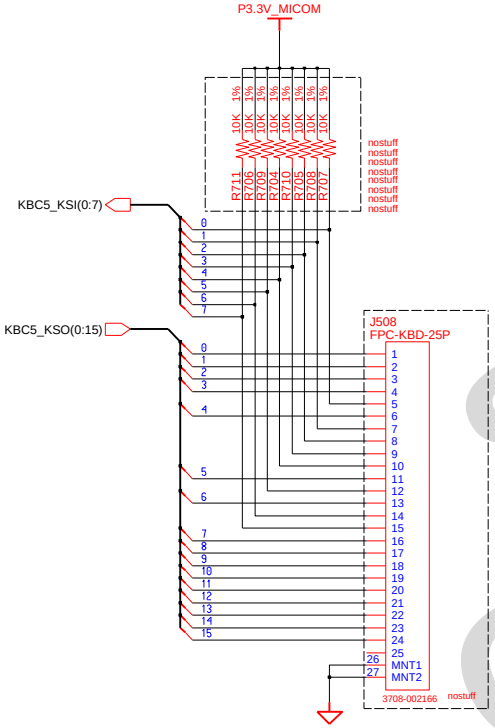
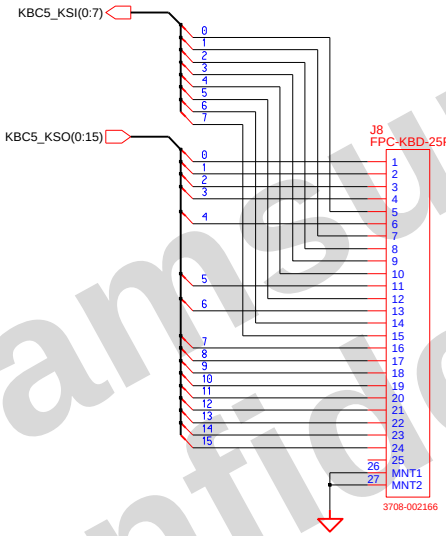
# Micom Glue Logic

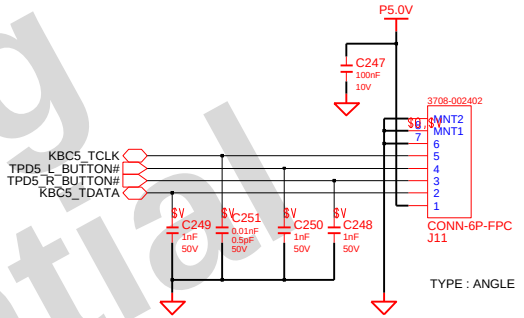
## KEYBOARD on TOP

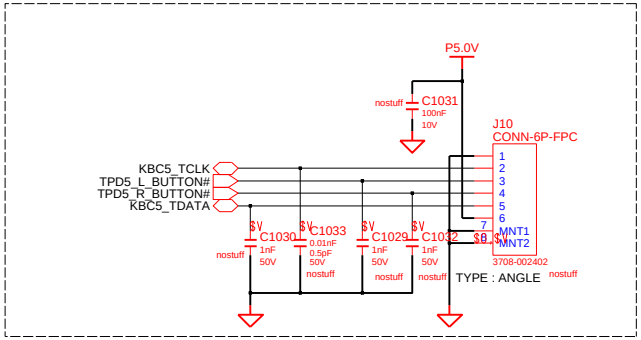



## KEYBOARD on Bottom




## TOUCHPAD

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| | | | |
|---|---|---|---|
| DRAW: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD MICOM GLUE LOGIC | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | MICOM GLUE LOGIC | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 32 OF 54 | |

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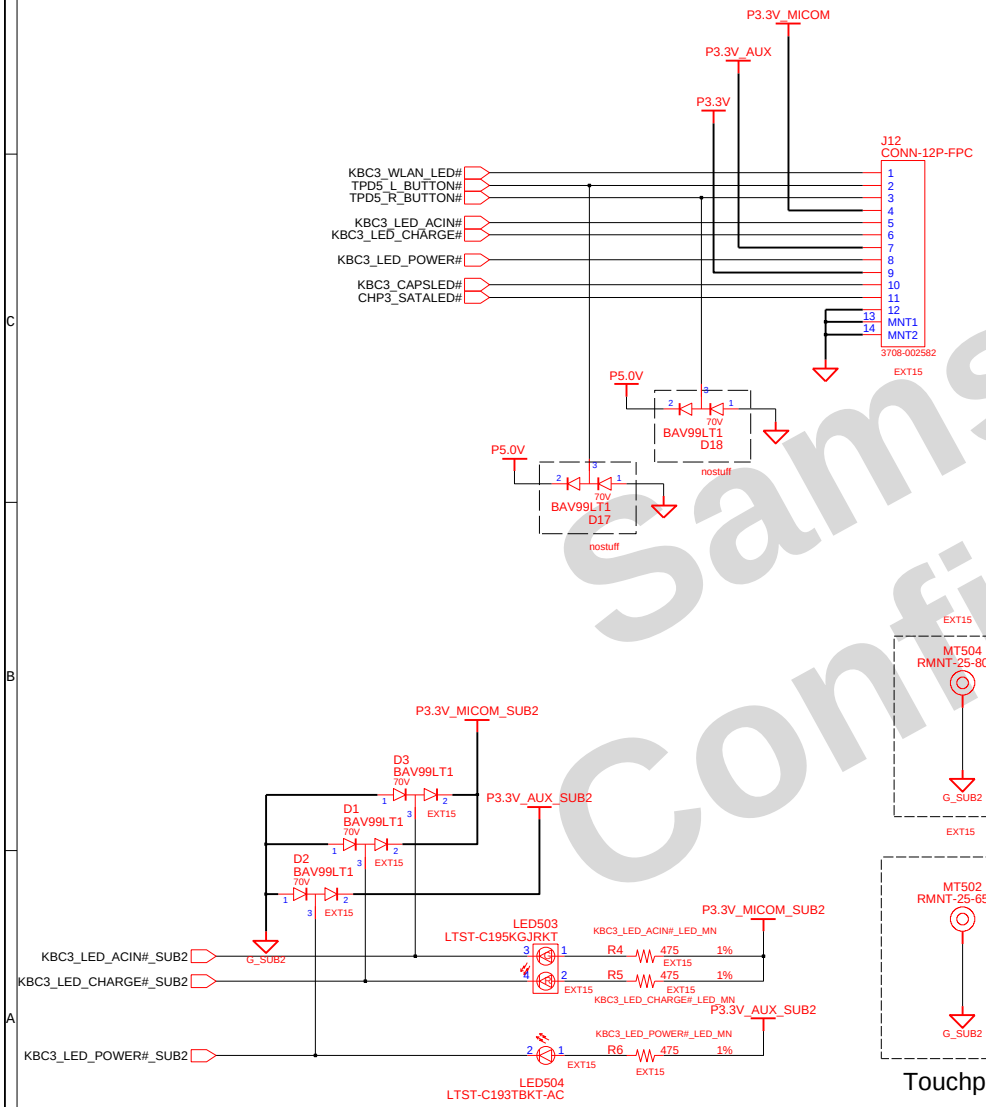
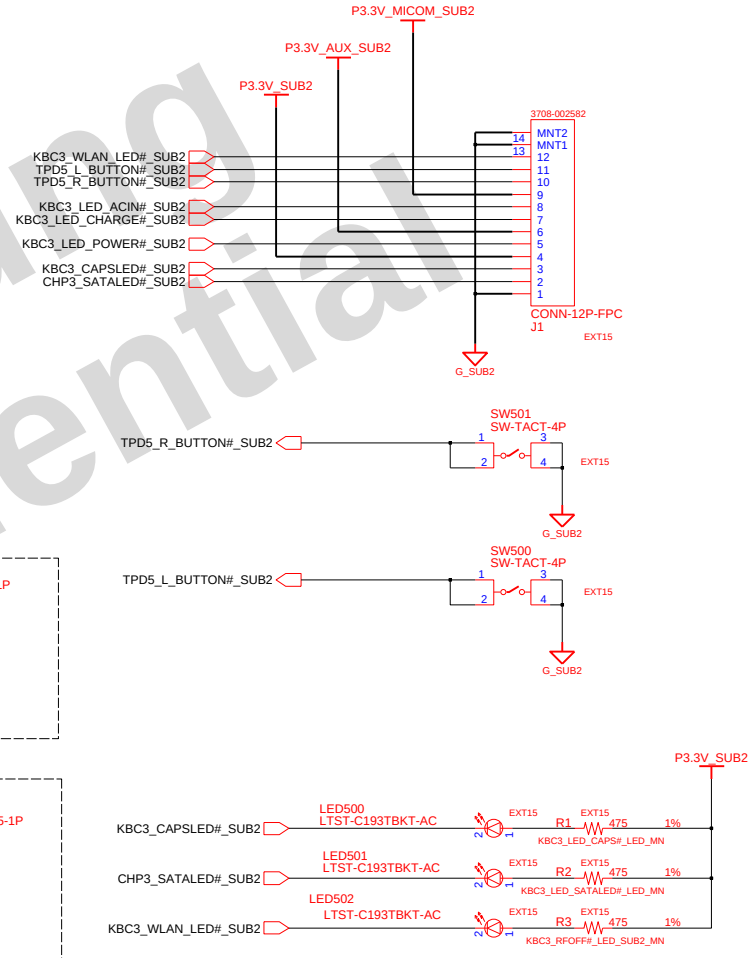
**15.6"**

## TOUCHPAD MAIN TO SUB




## TOUCHPAD SUB TO MAIN

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|---|---|---|---|
| DRAW: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD SUB BOARD4 MULTIMEDIA SUB | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 33 OF 54 | |

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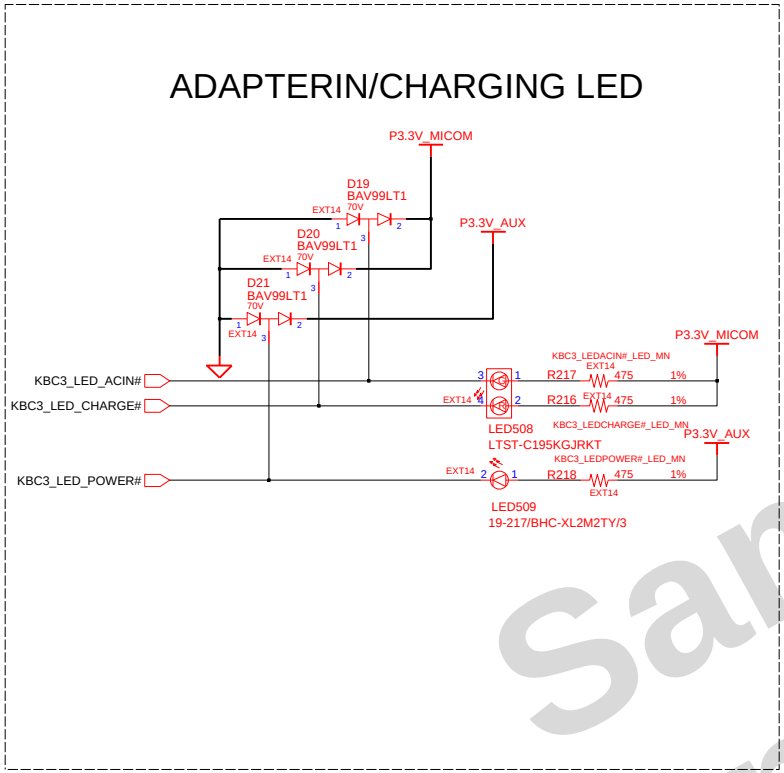
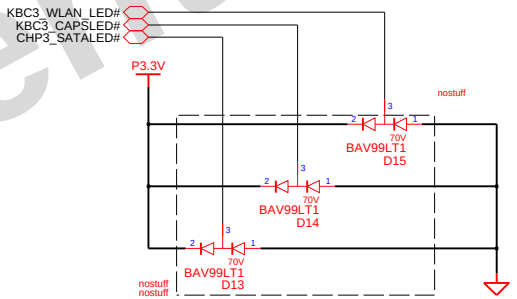
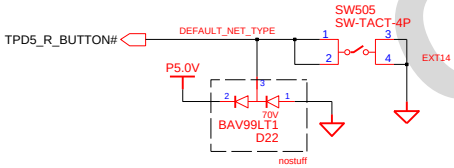
# EXT14

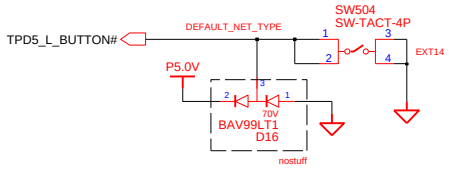
## ADAPTERIN/CHARGING LED




## ADAPTERIN/CHARGING LED

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD MNT hole MNT hole | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 34 OF 54 | |

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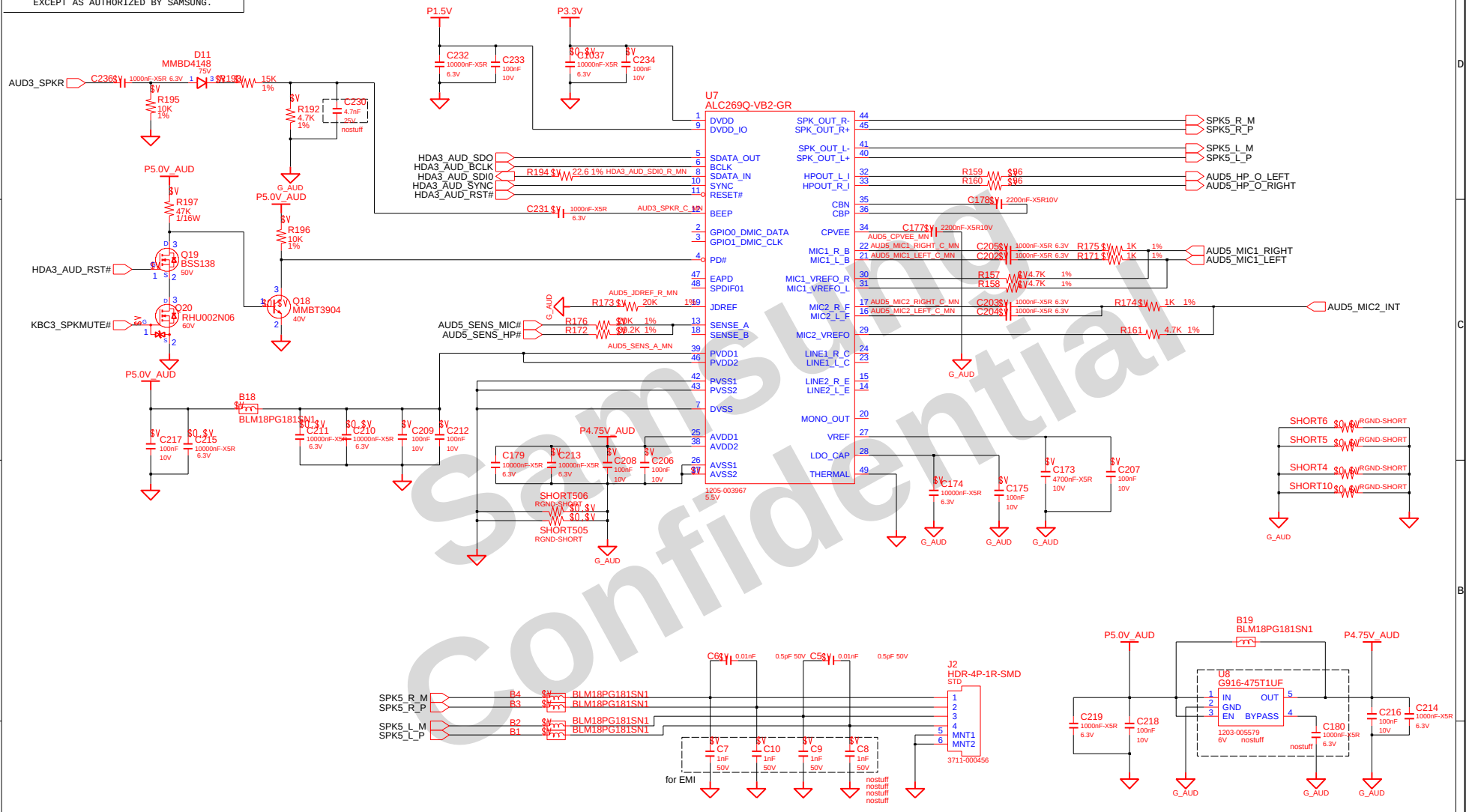
# HD AUDIO

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | HDA_CODEC SUB | |
| APPROVAL: BC LEE | REV: rev. 1.0 | AUDIO CODEC ALC269 SUB | PART NO.: BA41-0XXXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 35 OF 54 | |

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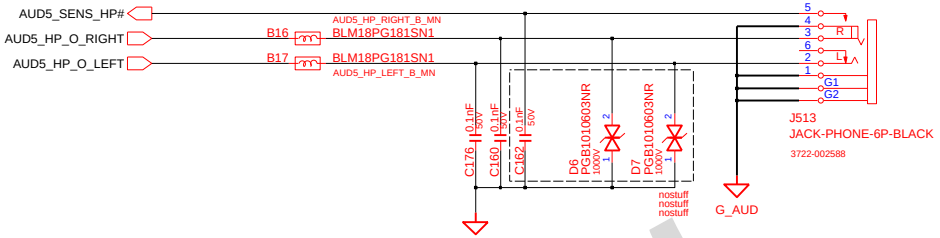
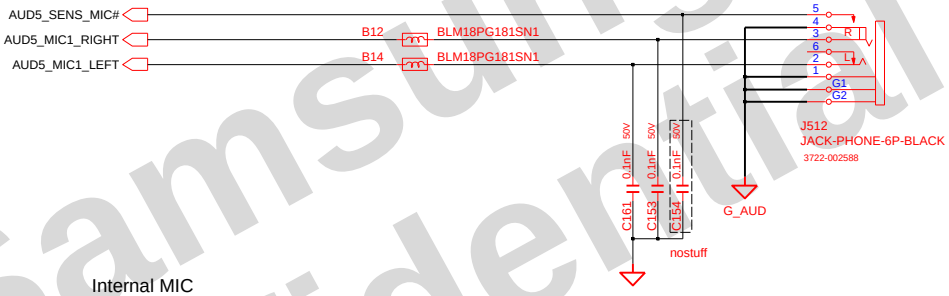
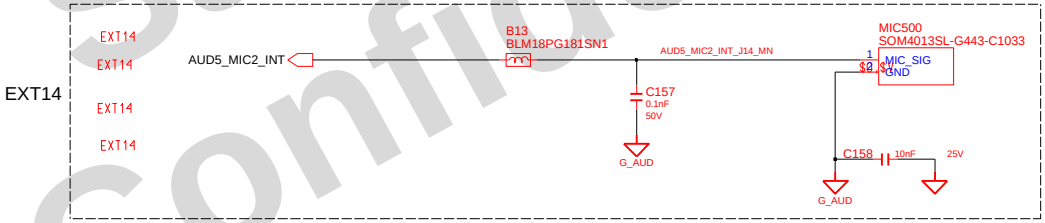
## HEADPHONE

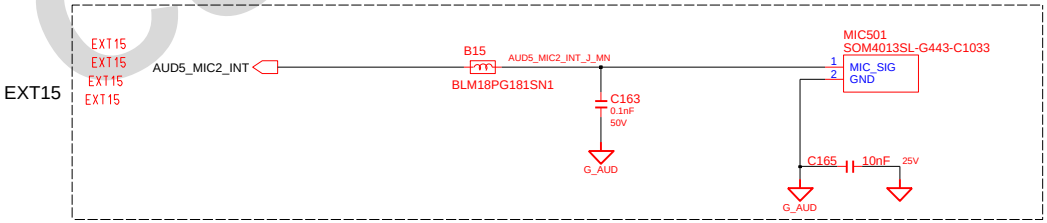


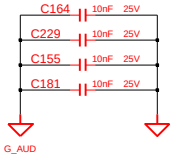

## MIC JACK




## Internal MIC




| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD HDA_CODEC & LED SUB AUDIO JACK & LED SUB | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 36 OF 54 | |

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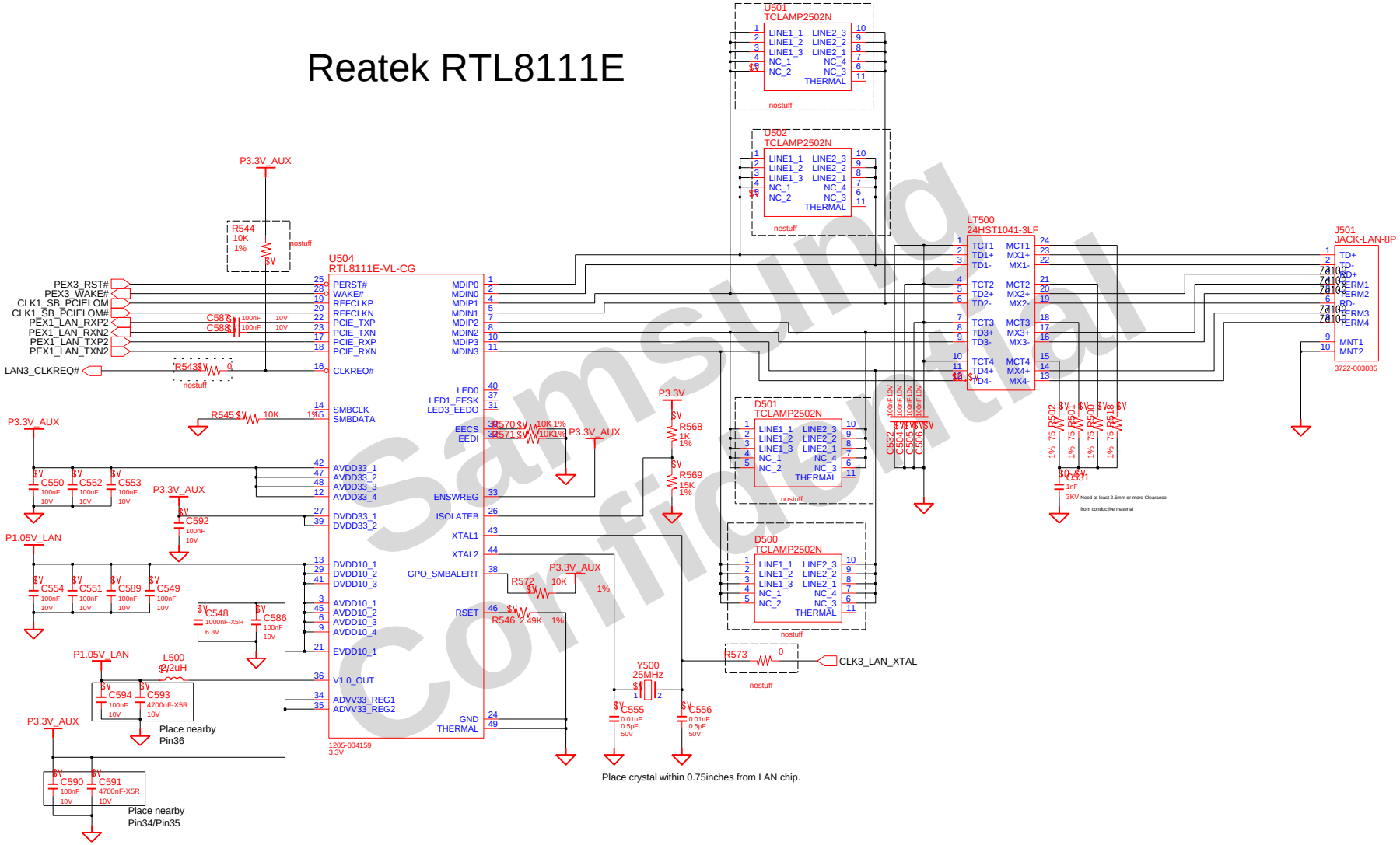
# Reatek RTL8111E

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD LAN LAN_Realtek_RTL8111 | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 37 OF 54 | |

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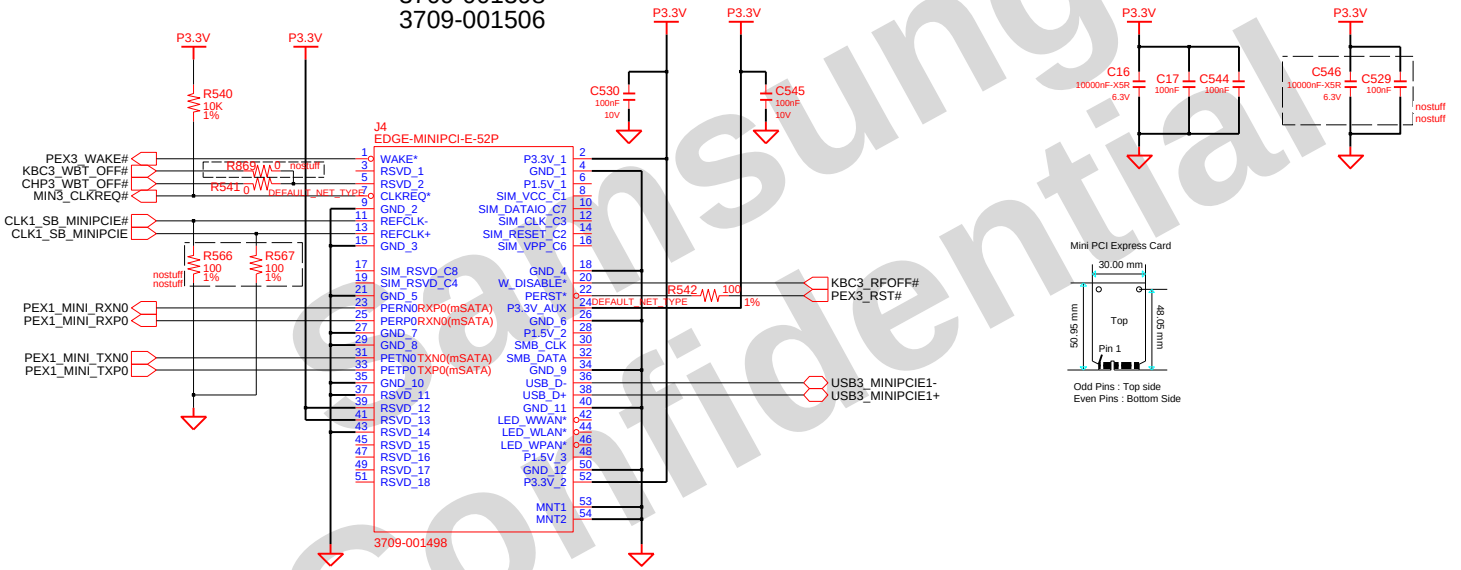
# WLAN
## Height : 7.0mm
3709-001398
3709-001506

AMT 6.0 : P3.3V = P3.3V_ALW (Check?)
wakeup pull-up power rail ?
Puma Peak -WiFi (AMT 6.0)
Kilmer Peak - WiFi/WiMax

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD MULTICARD 3 IN 1 CARD(GL827S) | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 38 OF 54 | |

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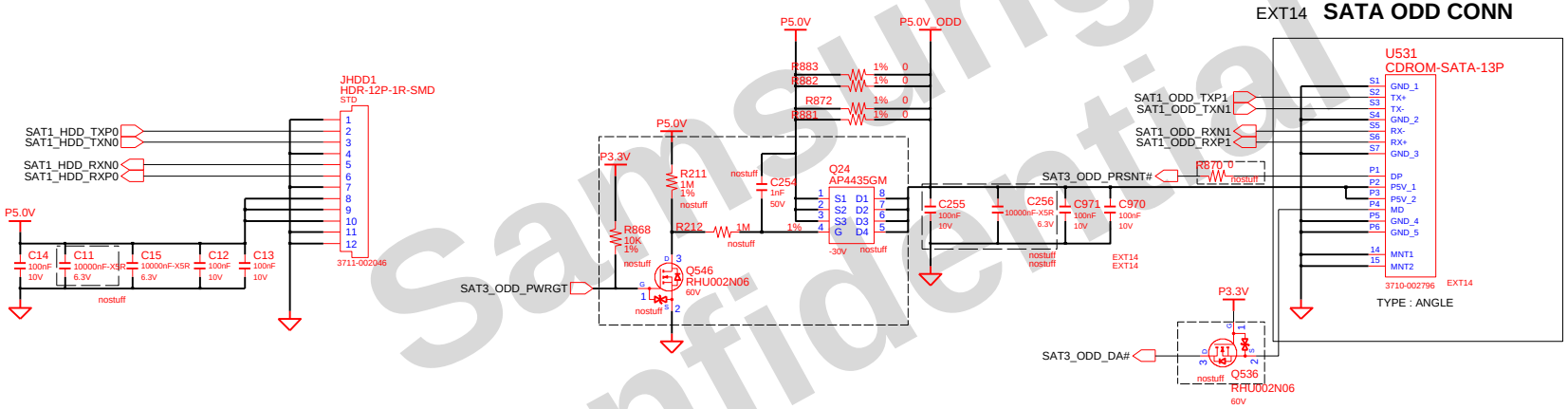
# SATA I/F CONN

## SATA HDD CONN

Cable Connector Type

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD SATA I/F SATA I/F | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | PART NO.: BA41-0XXXXXA |
| APPROVAL: BC LEE | REV: rev. 1.0 | | |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 39 OF 54 | |

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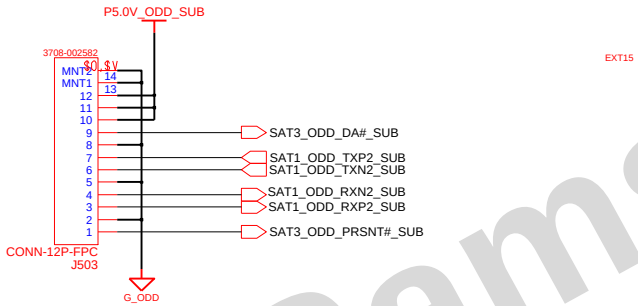
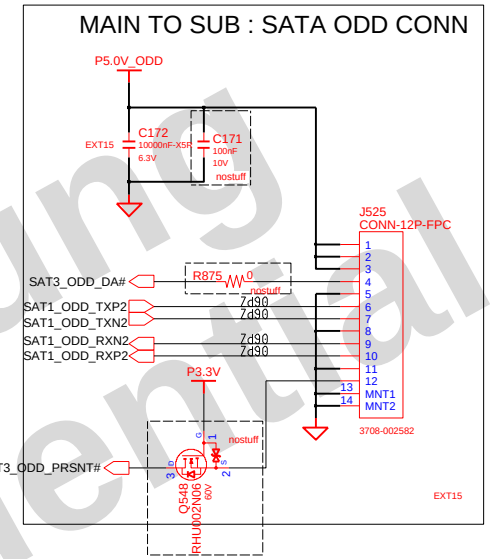
# SATA ODD SUB BOARD EXT15

**15.6"**

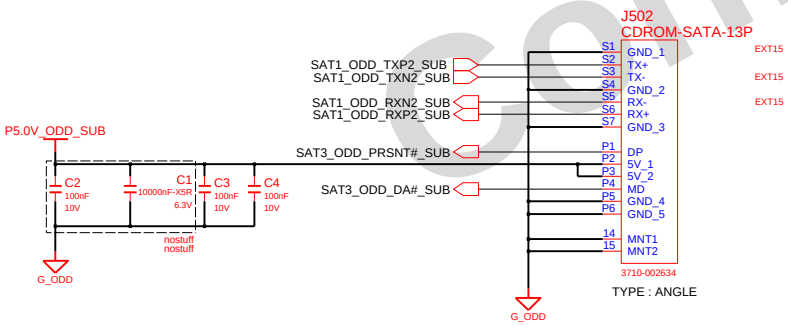
## SUB TO MAIN : SATA ODD CONN

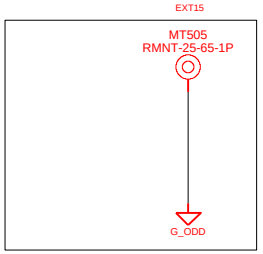



## MAIN TO SUB : SATA ODD CONN




## SATA ODD CONN




ODD sub board mount hole

| | | | |
|---|---|---|---|
| DRAW: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD SUB BOARD3 ODD SUB | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 40 OF 54 | |

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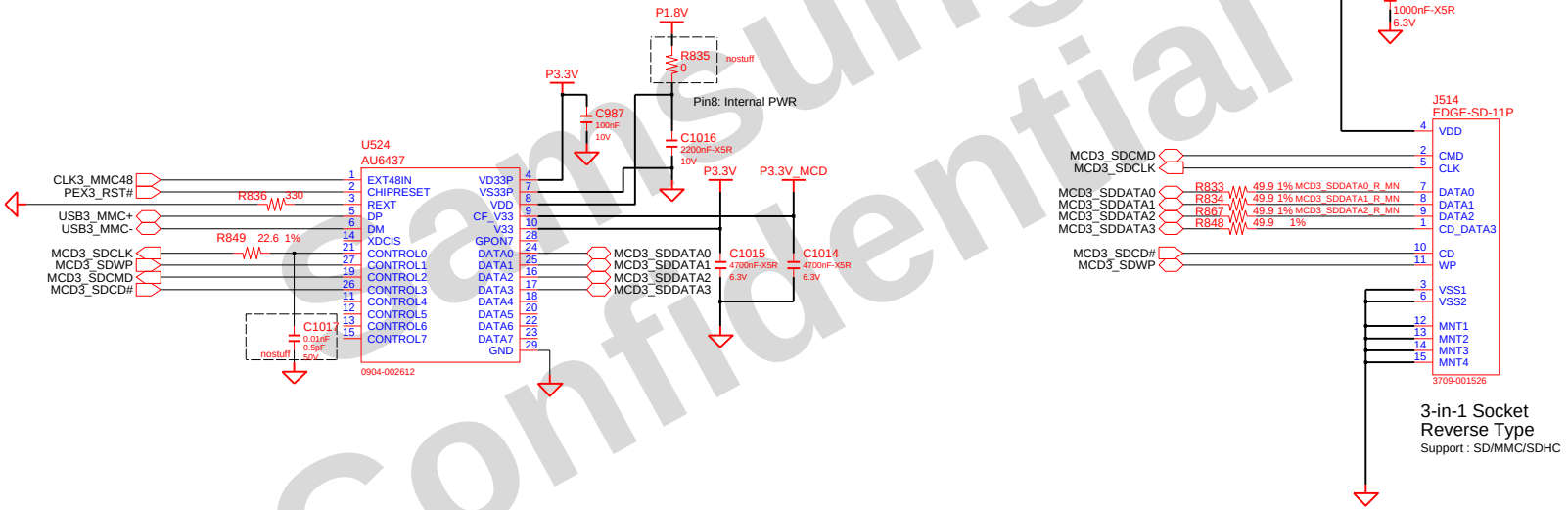
# 3 IN 1 CARD (AU6437)

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD SUB BOARD2 3 in 1 SUB | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 41 OF 54 | |

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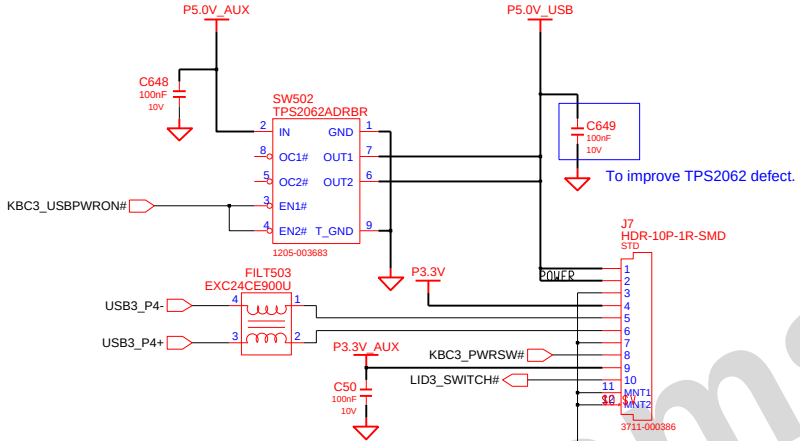
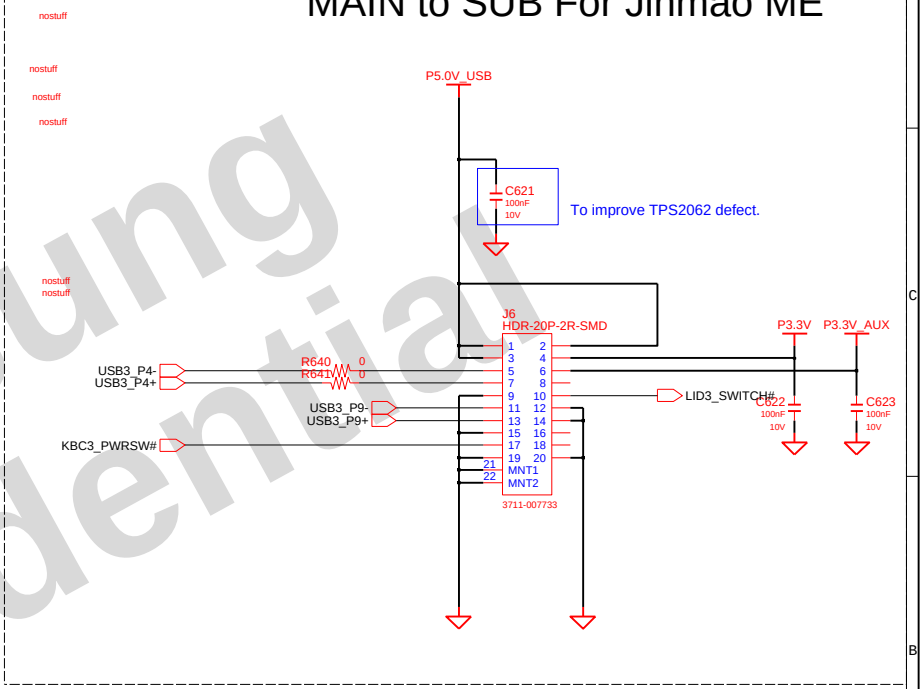
# POWER S/W SUB B'D CONNECTOR

## MAIN to SUB

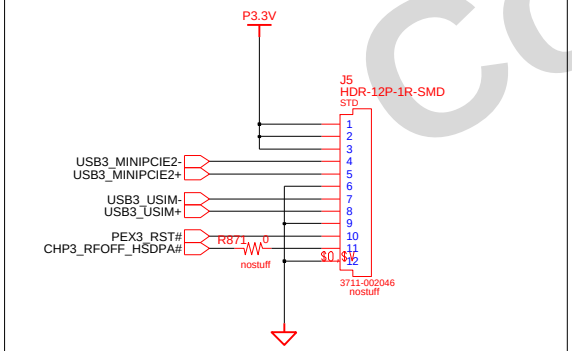


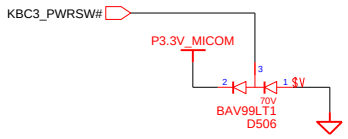

## POWER S/W SUB B'D CONNECTOR

## MAIN to SUB For Jinmao ME




## HSPA MAIN TO SUB CONN

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD USB_CONN USB CONNECTOR | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 42 OF 54 | |

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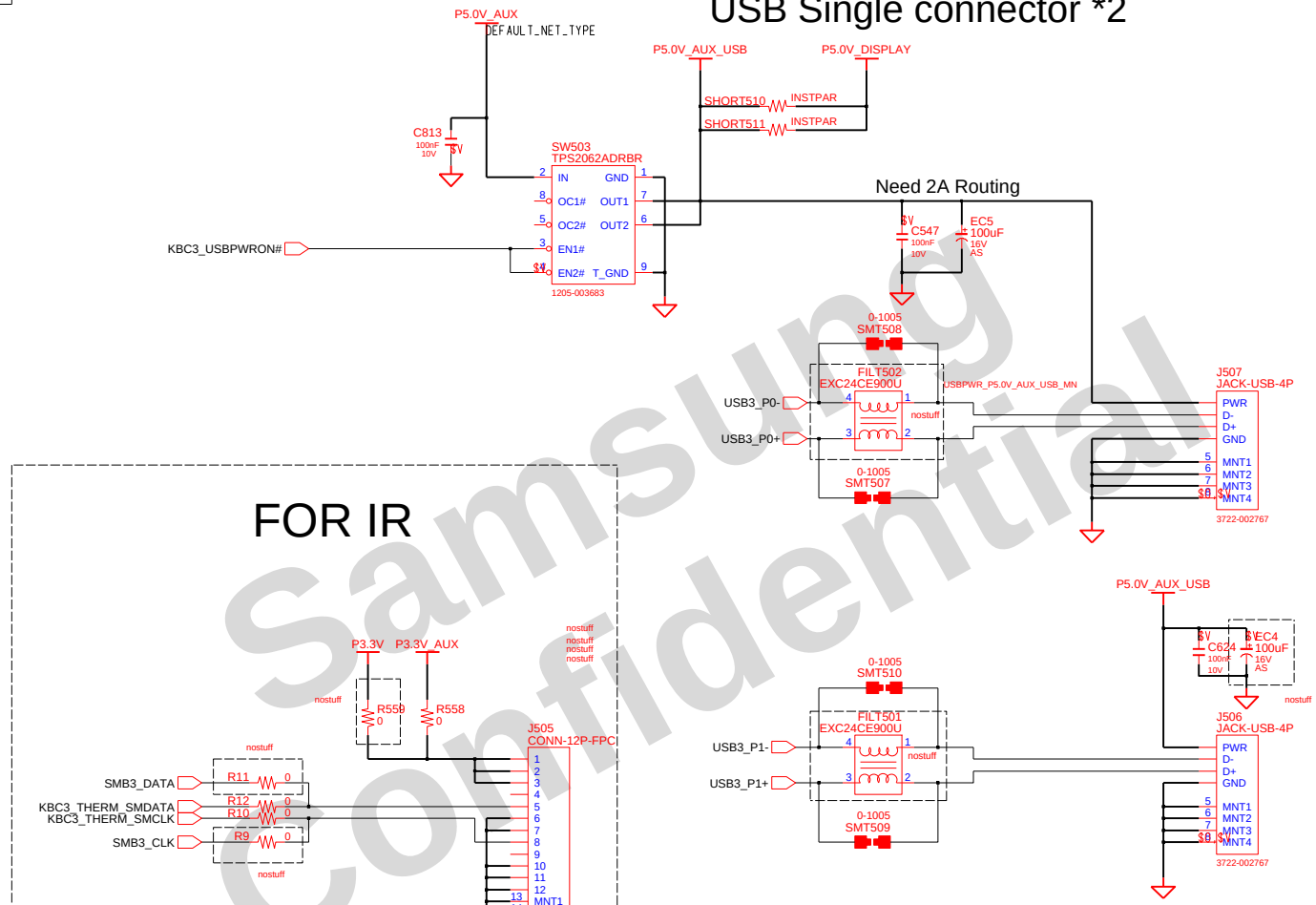
# USB Single connector *2

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| | | | |
|---|---|---|---|
| DRAW: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD<br>USB CONN & BLUETOOTH<br>USB | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 43 OF 54 | |

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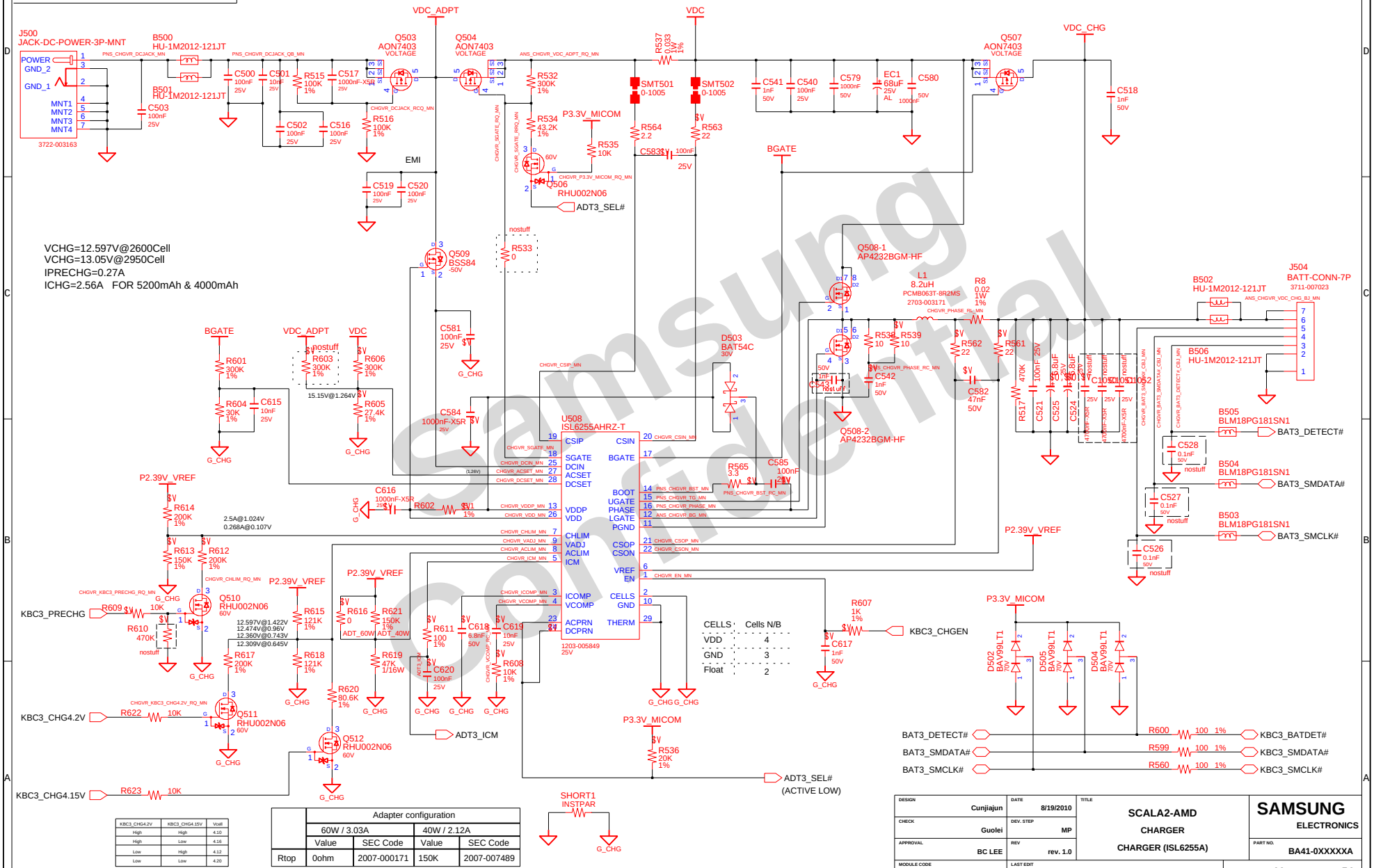
# CHARGER & POWER MANAGEMENT

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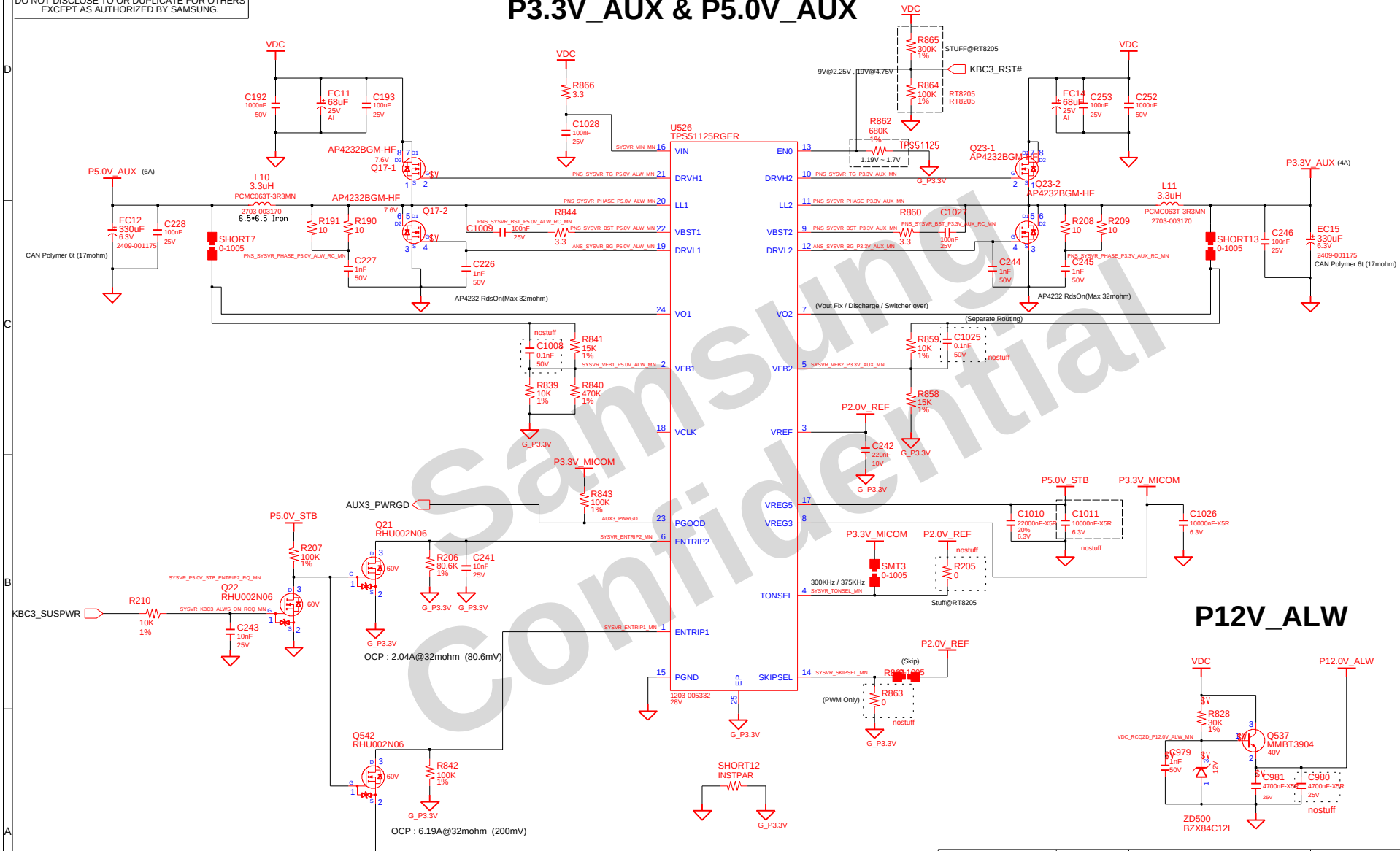
# P3.3V_AUX & P5.0V_AUX




# P12V_ALW




| | | | |
|---|---|---|---|
| DRAW: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD PWR CP 3V_5V P3.3V_AUX / P5.0V_AUX | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXXA |
| MODULE CODE: undefined | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 45 OF 54 | |

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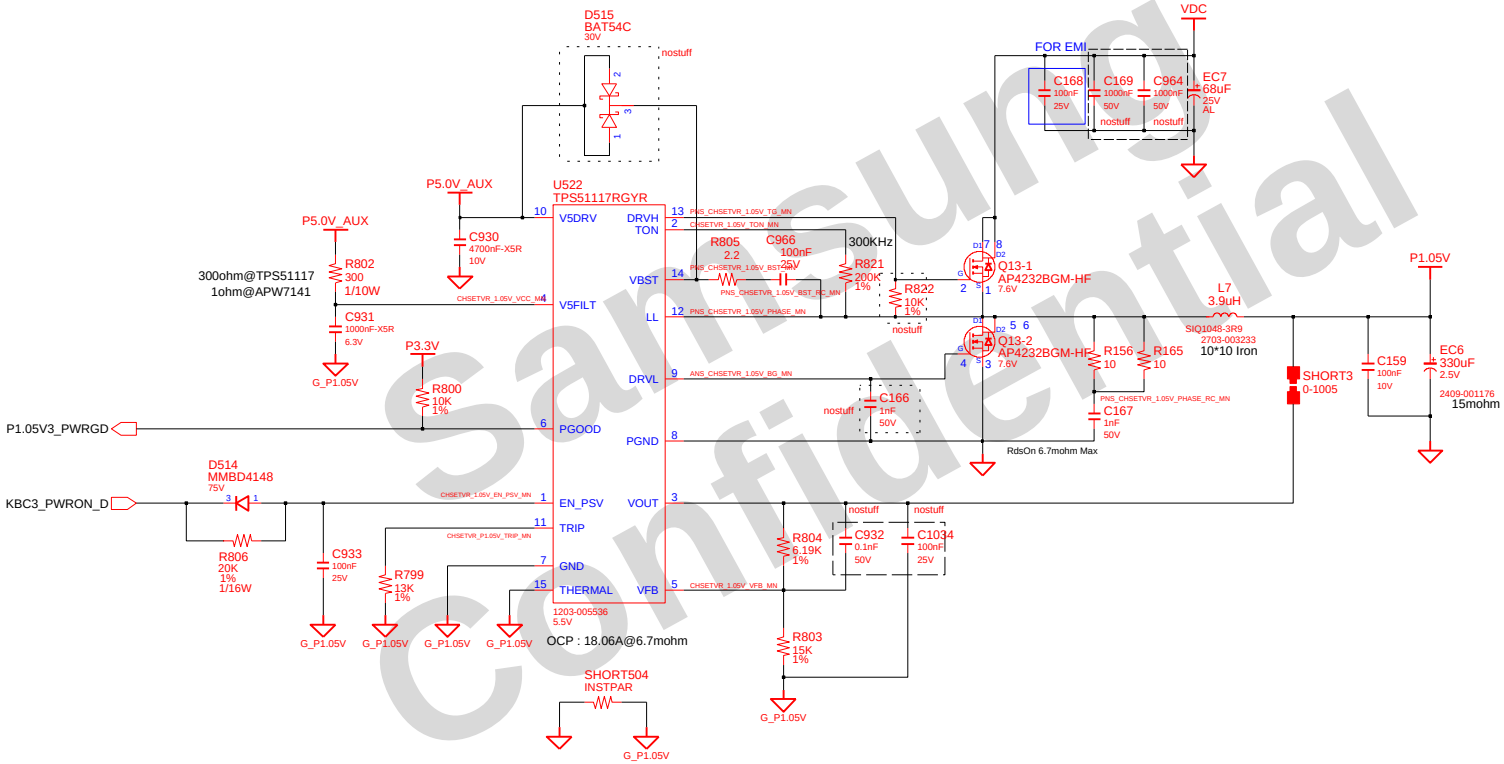
# CHIPSET POWER(P1.05V)

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD / P1.05V / TI TPS51117R | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 46 OF 54 | |

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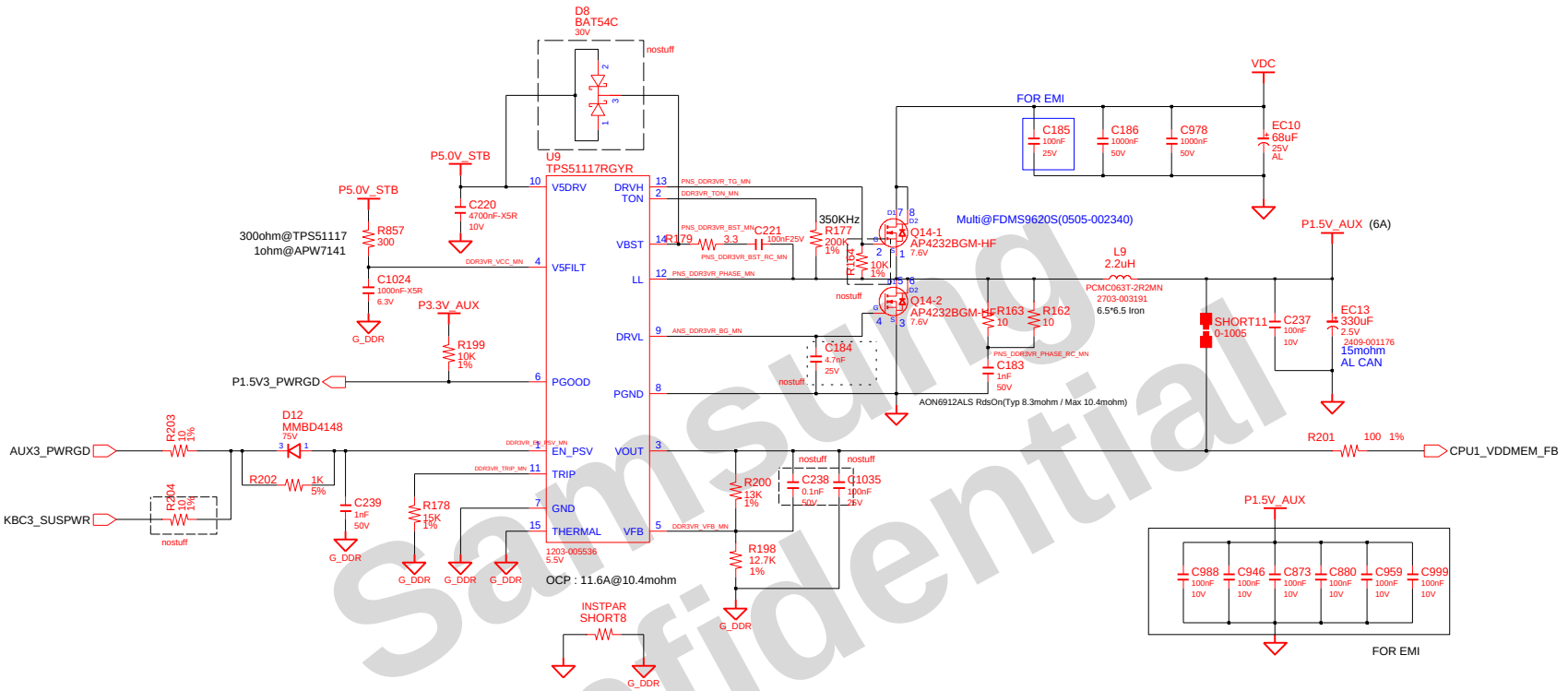
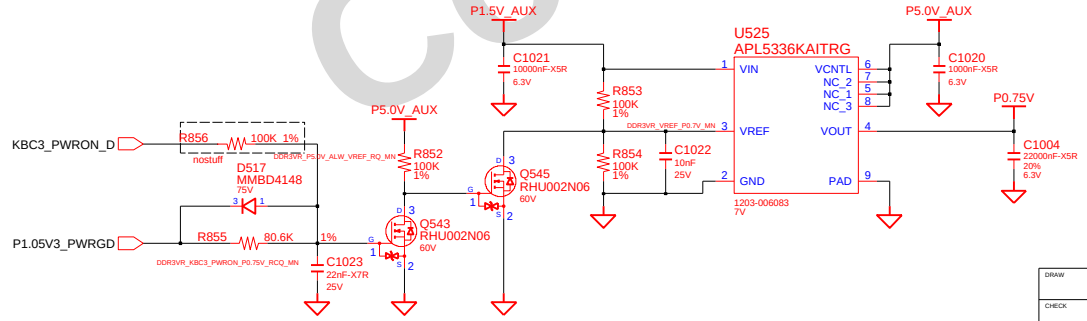
# DDR3 Power




# DDR3 VTT(0.75V)




| | | | |
|---|---|---|---|
| DRAW: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD PWR MEMORY RT8207 | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: undefined | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 47 OF 54 | |

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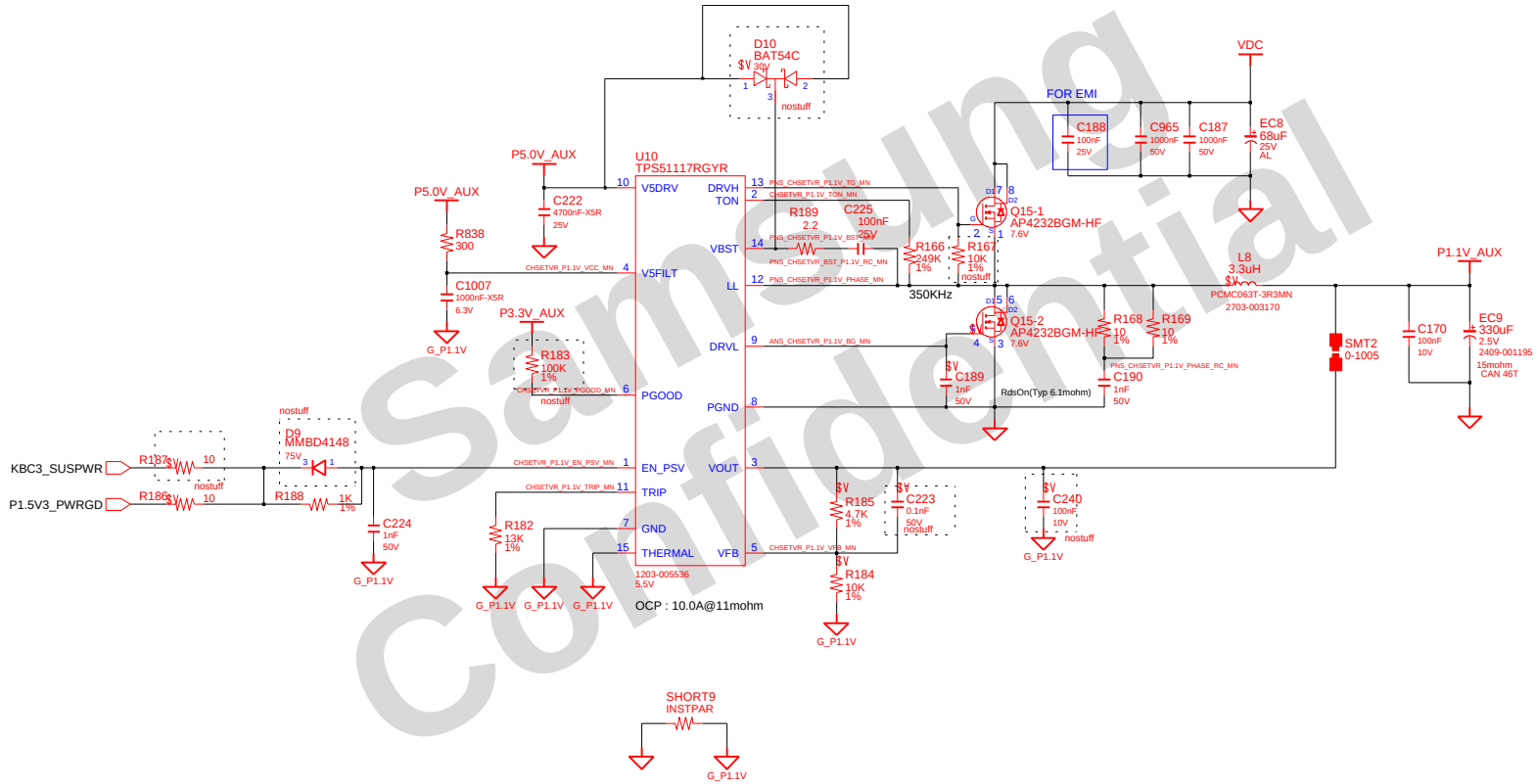
# CHIPSET POWER(P1.1V_AUX)

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 9/23/2008 | TITLE: SCALA2-AMD USB_CONN USB & eSATA | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | PART NO.: BA41-0XXXXXA |
| APPROVAL: BC LEE | REV: rev. 1.0 | | |
| MODULE CODE: | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 48 OF 54 | |

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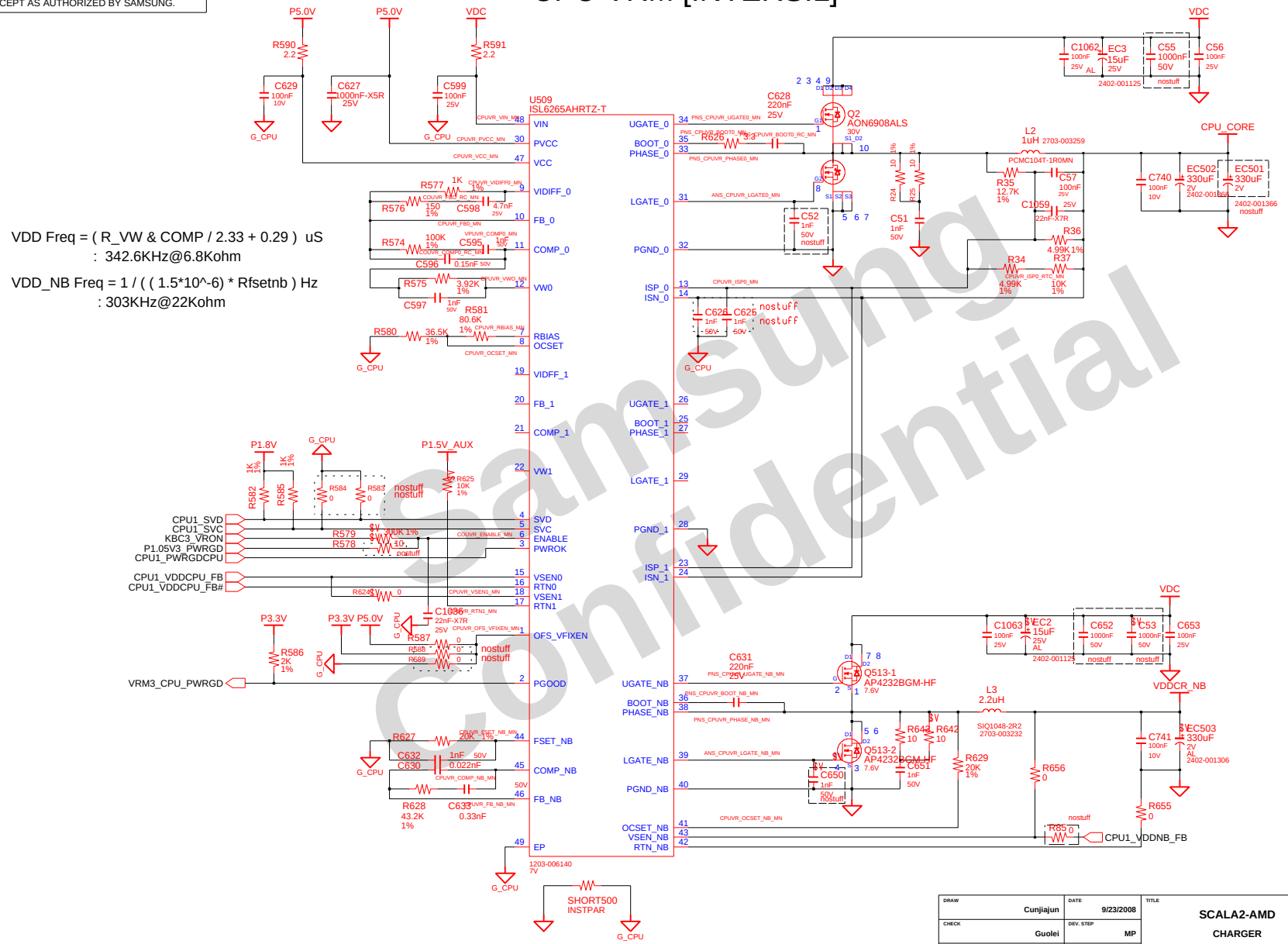
# CPU VRM [INTERSIL]

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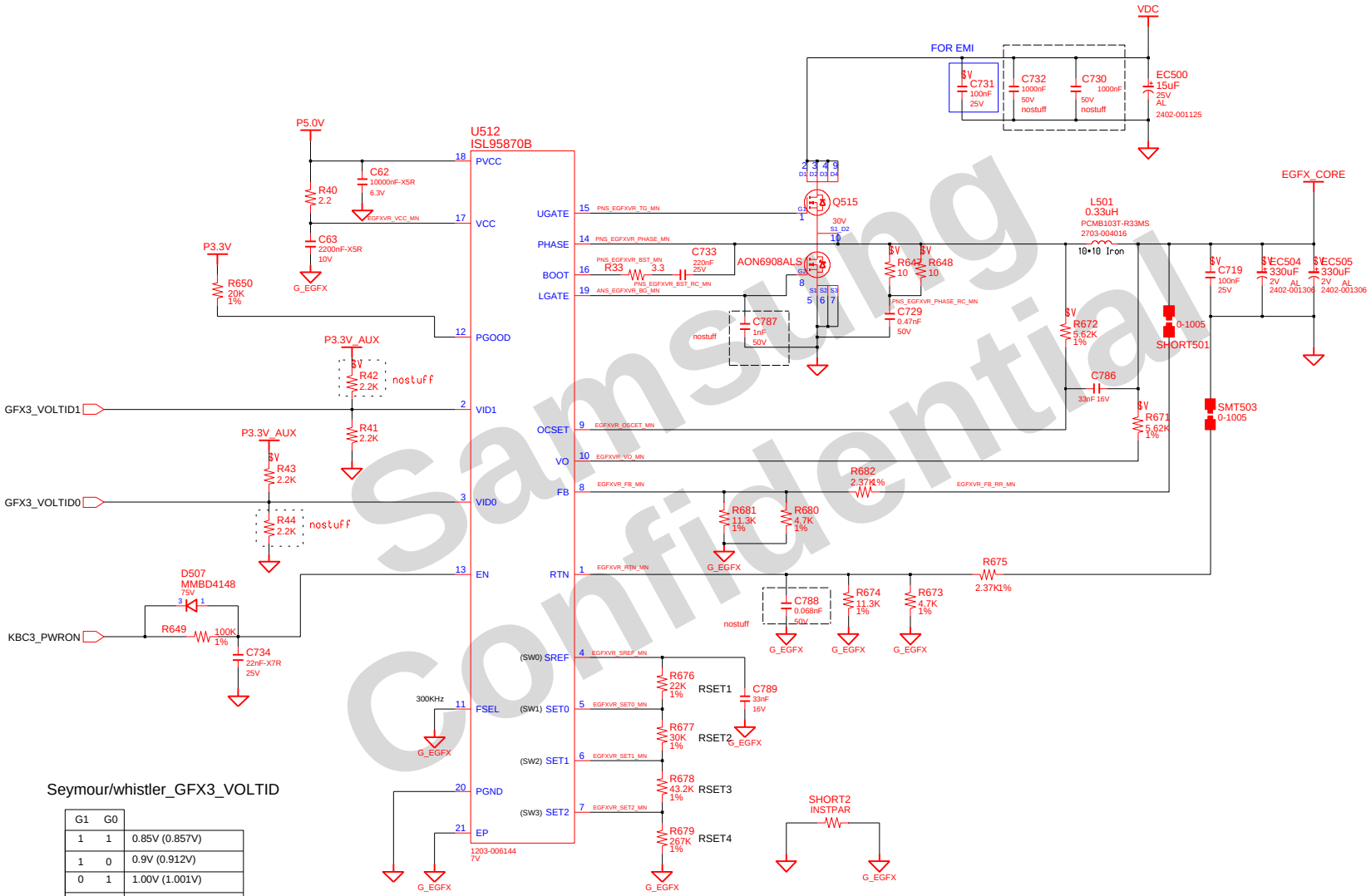
# External GFX Core Power




Seymour/whistler_GFX3_VOLTID

| G1 | G0 | |
|---|---|---|
| 1 | 1 | 0.85V (0.857V) |
| 1 | 0 | 0.9V (0.912V) |
| 0 | 1 | 1.00V (1.001V) |
| 0 | 0 | 1.15V(1.162V) |

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| | | | |
|---|---|---|---|
| DESIGN: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD PWR_GFX_MV_EXT External Graphic Power | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 50 OF 54 | |

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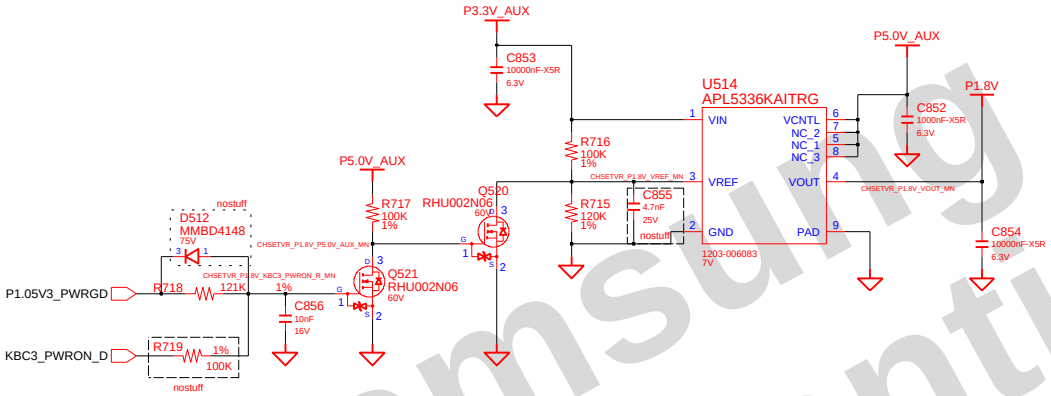
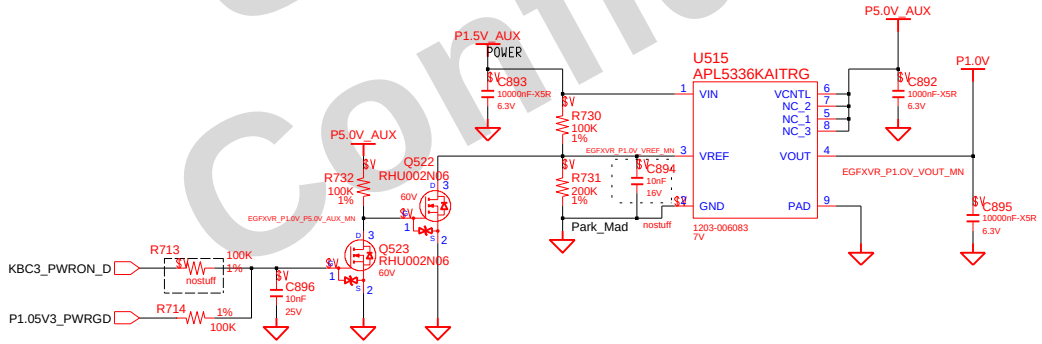
# POWER(P1.8V)




# P1.0V

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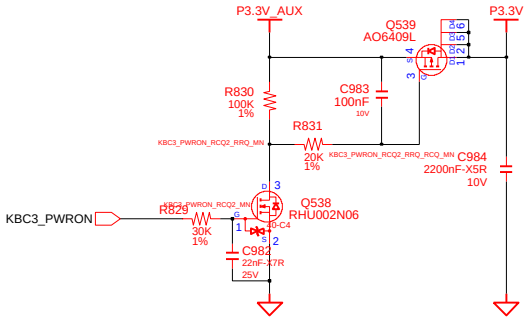
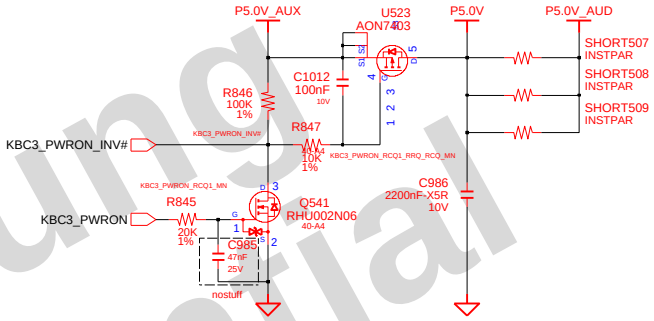
# Switched Power

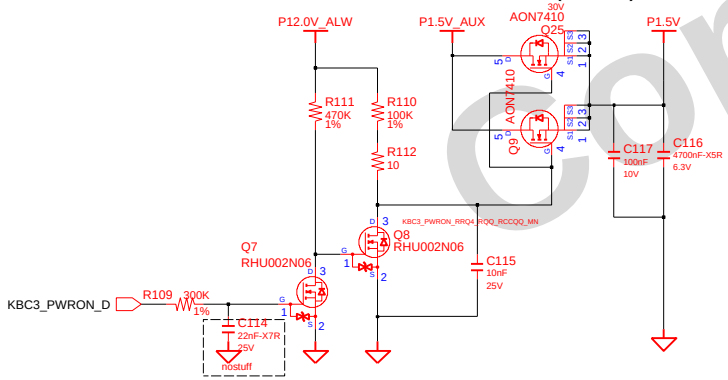
## Switched Power On (P3.3V)



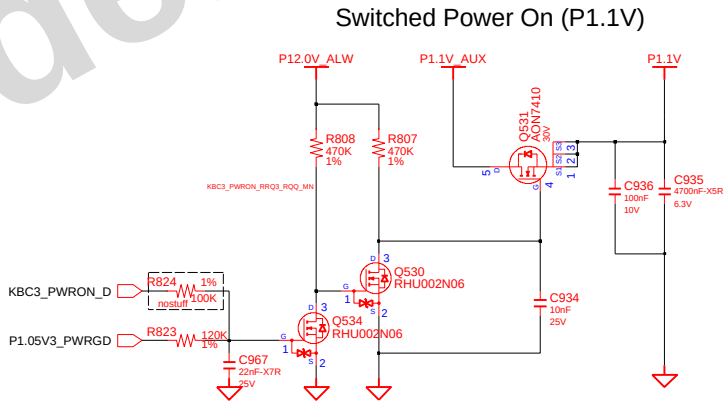

## Switched Power On (P5.0V)




## Switched Power On (P1.5V)




## Switched Power On (P1.1V)

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| | | | |
|---|---|---|---|
| DRAW: Cunjiajun | DATE: 01/09/2008 | TITLE: SCALA2-AMD<br>PWR_MV_1.1VTT_1.05V<br>TI TPS51125 | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXXA |
| MODULE CODE: undefined | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 52 OF 54 | |

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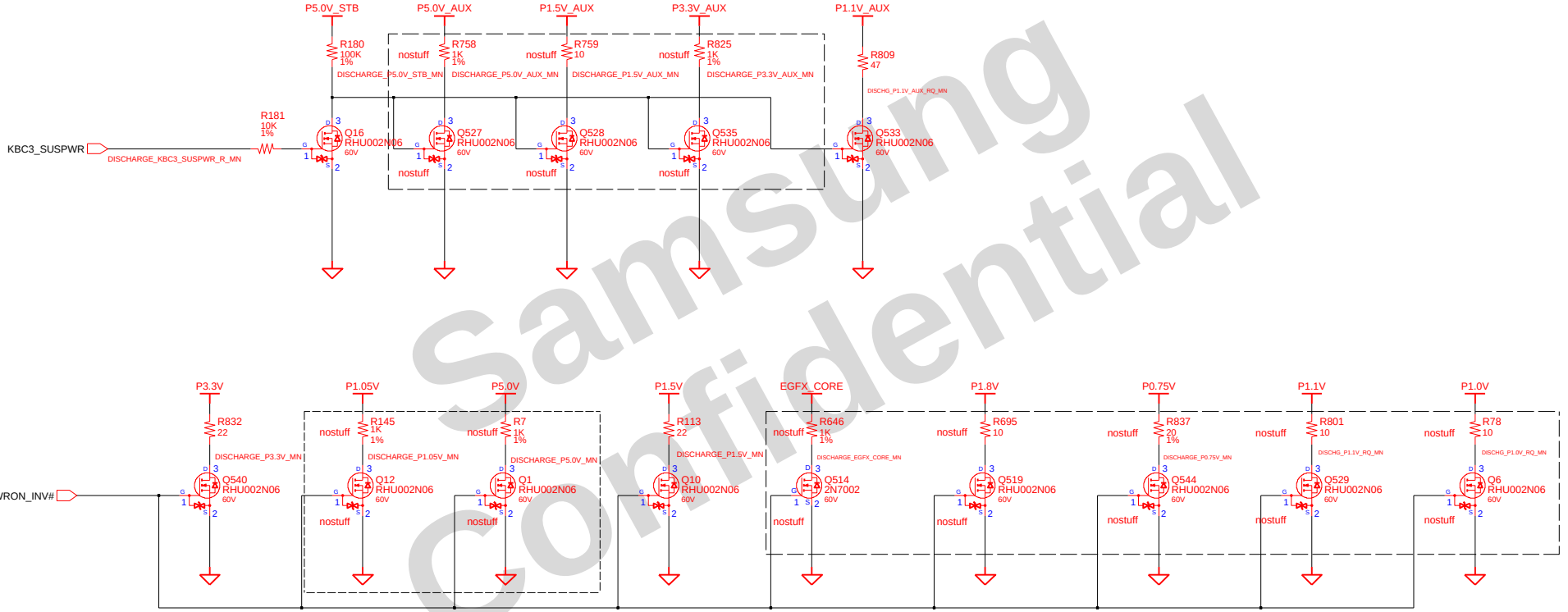
# POWER DISCHARGER

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| | | | |
|---|---|---|---|
| DRAW: Cunjiajun | DATE: 8/19/2010 | TITLE: SCALA2-AMD PWR_MV_DISCHARGER DISCHARGING LOGIC | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXXA |
| MODULE CODE: undefined | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 53 OF 54 | |

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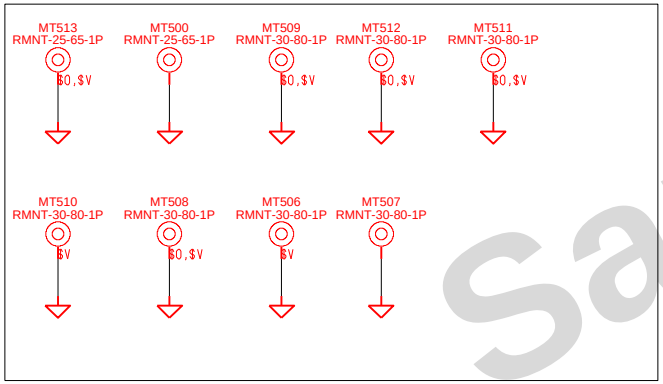
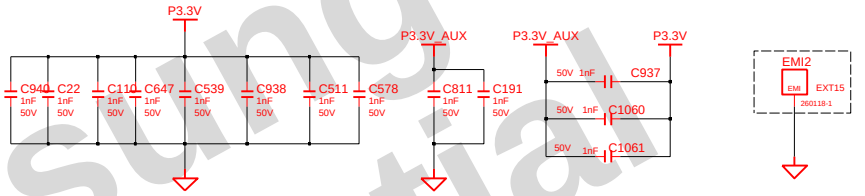
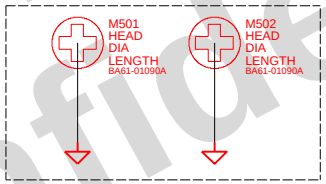
## Mainboard Mount ((25-65)X2EA, (30-80)X7EA)

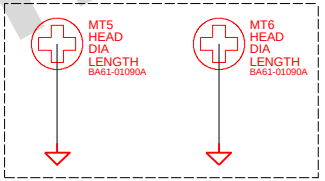



## EMI CAP

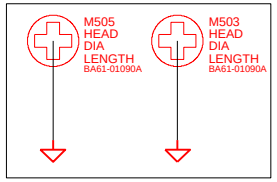



For APU




For FCH




FOR GPU

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| | | | |
|---|---|---|---|
| DRAW: Cunjiajun | DATE: 5/10/2010 | TITLE: SCALA2-AMD Switched PWR 2 FOR OPTIMUS PWR | SAMSUNG ELECTRONICS |
| CHECK: Guolei | DEV. STEP: MP | | |
| APPROVAL: BC LEE | REV: rev. 1.0 | | PART NO.: BA41-0XXXXA |
| MODULE CODE: | LAST EDIT: March 16, 2011 16:50:09 PM | PAGE 54 OF 54 | |