

	1	2	3	4	5	6	7	8	
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B									B
C									C
D									D
E									E
F									F

ROMEO

DISCRETE

DB2 BUILD

2009/10/21

DRAWER	EE	DATE	POWER	DATE	INVENTEC			
DESIGN								
CHECK								
RESPONSIBLE								
SIZE = 3					SIZE	CODE	DOC. NUMBER	REV
FILE NAME : XXXX-XXXXXX-XX					A3	CS	1310A23166-0-MTR	X01
P/N XXXXXXXXXXXX					SHEET 1 OF 65			

Index

PAGE

01. PROJECT NAME
02. INDEX
03. Block Diagram
04. POWER Procedure
05. +V3A & +V5A
06. +V1.5 & +V0.75
07. +V1.8S & +V1.05S
08. +VTT & +VDDC_GPU
09. +VGFX_CORE
10. +VCC_CORE
11. +V5S & +V3S & +V1.5S
12. CLK GEN
13. CPU-1
14. CPU-2
15. CPU-3
16. CPU-4
17. CPU-5
18. CPU-6
19. Thermal & Fan
20. DDR3-1
21. DDR3-2
22. PCH-1
23. PCH-2
24. PCH-3
25. PCH-4
26. PCH-5
27. PCH-6
28. PCH-7

PAGE

29. PCH-8
30. PCH-9
31. KBC
32. Keyboard & TouchPad
33. eSATA & USB COMBO
34. LCM switch & CONN
35. LCM switch
36. HDMI CONN
37. DISPLAY PORT CONN
38. LAN
39. RJ-45
40. EMI CAP. & SCREW
41. Audio, PWB, ODD Board & HDD CONN
42. CHG BOARD & WWAN BOARD CONN
43. WLAN & HDD PROTECTION
44. CARD READER
45. GPU-1
46. GPU-2
47. GPU-3
48. GPU-4
49. GPU-5
50. GPU-6
51. GPU-7
52. VRAM-1
53. VRAM-2
54. VRAM-3
55. VRAM-4

PAGE

56. AUDIO BOARD-1 & USB CONN
57. AUDIO BOARD-2
58. AUDIO BOARD-3
59. ODD EXT BOARD
60. POWER BUTTON BOARD
61. WC BOARD-1 & BT
62. WC BOARD-2
63. CHG BOARD-1
64. CHG BOARD-2
65. CHG BOARD-3

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TITLE ROMEO Index			
SIZE A3	CODE CS	DOC. NUMBER 1310A23166-0-MTR	REV X01
SHEET 2		OF 65	

CHANGE by **EDI CHEN** 11-Sep-2009

Inventec Confidential

Arrandale/ Clarksfield (Socket-rPGA989)

DDR3 SO-DIMM 1
800/1066/1333 MHz , 8GB maximum memory P20

DDR3 SO-DIMM 2
800/1066/1333 MHz , 8GB maximum memory P21

PCH

HM-57

USB 0
ESATA+USB
P33

USB 1
Card Reader
P44

USB 2
WLAN+BT
P42/P60

USB 3
WWAN
P60

USB 4
Touchscreen
P42

USB 5
Webcam
P34

USB 8
USB CONN01
P46

USB 9
USB CONN02
P41

USB 10
Bluetooth
P39

USB 11
FingerPrint
P39

MAIN BATT
P06

System Charger
DC / DC System Power
P05

SPI ROM
EC FW (BIOS)
P31

ITE IT8502E
KBC
P31

IDT 92HD80
AudioCodec
P42

P55 SPKR
P56 HP JACK
P56 MIC JACK
P34 int DMIC

Accelerometer
ST Micro HP302DLTR8-MBD
P42

SATA HDD
P40

SATA ODD
P40

ESATA
P44

CLK GEN
IDT 9LRS3197AK
P12

Thermal meter
SMSC EMC1402
P19

Keyboard
P32

Touchpad
P32

WLAN + BT
minicard
P60

RTL8111DL
GLAN
P37

RJ-45
P38

LCM
P34

SWITCH

HDMI
P35

DISPLAY PORT
P36

VGA
AMD Madison 128 bit

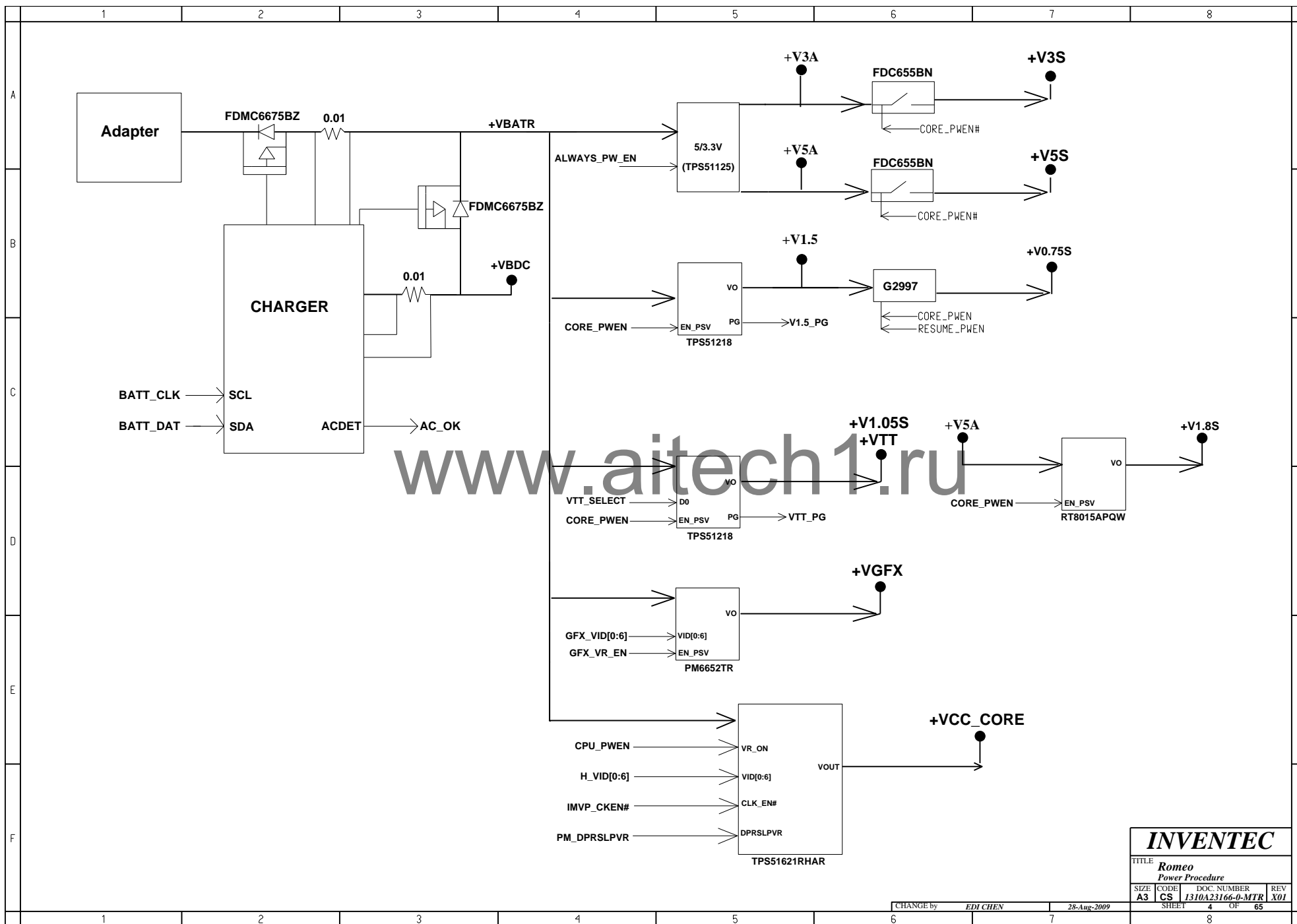
INVENTEC

TITLE
Romeo
Block Diagram

SIZE A3	CODE CS	DOC NUMBER 1310A23166-0-MTR	REV X01
SHEET 3		OF 65	

CHANGE by **EDI CHEN** 28-Aug-2009

www.qdzbw.com

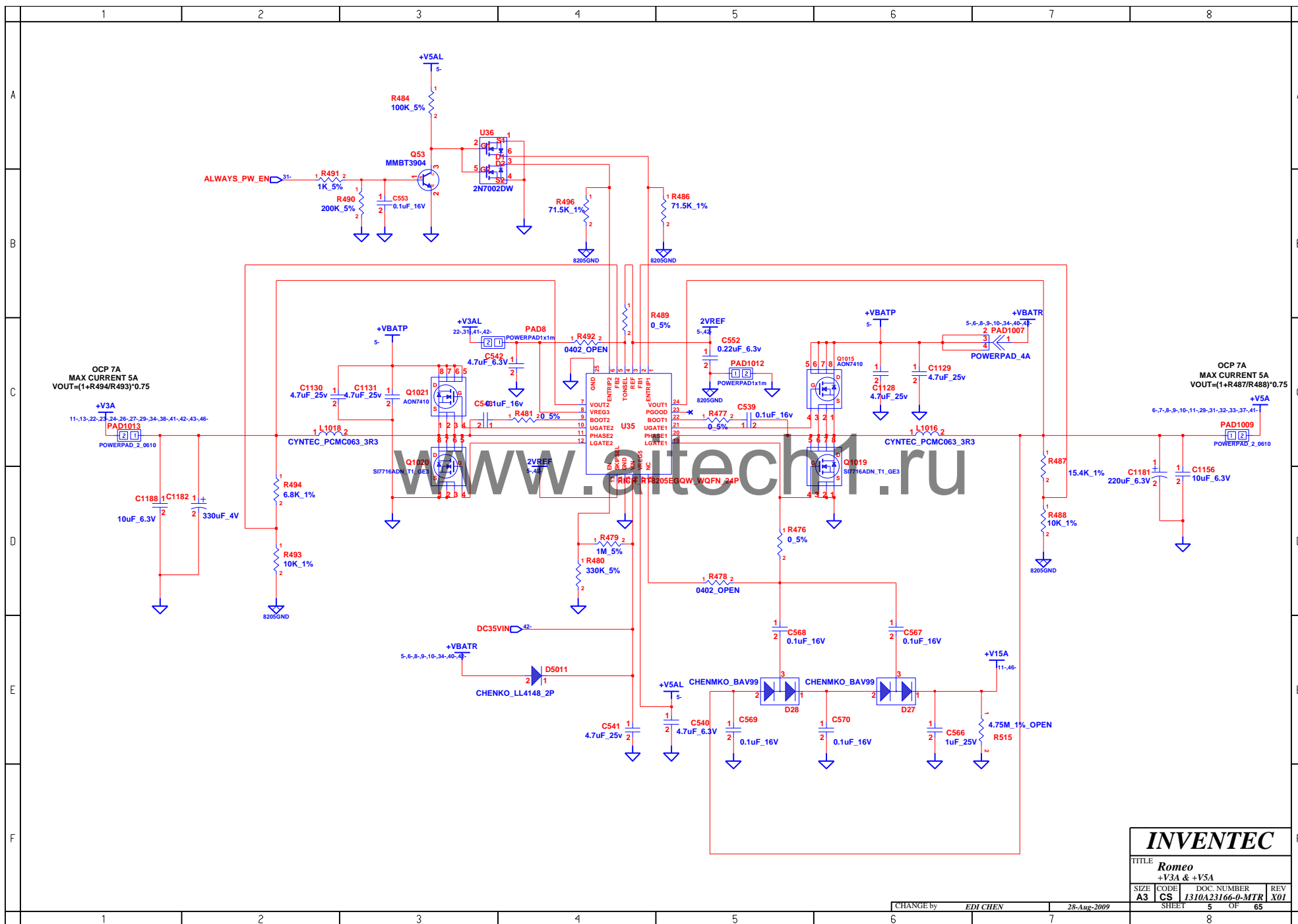


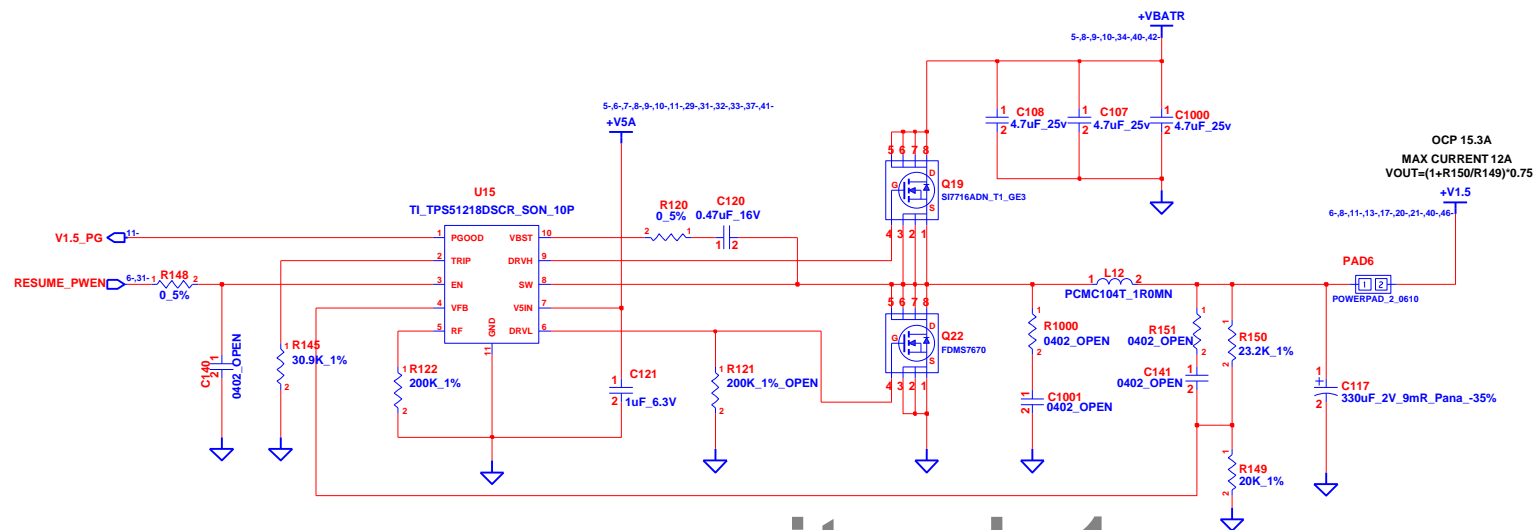
www.aitech1.ru

INVENTEC

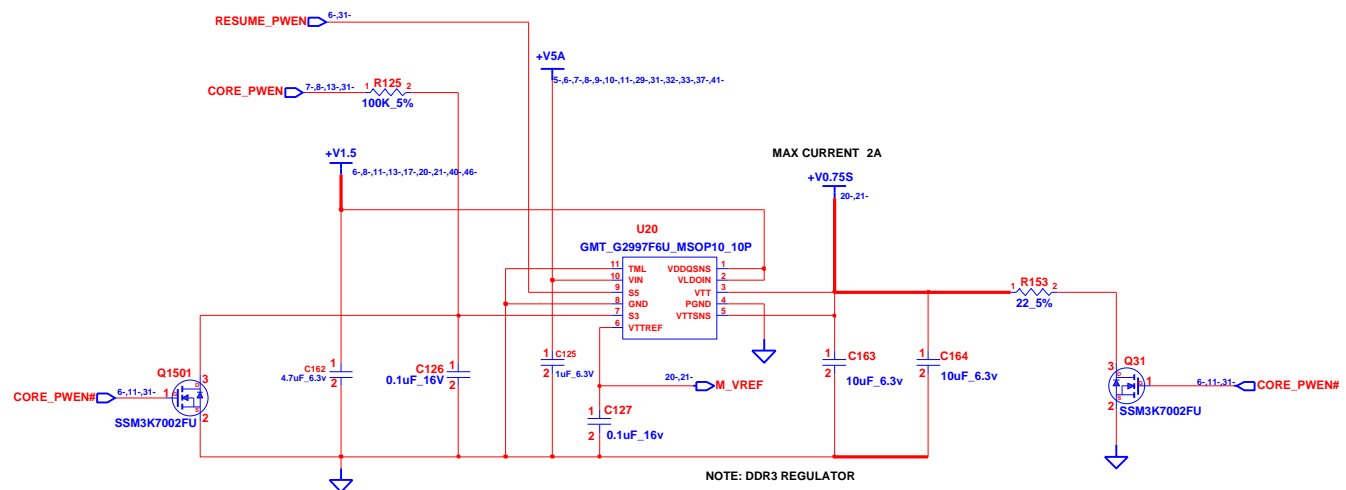
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Romeo			
Power Procedure			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	1310A23166-0-MTR	X01
SHEET		4	OF 65

CHANGE by EDI CHEN 28-Aug-2009





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NOTE: DDR3 REGULATOR

INVENTEC

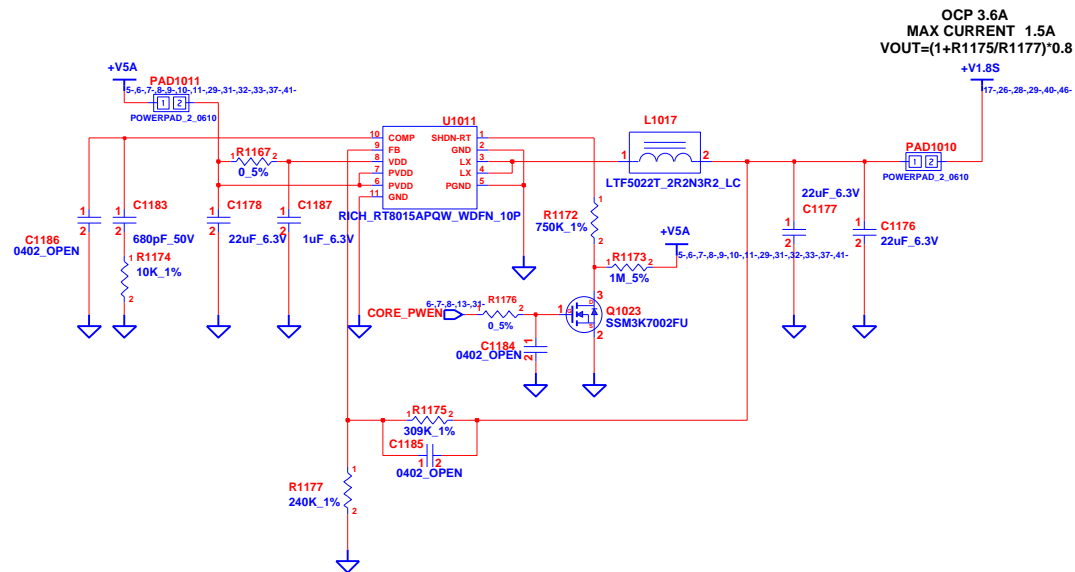
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Romeo
+V1.5 & +V0.75
SIZE CODE DOC. NUMBER REV
A3 CS 1310A23166-0-MTR X01

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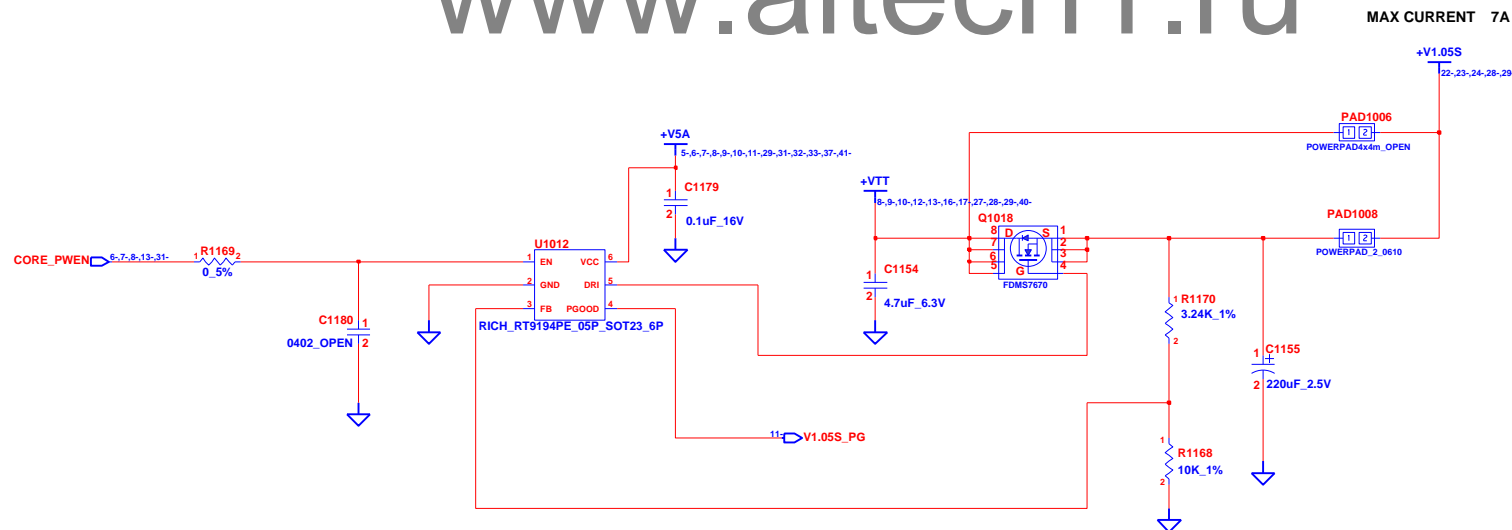
28-Aug-2009

SHEET 6 OF 65

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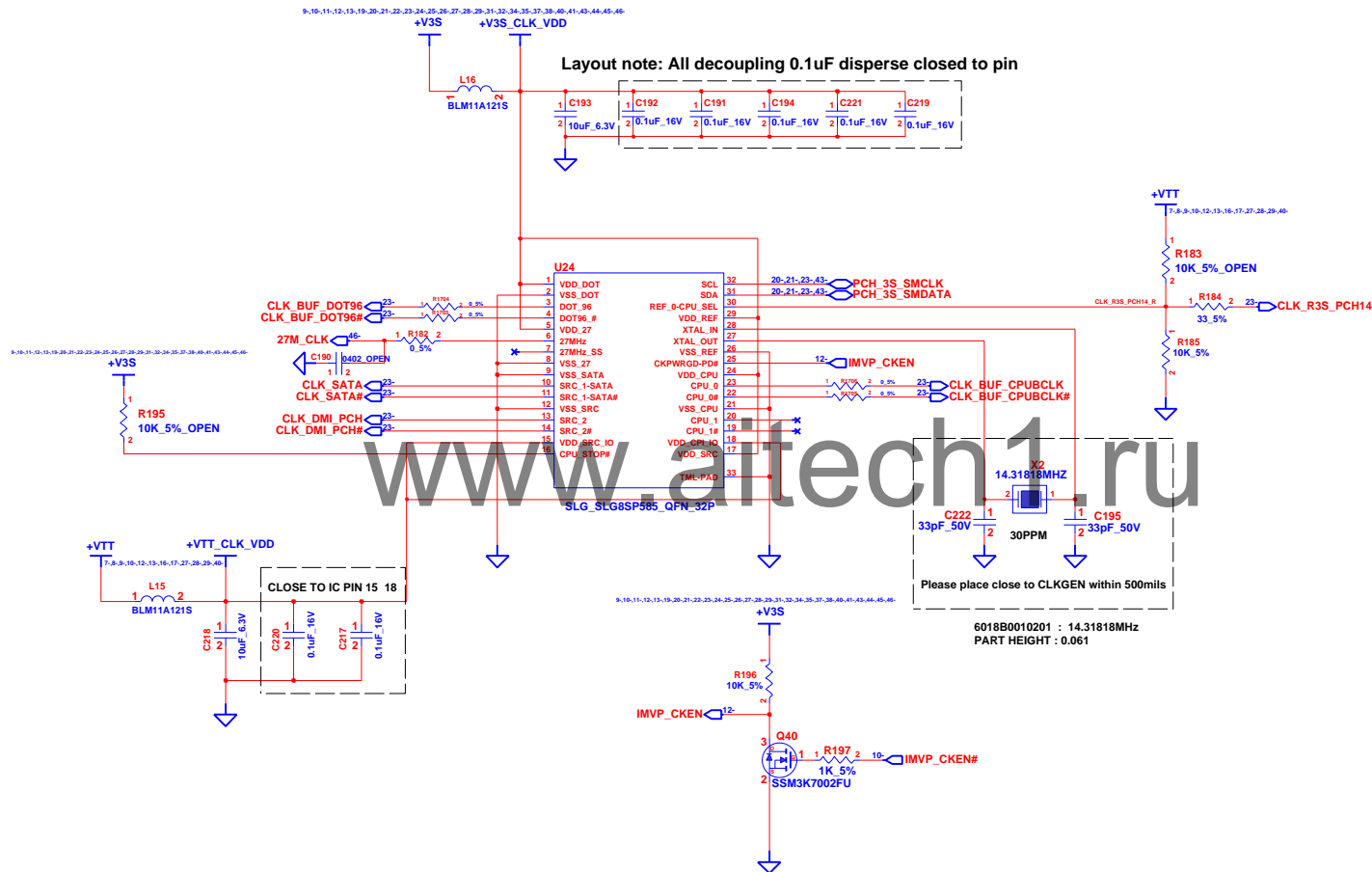
TITLE
Romeo
+V1.8S & +V1.05S

SIZE A3	CODE CS	DOC. NUMBER 1310A23166-0-MTR	REV X01
SHEET 7		OF 65	

CHANGE by **EDI CHEN**

28-Aug-2009

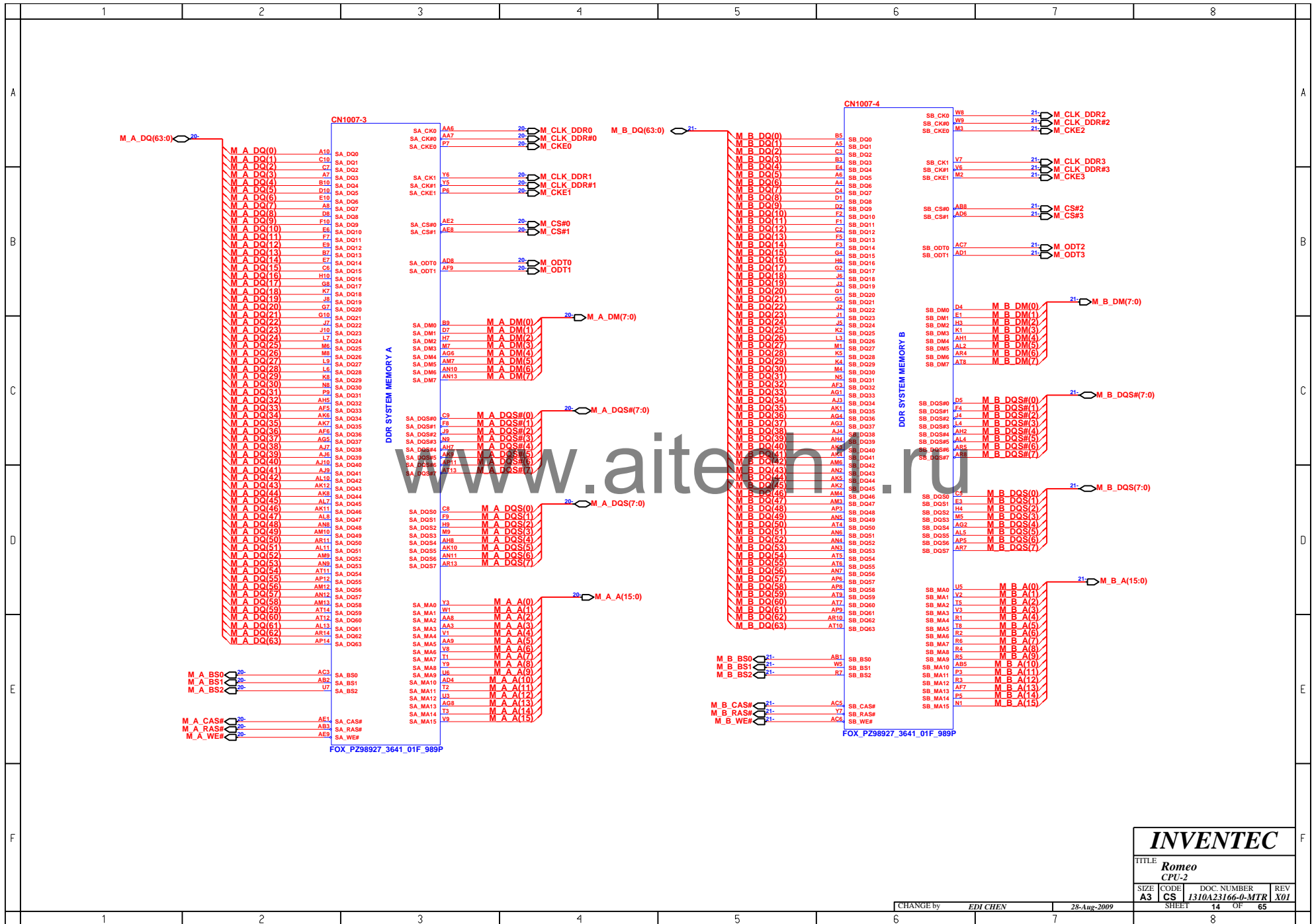
www.qdzbw.com

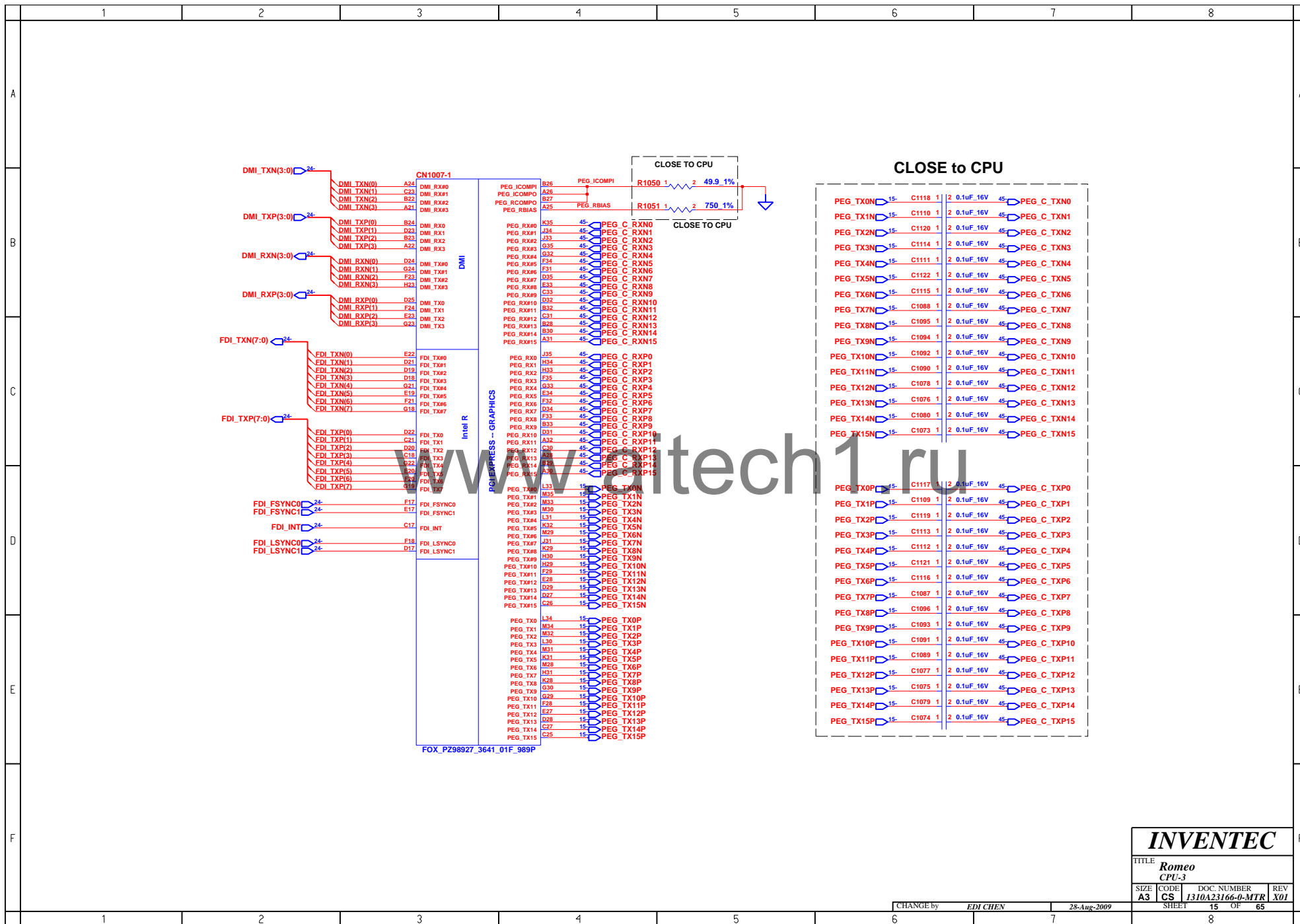


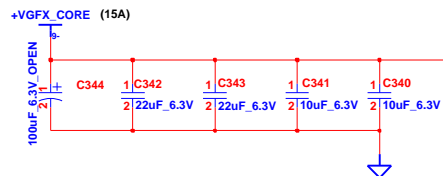
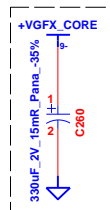
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TITLE Romeo CLK GEN			
SIZE A3	CODE CS	DOC. NUMBER 1310A23166-0-MTR	REV X01
SHEET 12		OF 65	

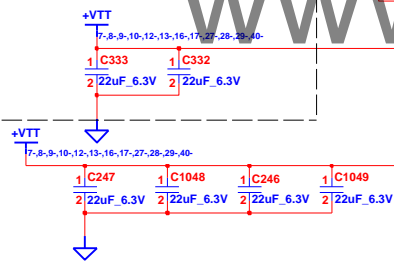
CHANGE by **EDI CHEN** 28-Aug-2009





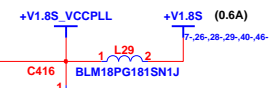
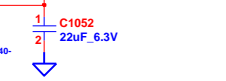
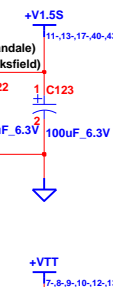
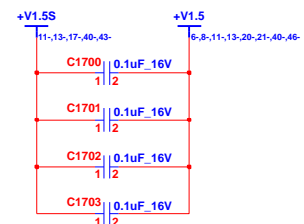
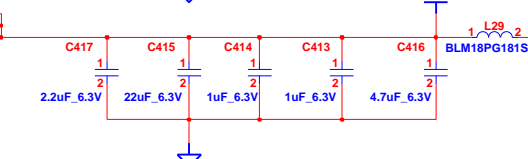
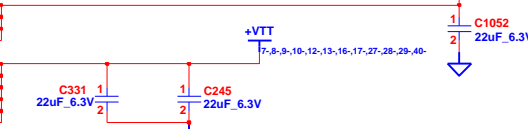
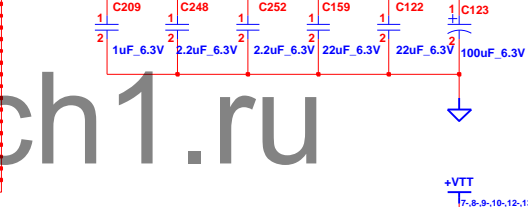
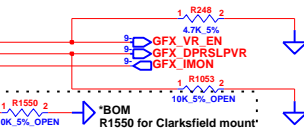
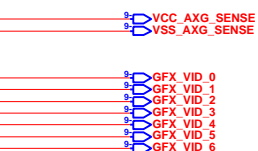
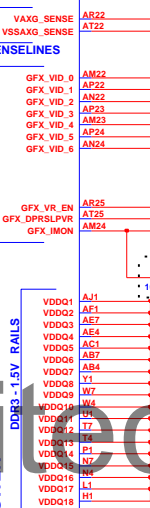


Please note that the VTT Rail Values are
Auburndale VTT=1.05V
Clarksfield VTT=1.1V



CN1007-7

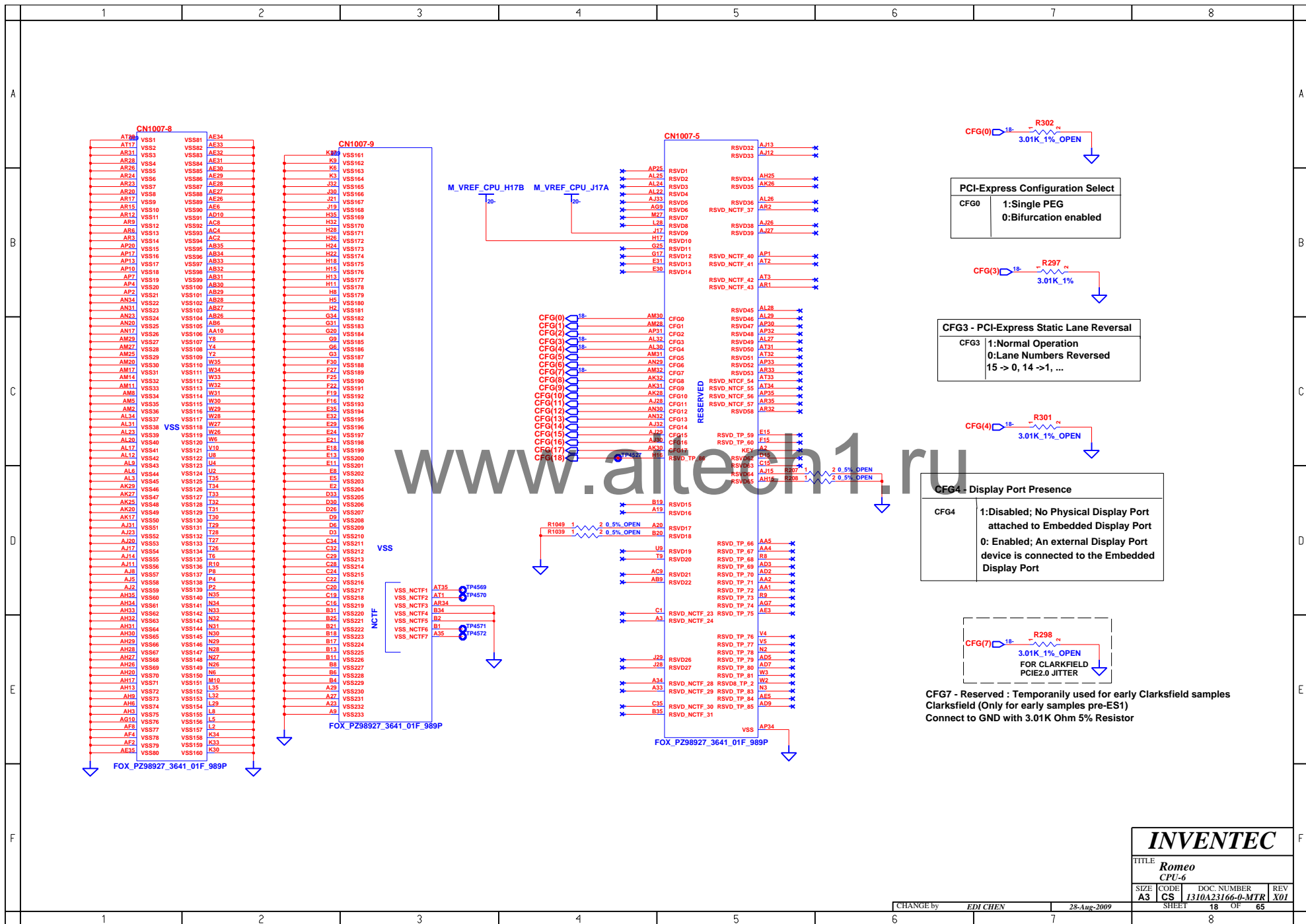
SENSELINES
GRAPHICS_VIDs
POWER
DDR3-1.5V RAILS
PEG & DMI

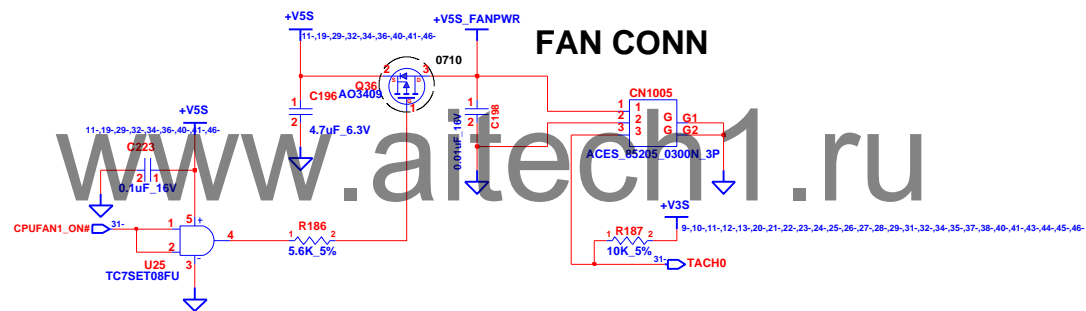


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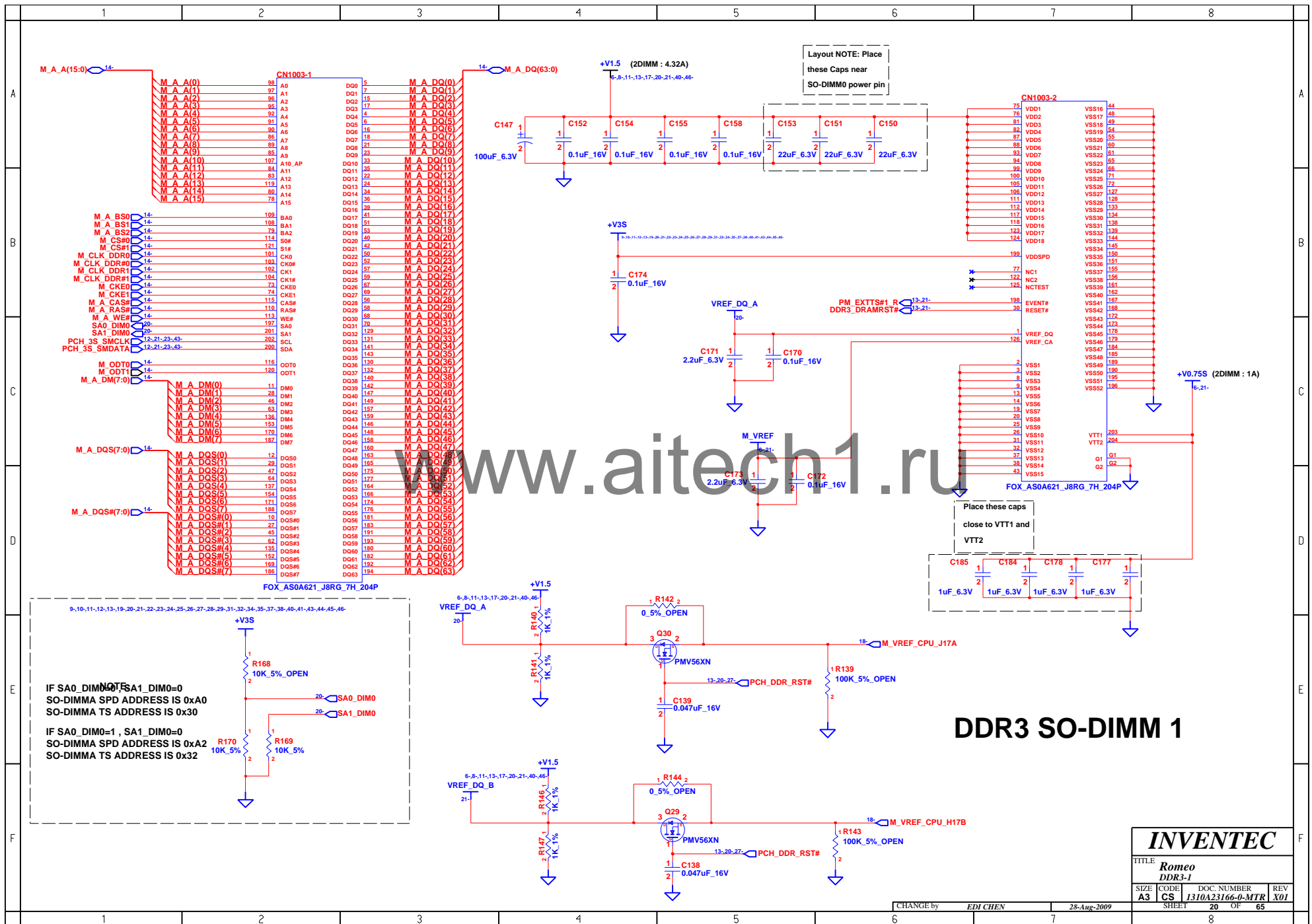
INVENTEC			
TITLE Romeo CPU-5			
SIZE A3	CODE CS	DOC. NUMBER 1310A23166-0-MTR	REV X01
SHEET 17		OF 65	

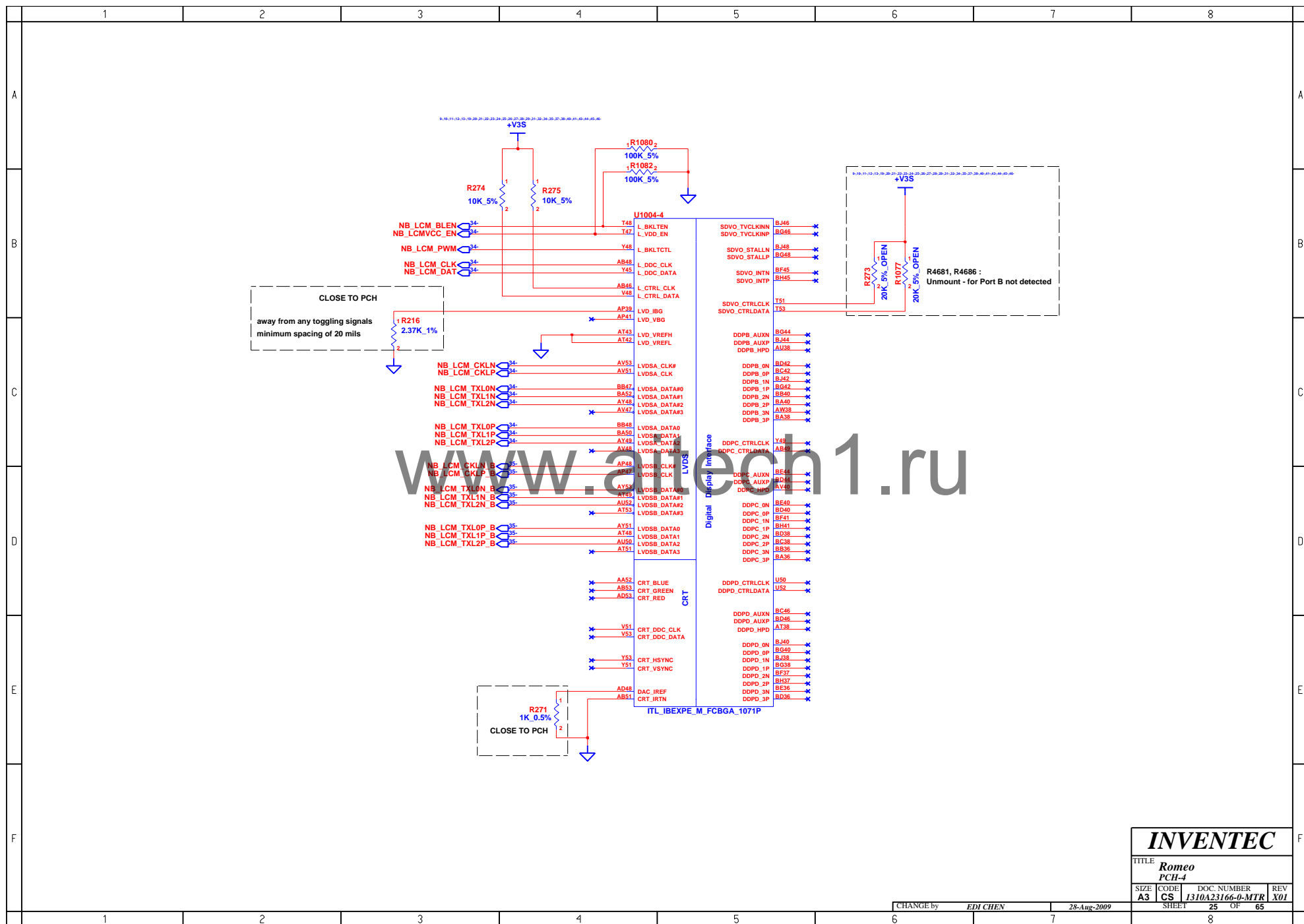
CHANGE by EDI CHEN 28-Aug-2009



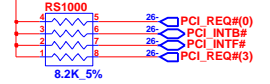
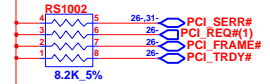
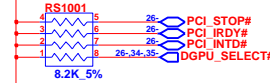
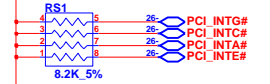
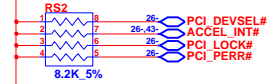


INVENTEC			
TITLE Romeo Thermal & Fan			
SIZE A3	CODE CS	DOC. NUMBER 1310A23166-0-MTR	REV X01
CHANGE by EDI CHEN		28-Aug-2009	
SHEET 19		OF 65	

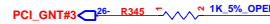




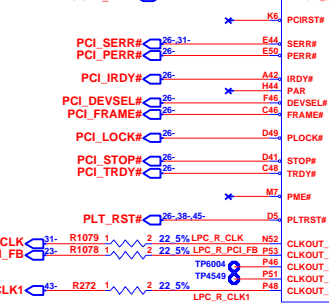
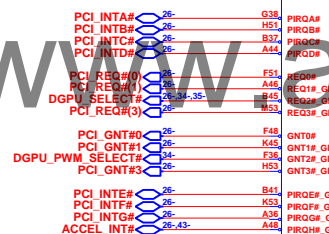
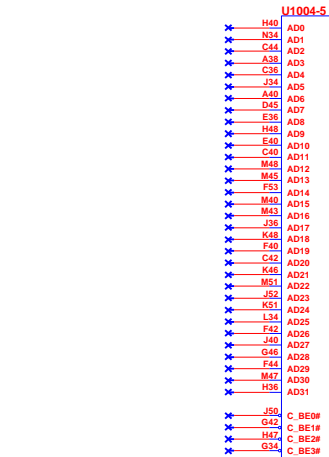
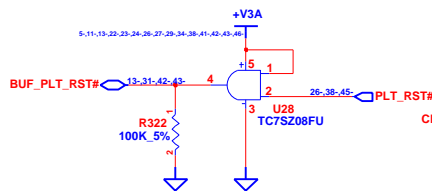
+V3S
5-11-13-23-24-26-27-29-34-38-41-42-43-46



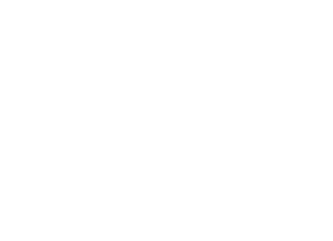
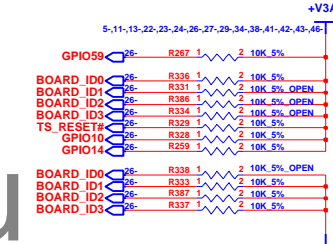
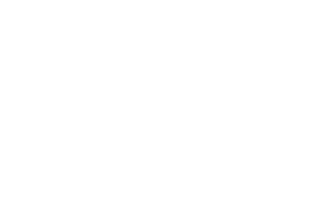
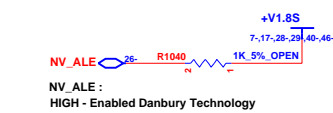
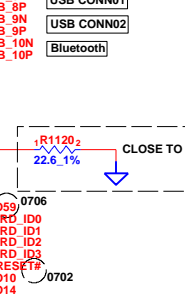
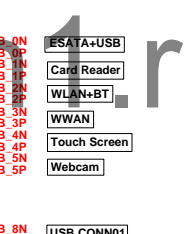
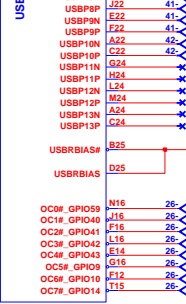
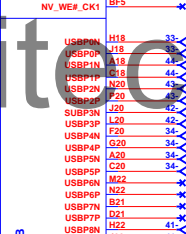
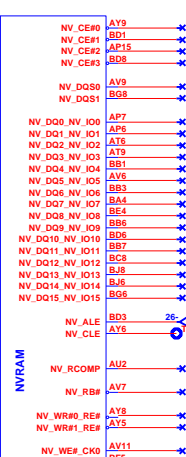
PCI_GNT#1	PCI_GNT#0	BOOT BIOS Location
0	0	LPC
0	1	Reserved (NAND)
1	0	PCI
1	1	SPI



PCI_GNT#3 :
LOW - A16 swap override / Top-Block Swap Override enabled



TTL_IBEXPE_M_FCBGA_1071P

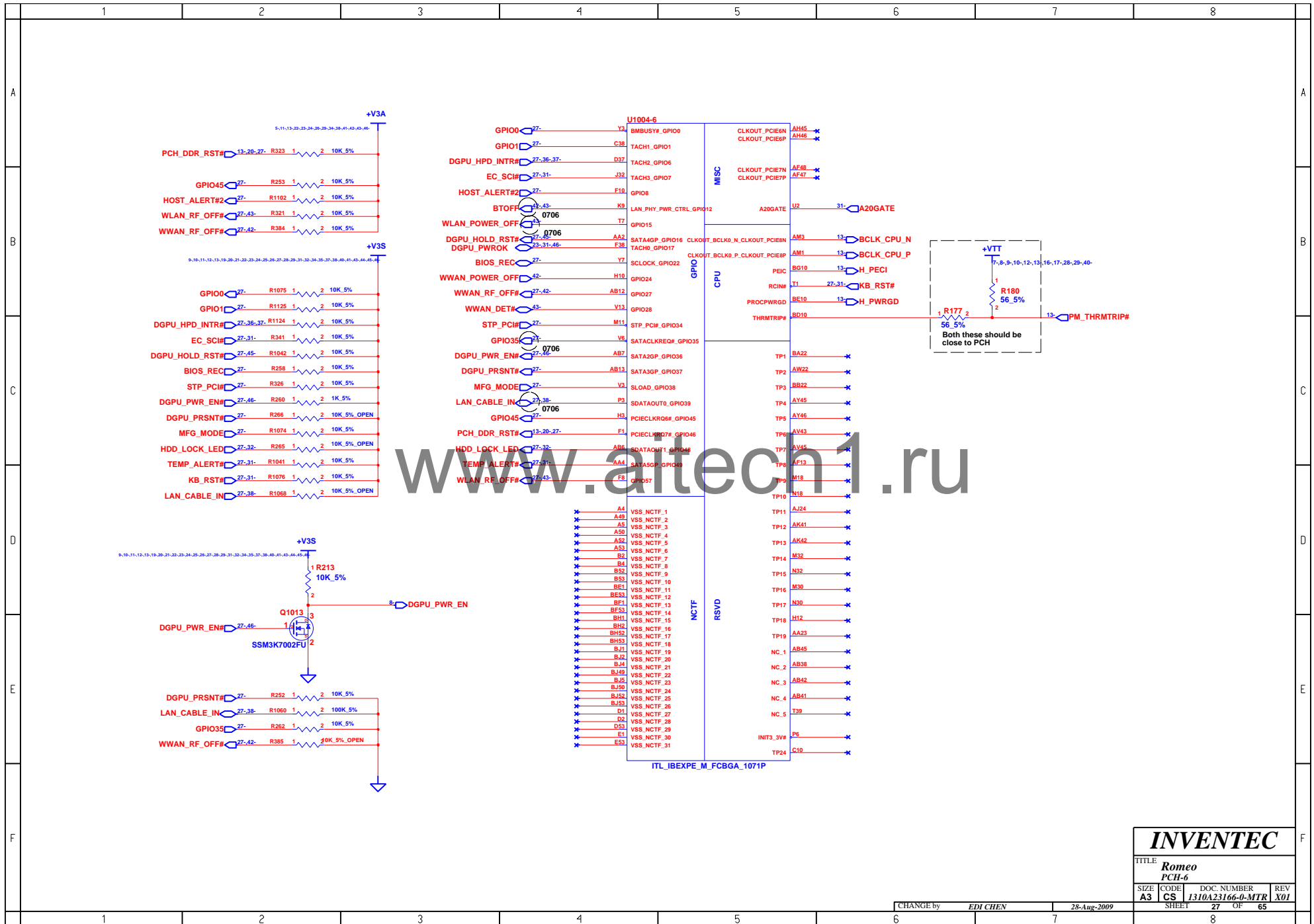


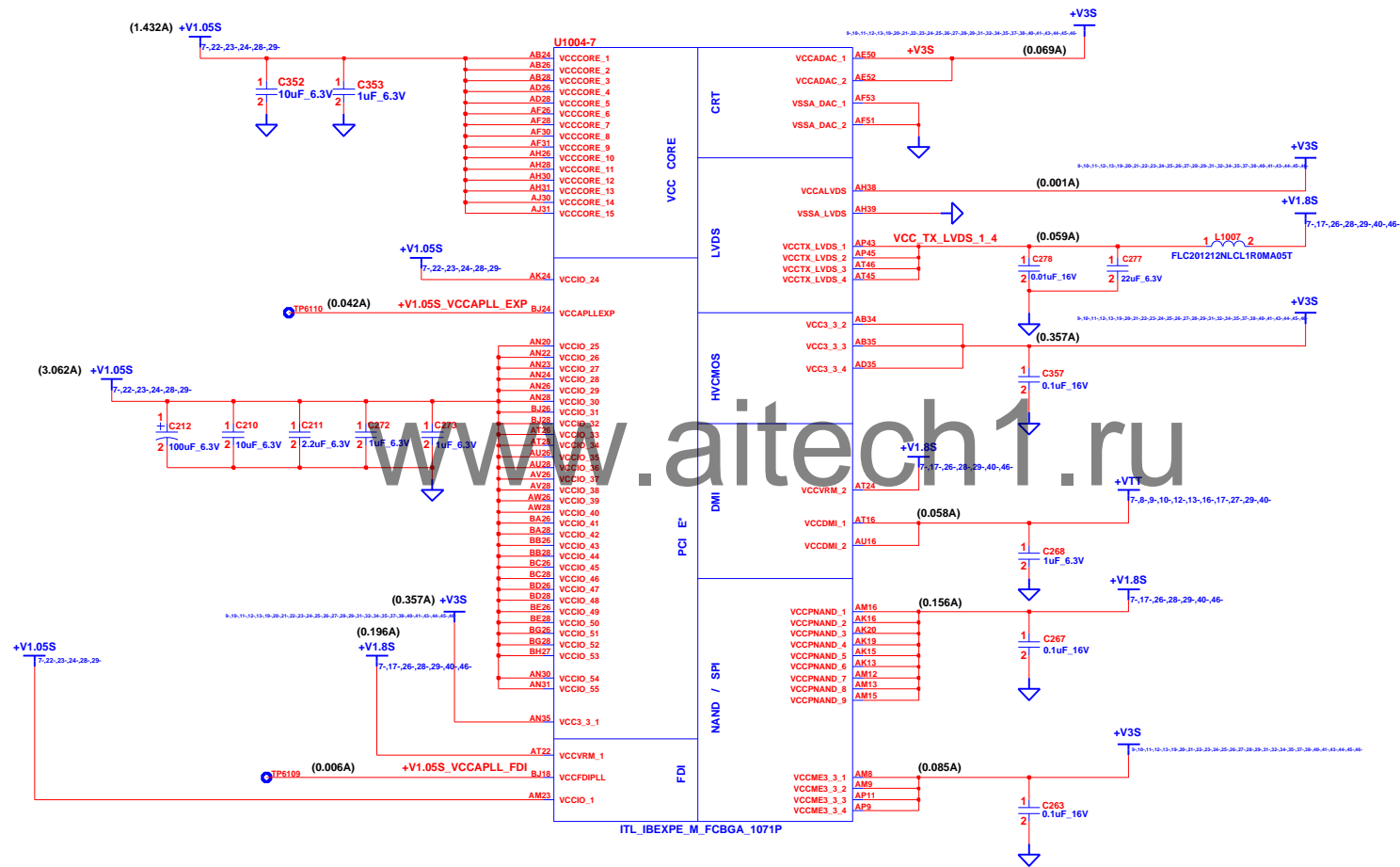
INVENTEC

TITLE Romeo PCH-5			
SIZE A3	CODE CS	DOC. NUMBER 1310A23166-0-MTR	REV X01

CHANGE by EDI CHEN 28-Aug-2009

SHEET 26 OF 65





INVENTEC

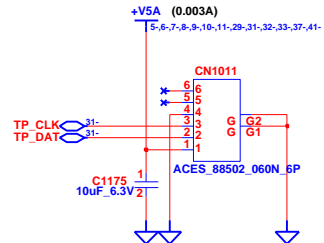
TITLE Romeo PCH-7			
SIZE A3	CODE CS	DOC. NUMBER 1310A23166-0-MTR	REV X01
SHEET 28		OF 65	

CHANGE by **EDI CHEN** 28-Aug-2009

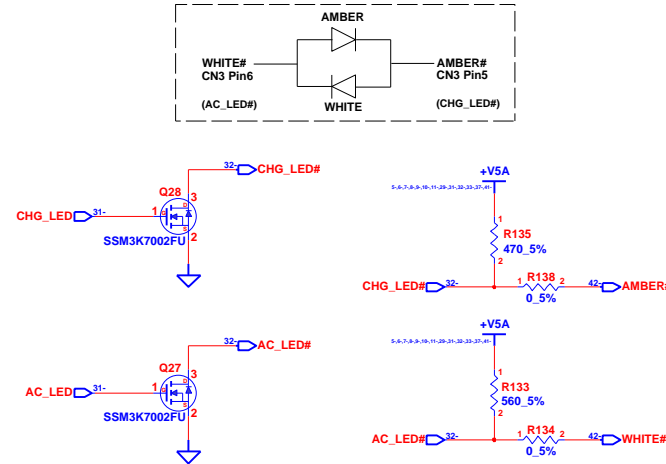
	1	2	3	4	5	6	7	8
A								
B								
C								
D								
E								
F								

CHANGE by				EDI CHEN	28-Aug-2009	SHEET 30 OF 65	
TITLE				Romeo			
SIZE				PCH-9			
CODE				DOC. NUMBER			
A3				1310A23166-0-MTR			
REV				X01			

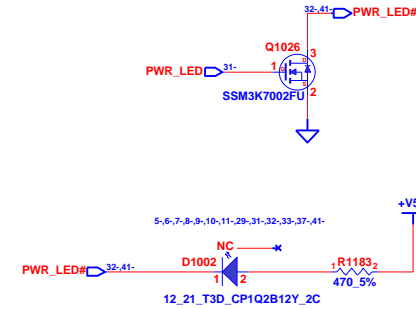
TouchPad Module CONN



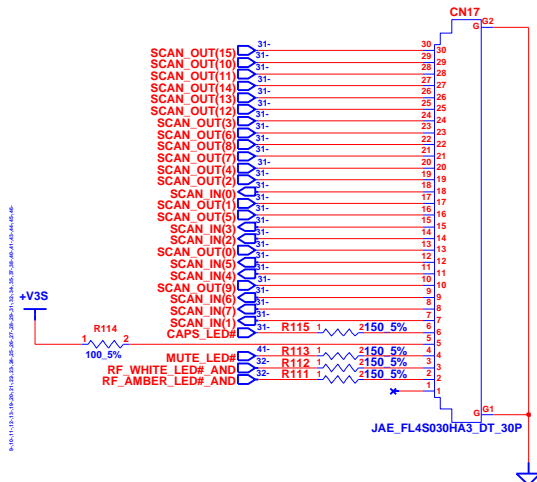
DC-JACK LED



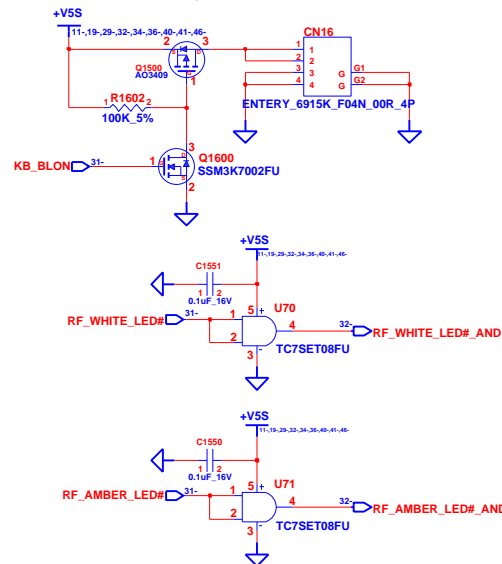
POWER LED



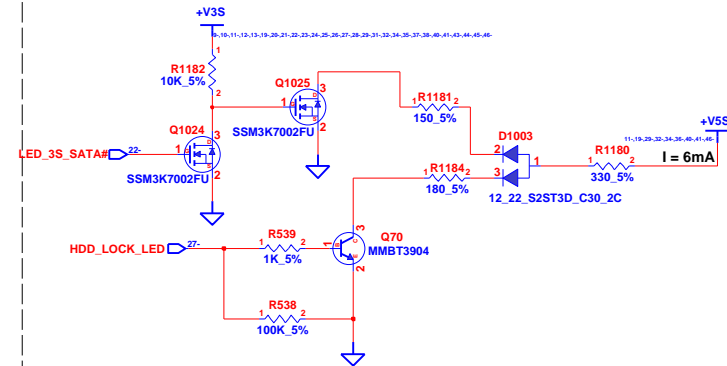
KeyBoard CONN (30 pin)



Backlight connector



SATA LED & HDD-HALTED LED

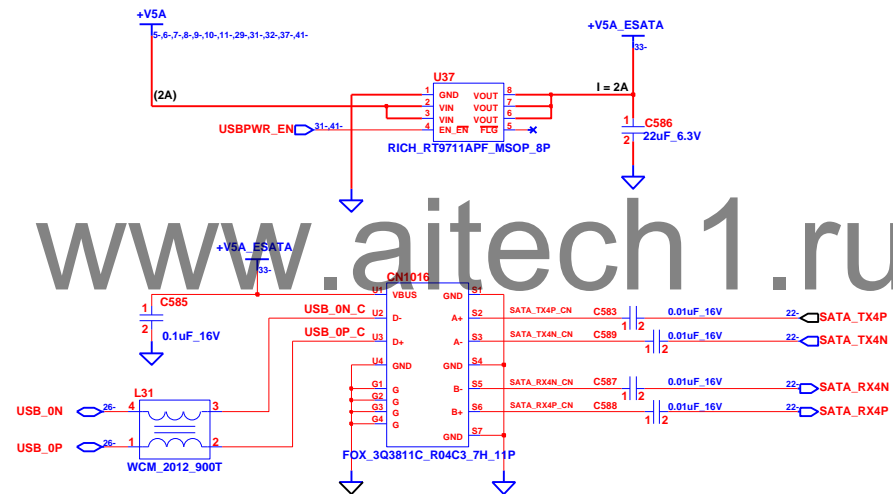


INVENTEC

TITLE			
Romeo			
Keyboard & Touchpad			
SIZE	CODE	DOC NUMBER	REV
A3	CS	1310A23166-0-MTR	X01
SHEET		32	OF 65

CHANGE by EDI CHEN 28-Aug-2009

ESATA CONN (without Re-Driver chip)



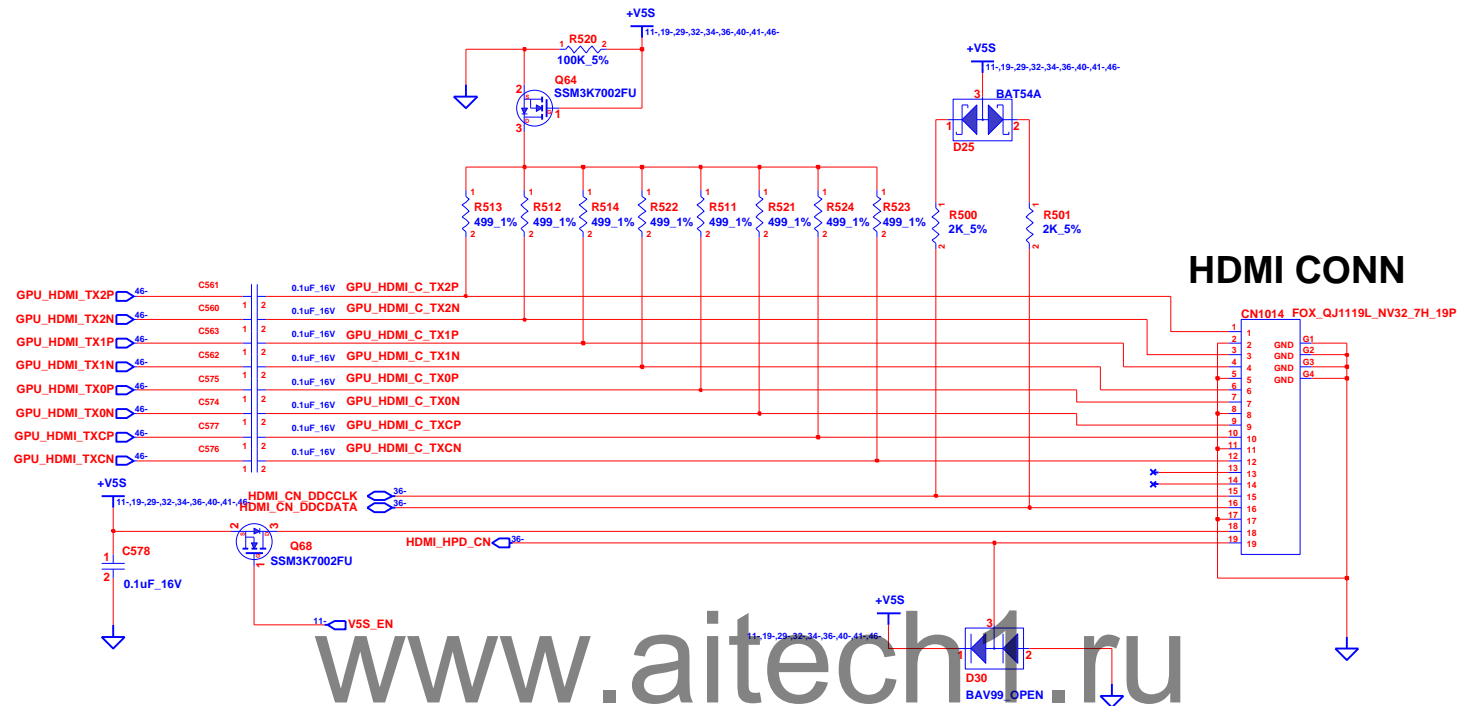
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TITLE Romeo CRT			
SIZE A3	CODE CS	DOC. NUMBER 1310A23166-0-MTR	REV X01
SHEET 33		OF 65	

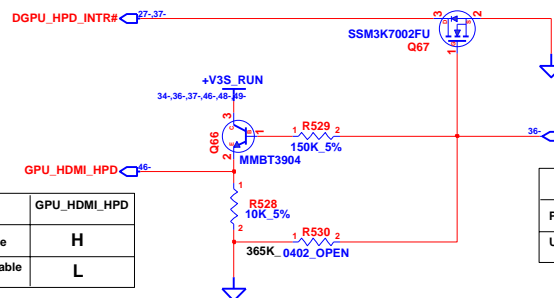
CHANGE by **EDI CHEN** 28-Aug-2009



INVENTEC			
TITLE <i>Romeo</i>			
SIZE A3	CODE CS	DOC. NUMBER <i>1310A23166-0-MTR</i>	REV X01
SHEET		35 OF	65

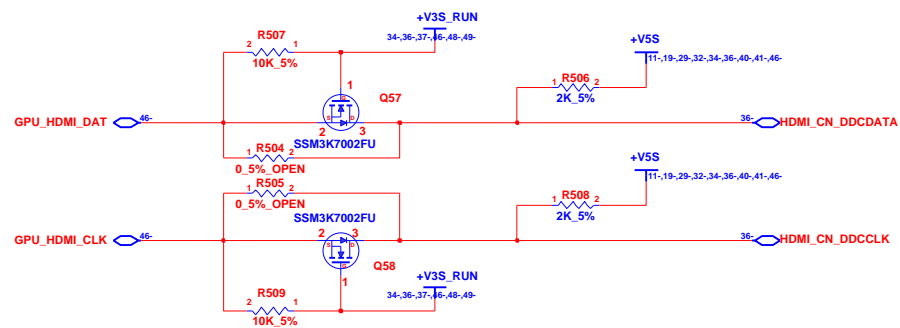


	DGPU_HPD_INTR#
Plug Cable	L
Unplug Cable	H



	GPU_HDMI_HPD
Plug Cable	H
Unplug Cable	L

	HDMI_HPD_CN
Plug Cable	H
Unplug Cable	L



INVENTEC			
TITLE Romeo HDMI			
SIZE A3	CODE CS	DOC. NUMBER 1310A23166-0-MTR	REV X01
SHEET 36		OF 65	

CHANGE by EDI CHEN 28-Aug-2009

Display Port

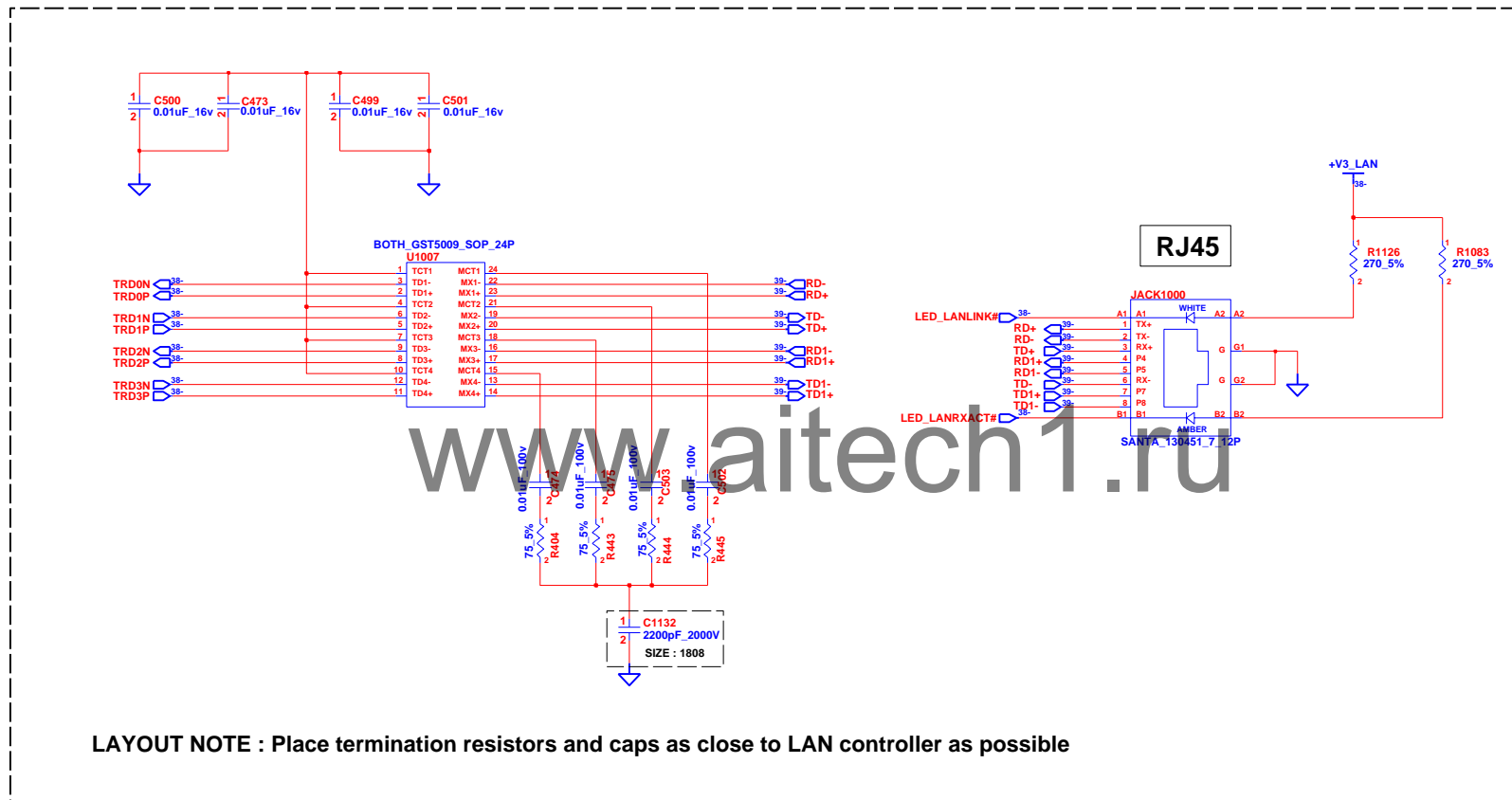
The schematic diagram illustrates the internal circuitry of a Display Port interface. It includes several key components and connections:

- Power and Ground Connections:**
 - +V3S_RUN_DP:** Connected to a 100K 5% resistor (R518) and a 0.1uF 16V capacitor (C573).
 - +V3S_RUN:** Connected to a 10K 5% resistor (R527) and a 0.1uF 16V capacitor (C571).
 - +V5A:** Connected to a 10K 5% resistor (R516) and a 0.1uF 16V capacitor (C564).
 - +V3S:** Connected to a 10K 5% resistor (R525) and a 0.1uF 16V capacitor (C571).
- Transistors and Diodes:**
 - Q59, Q61, Q56, Q62:** SSM3K7002FU transistors used for signal processing.
 - Q65:** MM1BT3904 transistor used for signal processing.
 - Q60, Q63:** SSM3K7002FU transistors used for signal processing.
 - D26:** CHENKO_LL4148_2P diode used for signal processing.
 - D28, D31:** CHENNIKO_BAV99_OPEN diodes used for signal processing.
- Capacitors and Resistors:**
 - C548, C549, C1197, C1198, C1195, C547, C550:** 0.1uF 16V capacitors used for signal processing.
 - R510, R1179:** 1M 5% resistors used for signal processing.
 - R516, R517:** 10K 5% resistors used for signal processing.
 - R526, R525:** 150K 5% and 200K 5% resistors used for signal processing.
- Connectors and Pins:**
 - CN1013:** A multi-pin connector used for signal processing.
 - FOX_3V112M3_RH3HH7_7H_20P:** A multi-pin connector used for signal processing.
 - DP_AUXN_CN, DP_AUXN_CN, DP_AUXN_CN:** Connectors used for signal processing.
 - DP_HPD_CN, DP_HPD_CN:** Connectors used for signal processing.
 - DP_TX0P_CN, DP_TX0N_CN, DP_TX1P_CN, DP_TX1N_CN, DP_TX2P_CN, DP_TX2N_CN:** Connectors used for signal processing.

INVENTEC			
TITLE: Romeo DisplayPort			
SIZE: A3	CODE: CS	DOC. NUMBER: I310A23166-0-MTR	REV: X01
SHEET: 87		OF: 65	

CHANGE: by EDI CHEN 28-Aug-2009

CHANGE by	<i>EDI CHEN</i>	<i>28-Aug-2009</i>
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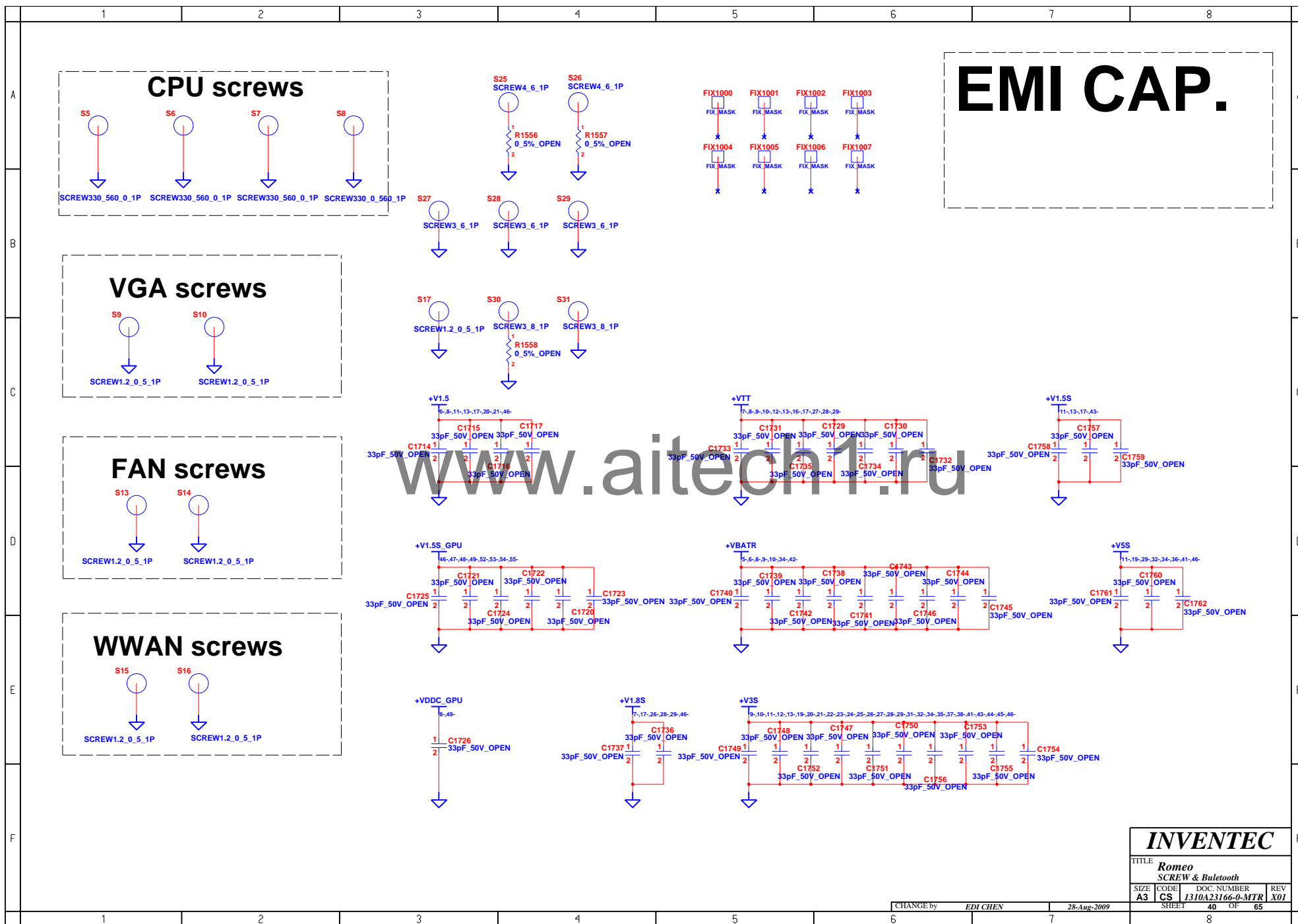
INVENTEC

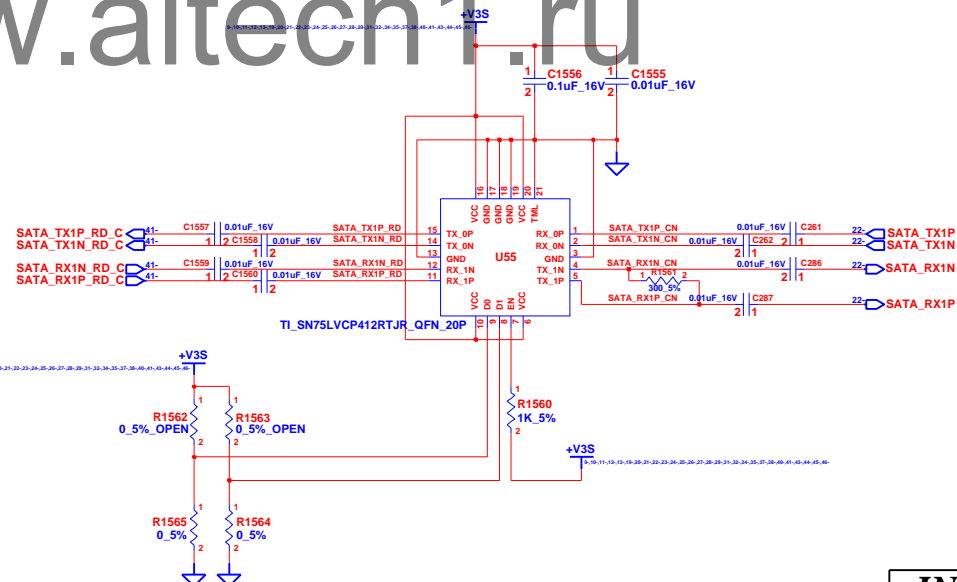
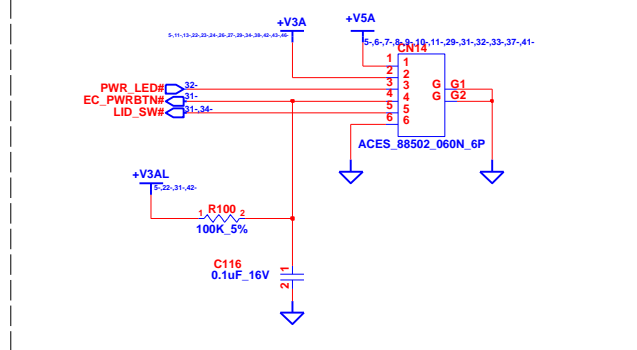
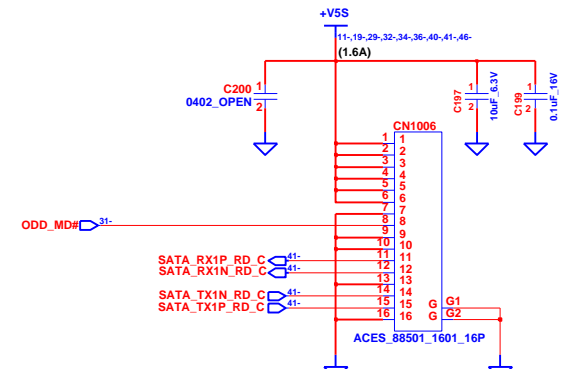
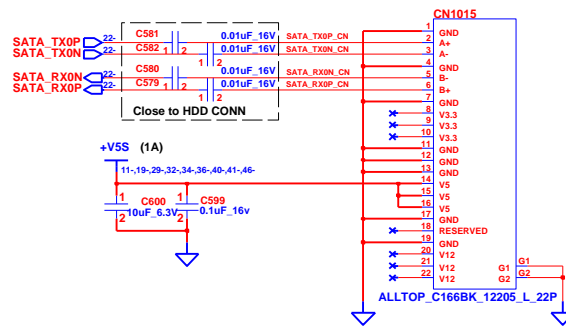
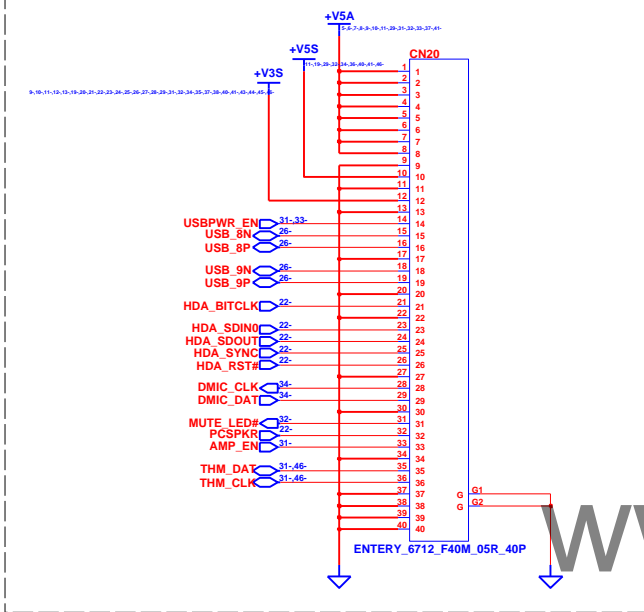
TITLE
Romeo
RJ-45

SIZE A3	CODE CS	DOC. NUMBER 1310A23166-0-MTR	REV X01
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CHANGE by **EDI CHEN** 28-Aug-2009

SHEET **39** OF **65**





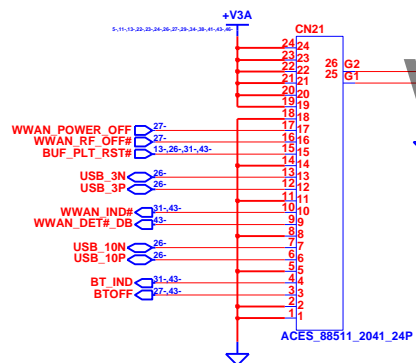
TITLE			
Romeo Connector-1			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	1310A23166-0-MTR	X01
SHEET		41	OF 65

CHANGE by	<i>EDI CHEN</i>	<i>28-Aug-2009</i>
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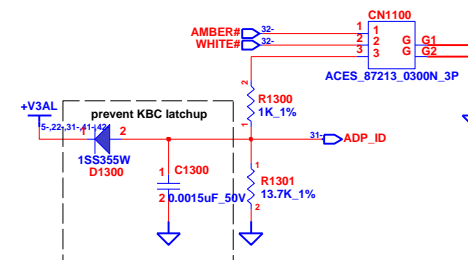
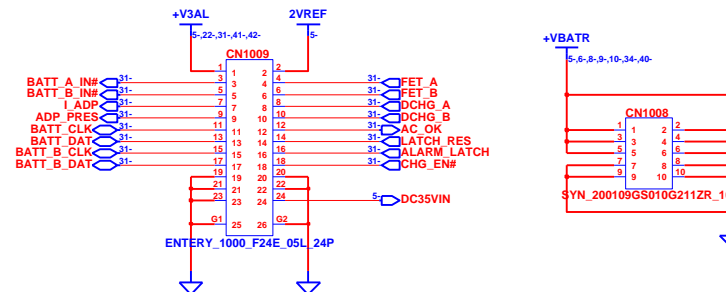
www.qdzbwx.com

WC Board CN on MB

WWAN & BT



CHG Board CN on MB

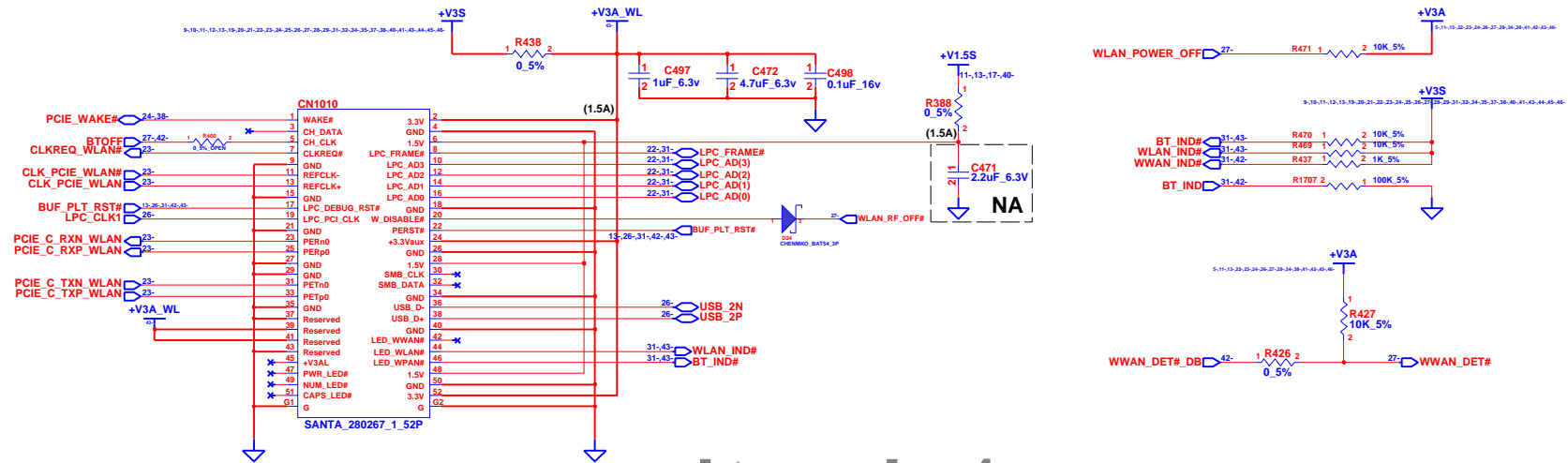


INVENTEC

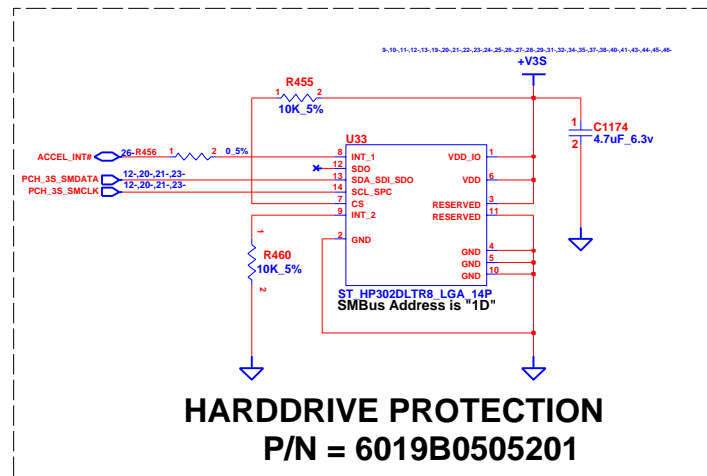
TITLE			
Romeo Connector-2			
SIZE	CODE	DOC. NUMBER	REV
A3	CS	1310A23166-0-MTR	X01
SHEET		42	OF 65

CHANGE by EDI CHEN 28-Aug-2009

WLAN CONN (MINICARD)



www.aitech1.ru



HARDDRIVE PROTECTION
P/N = 6019B0505201

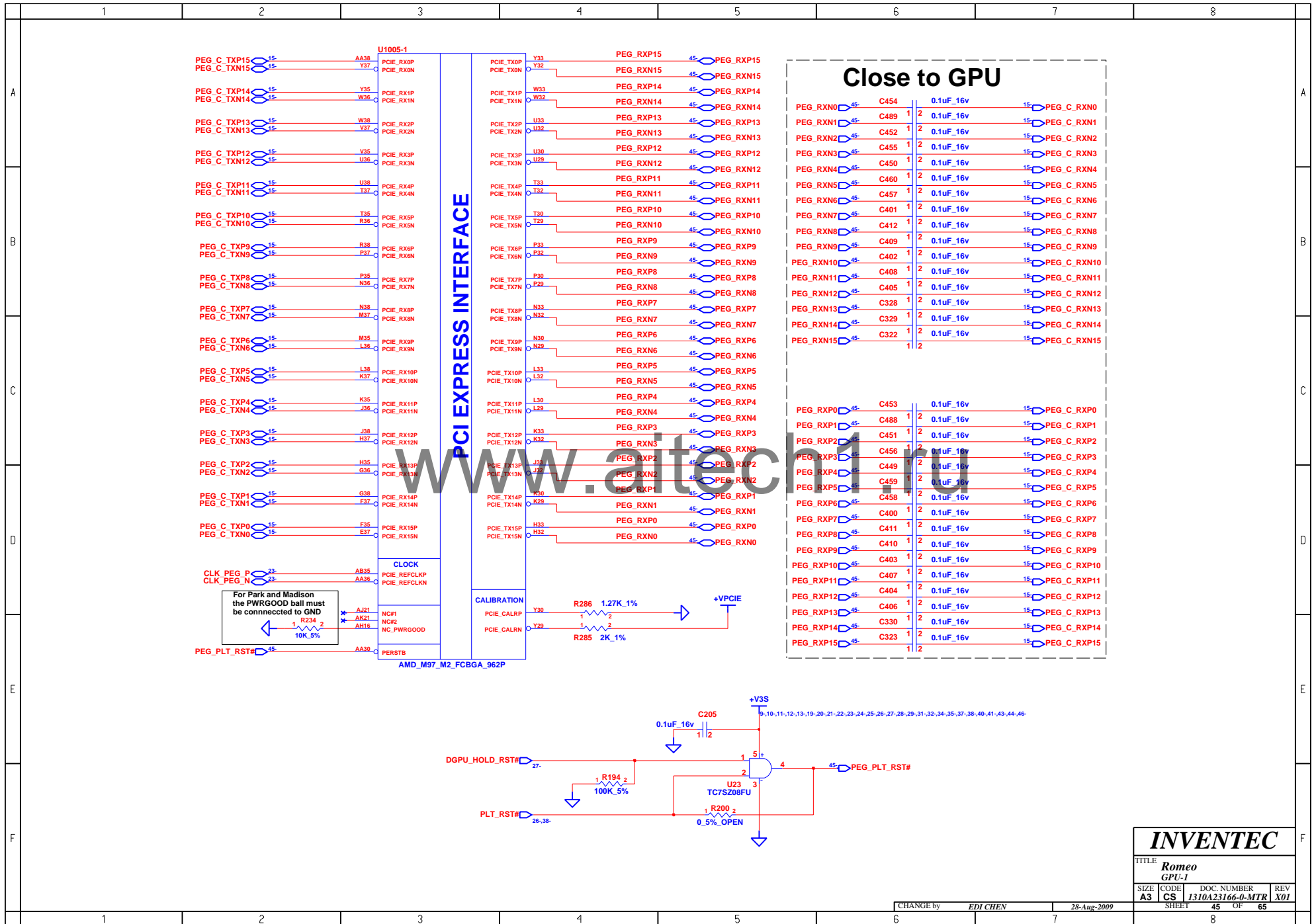
INVENTEC

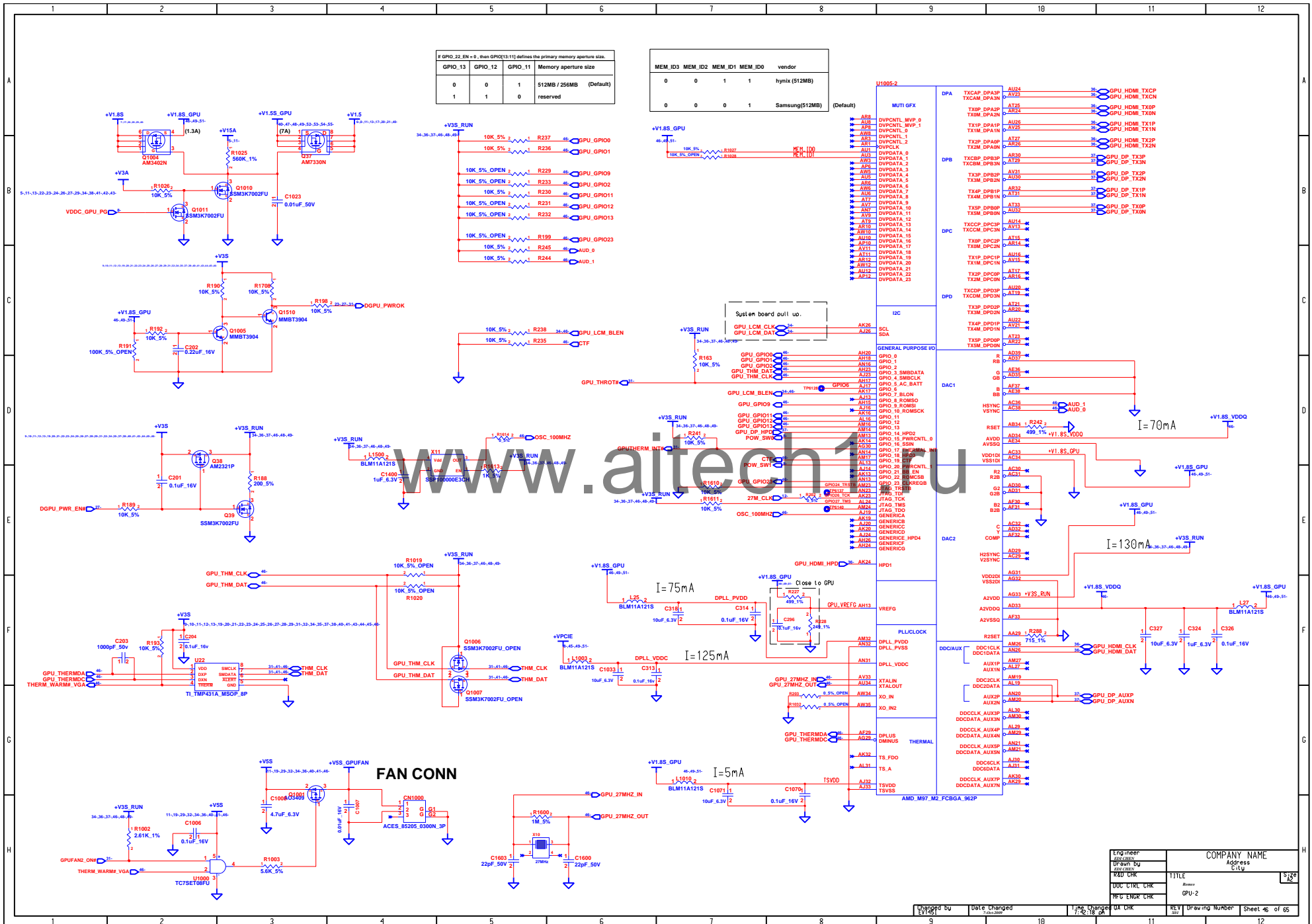
TITLE Romeo WLAN & HDD Lock			
SIZE A3	CODE CS	DOC. NUMBER 1310A23166-0-MTR	REV X01
SHEET 43		OF 65	

CHANGE by EDI CHEN 28-Aug-2009

www.qdzbxw.com







Channel A

DDR3/GDDR3Memory Stuff Option

	GDDR5	GDDR3	DDR3
MVDDQ	1.5V	1.8V/1.5V	1.5V
Ra	40.2R	40.2R	40.2R
Rb	100R	100R	100R

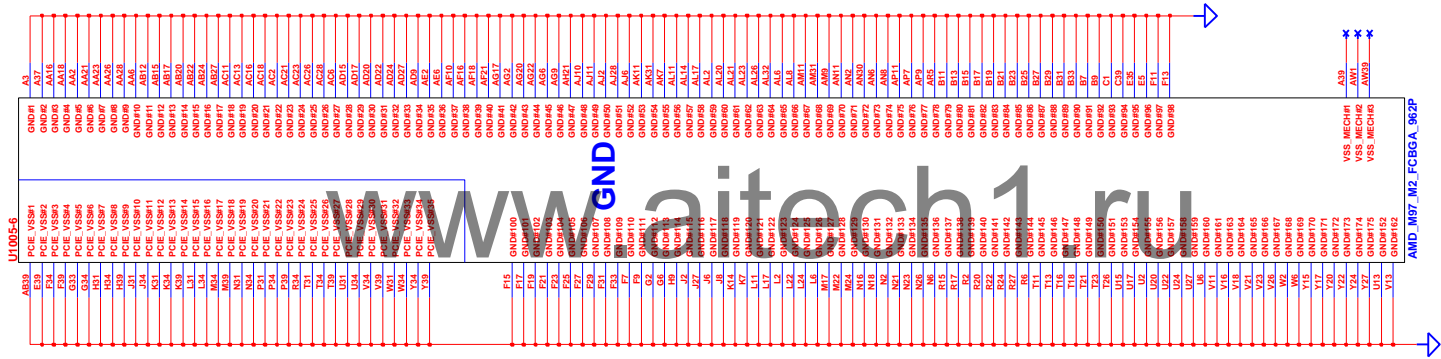
FOR M97,Broadway,Madiso and Park ONLY

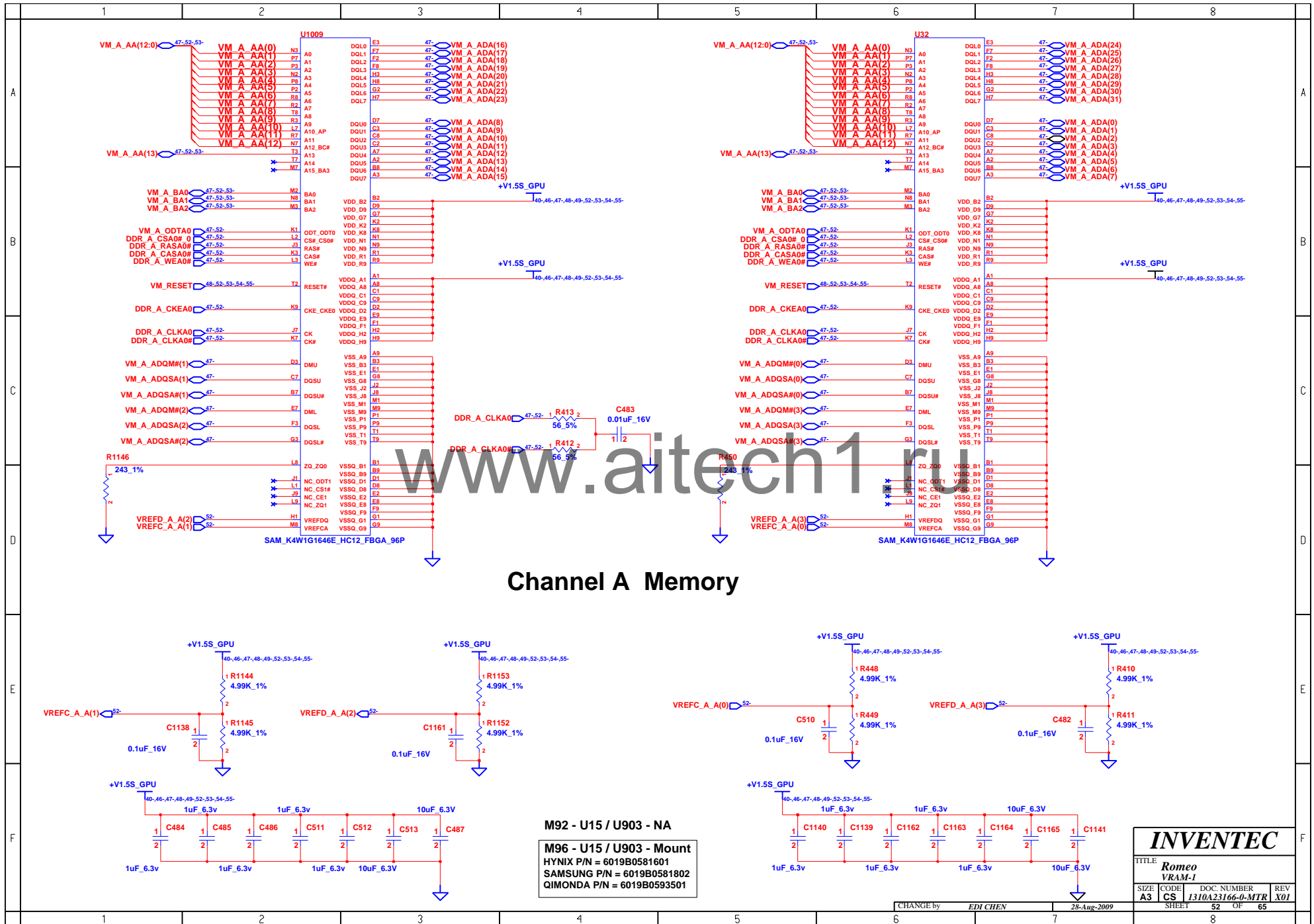
INVENTEC

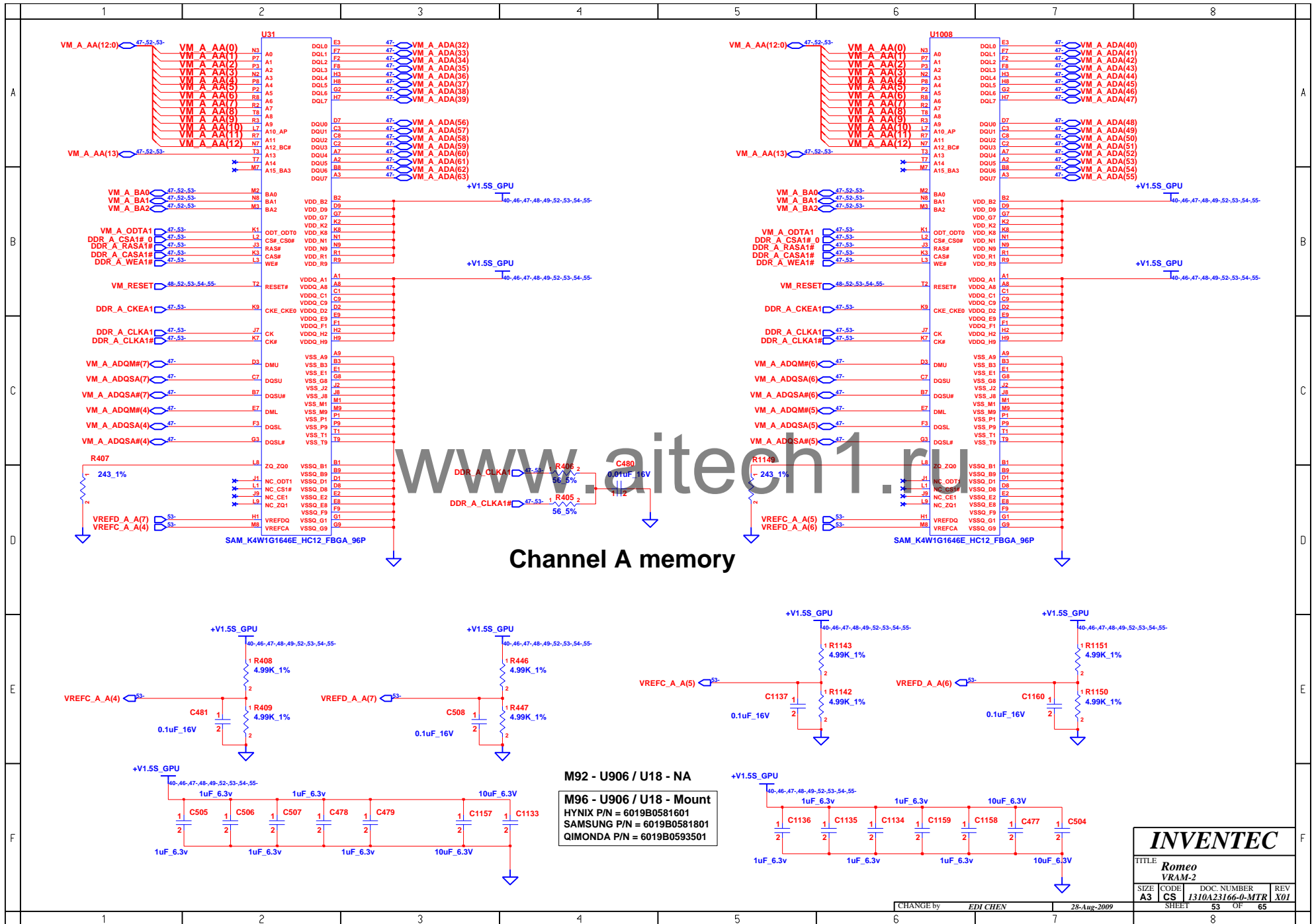
TITLE Romeo GPU-3			
SIZE A3	CODE CS	DOC. NUMBER 1310A23166-0-MTR	REV X01
SHEET 47		OF 65	

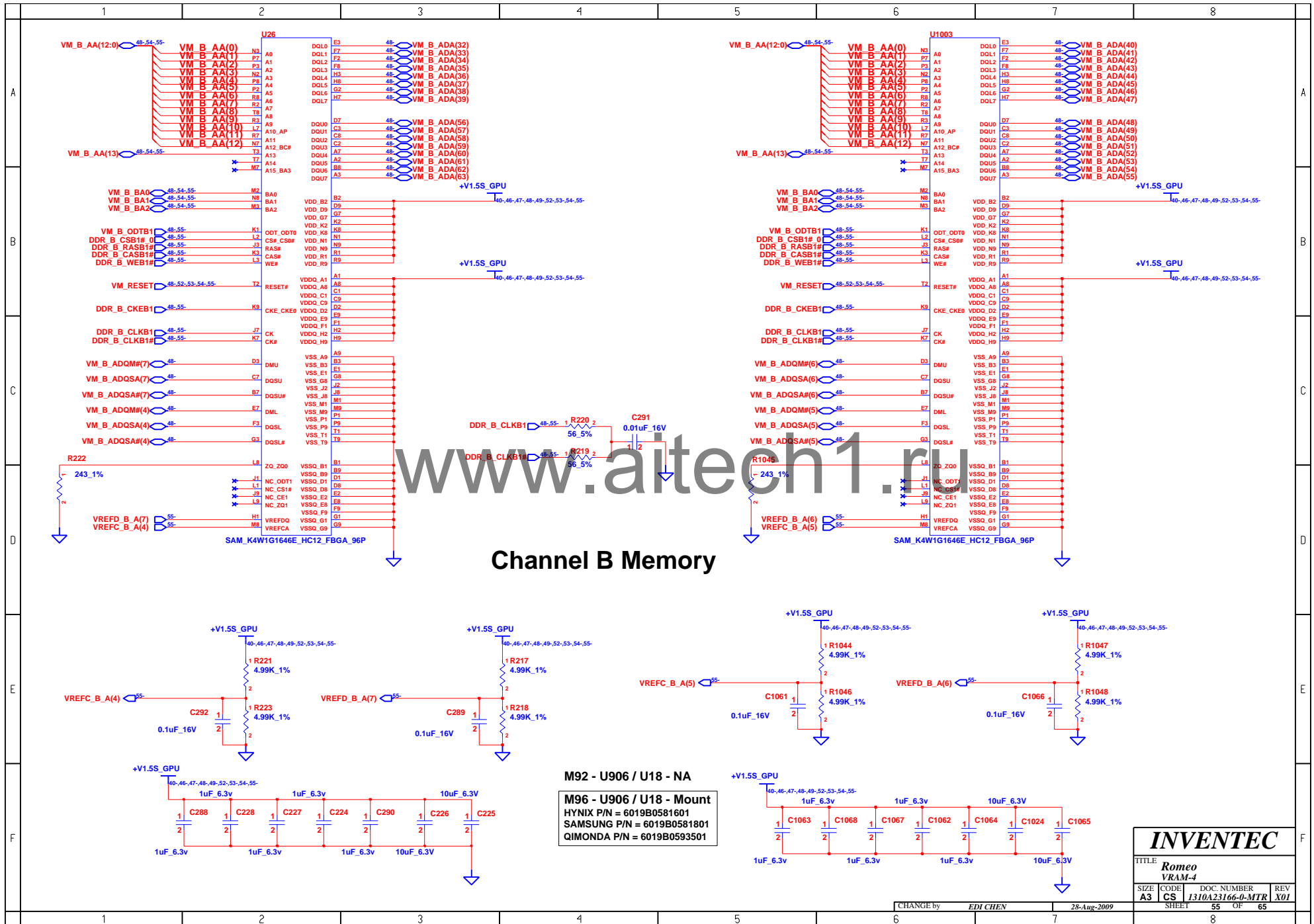
CHANGE by **EDI CHEN** 28-Aug-2009

	1	2	3	4	5	6	7	8	
A									A
B									B
C									C
D									D
E									E
F									F
	1	2	3	4	5	6	7	8	



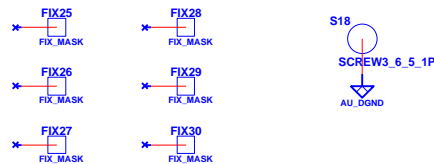
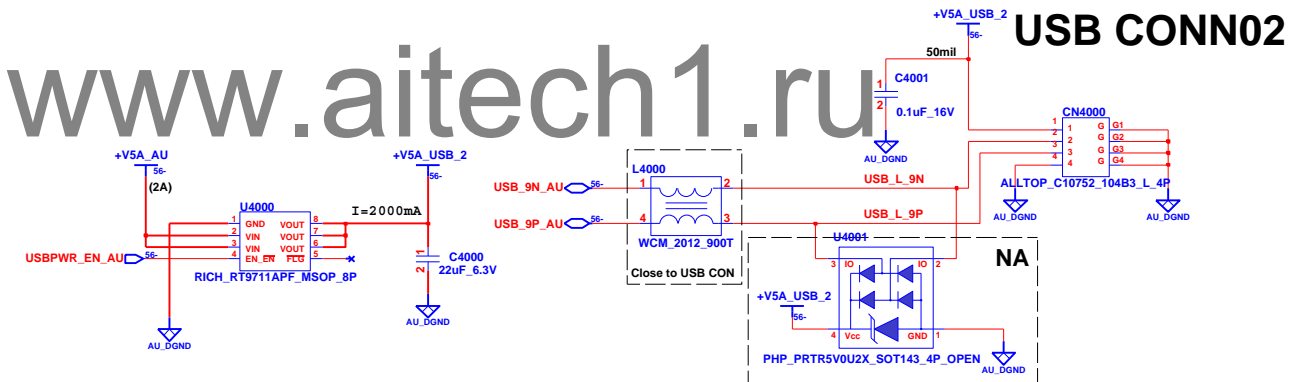
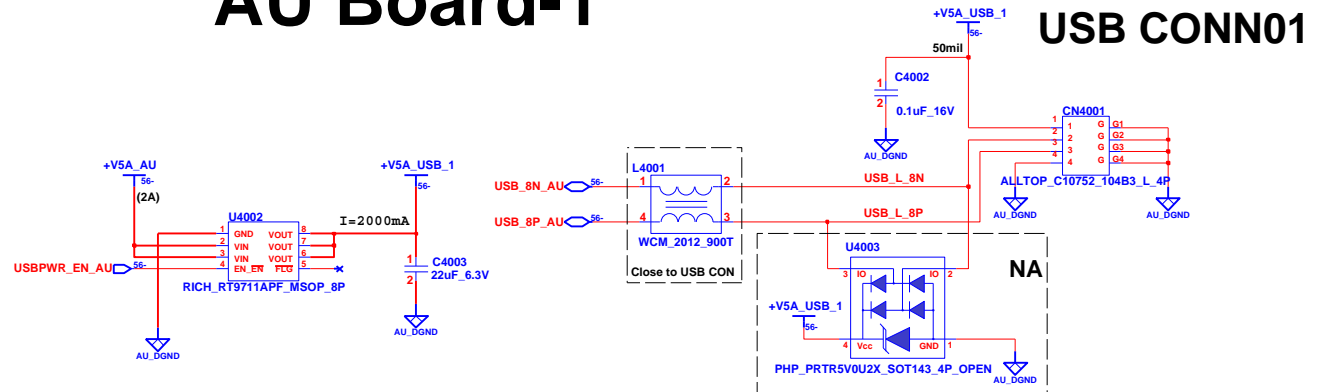
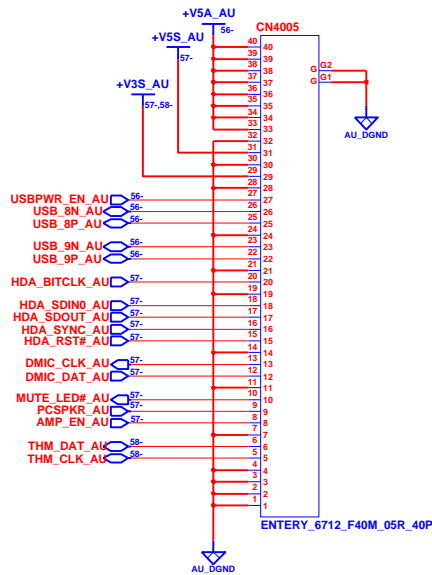






AU Board-1

AU Board CN on DB



INVENTEC

TITLE
ROMEO

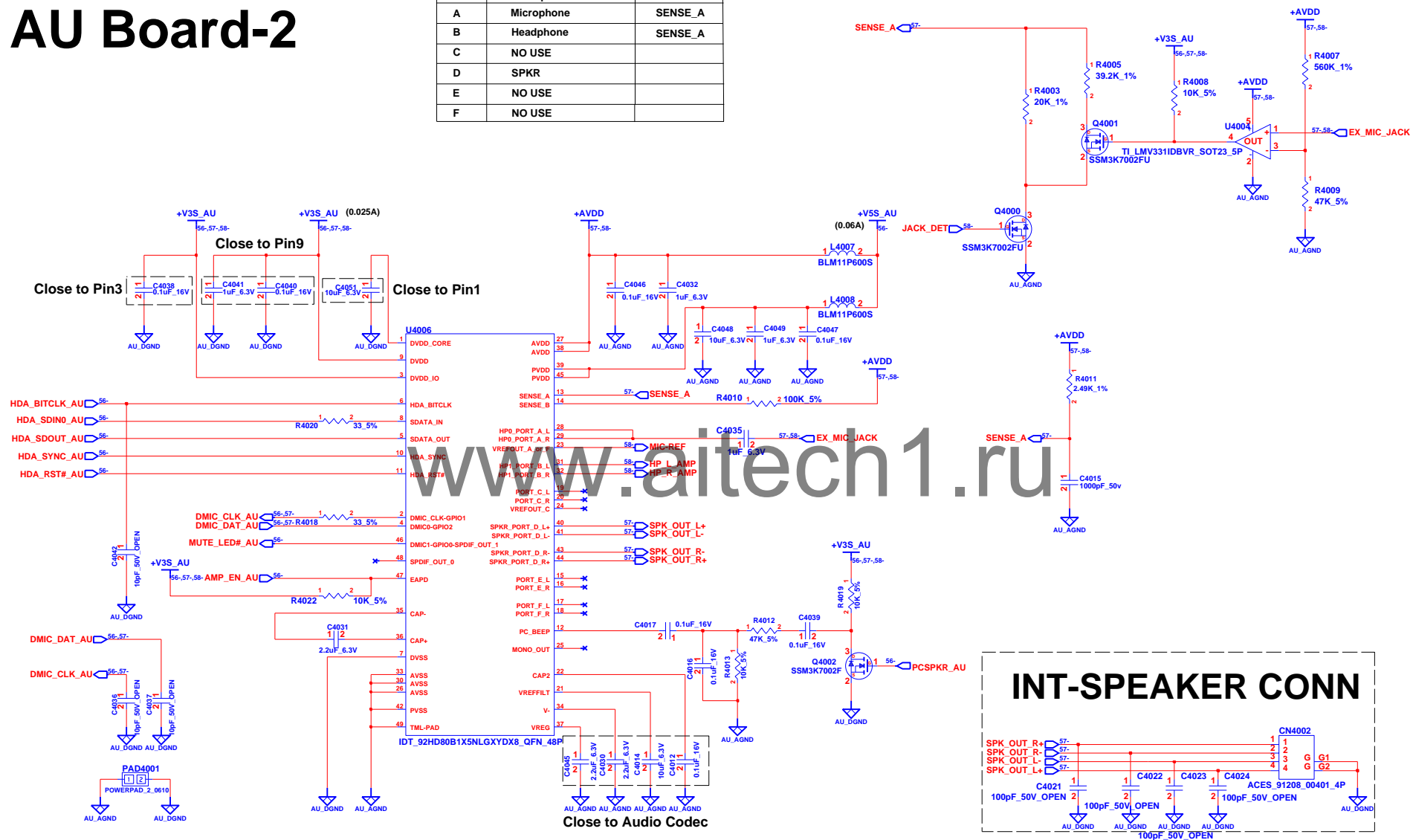
SIZE	CODE	DOC. NUMBER	REV
A3	CS	1310A23165-0-MTR	X01

CHANGE by **EDI CHEN** 20-Aug-2009

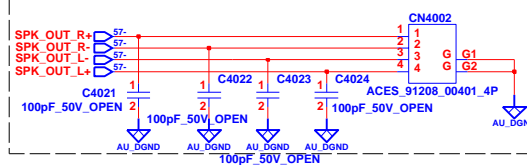
SHEET 56 OF 65

AU Board-2

PORT	Discription	Sense
A	Microphone	SENSE_A
B	Headphone	SENSE_A
C	NO USE	
D	SPKR	
E	NO USE	
F	NO USE	



INT-SPEAKER CONN

**INVENTEC**

TITLE	<i>ROMEO</i>
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SIZE A3	CODE CS	DOC. NUMBER 1310A23165-0-MTR	REV X01
SHEET		57	OF 65

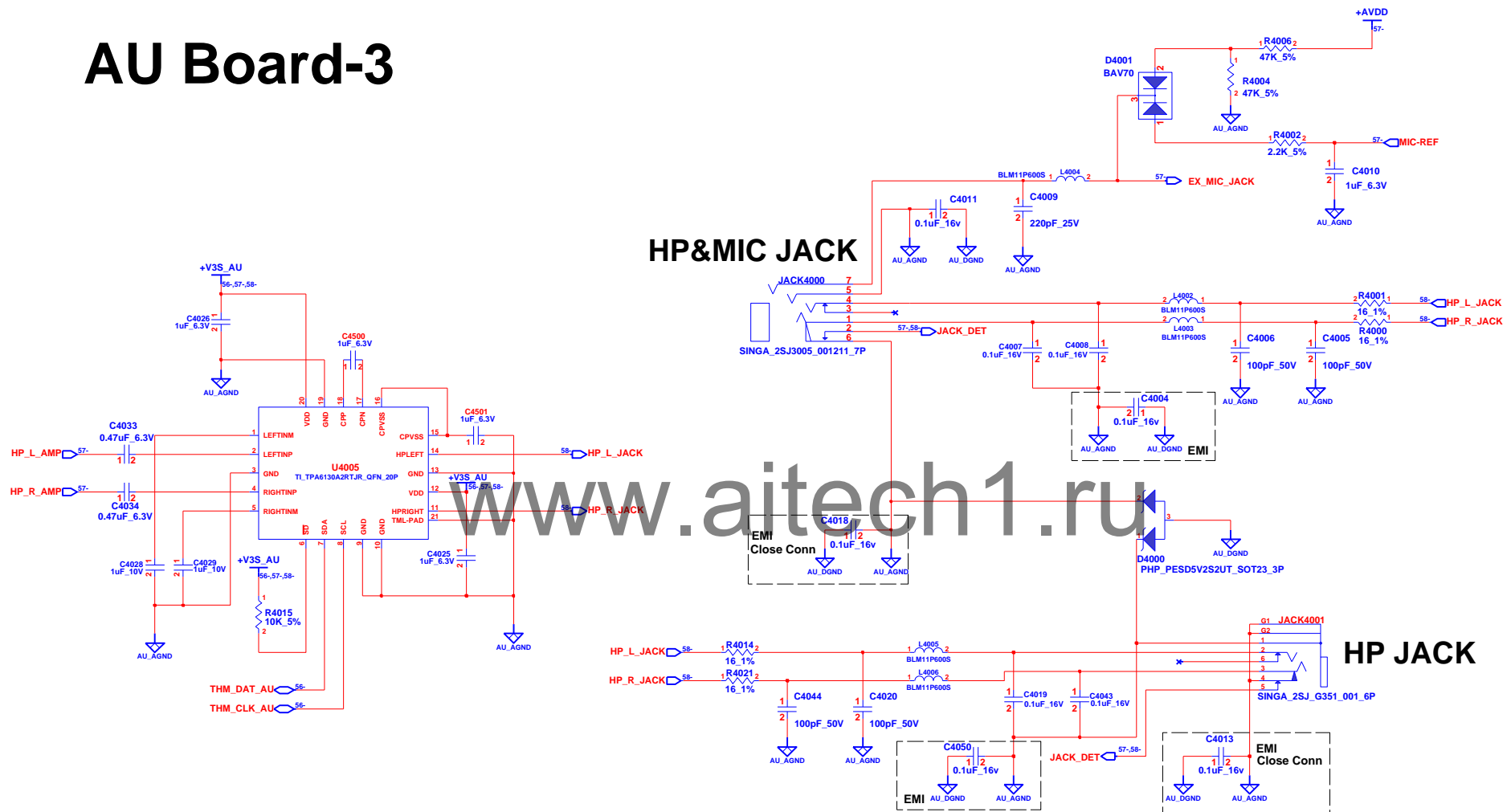
CHANGE by	<i>EDI CHEN</i>	<i>11-Sep-2009</i>
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AU Board-3

HP&MIC JACK

www.aitech1.ru

HP JACK



INVENTEC

TITLE
ROMEO

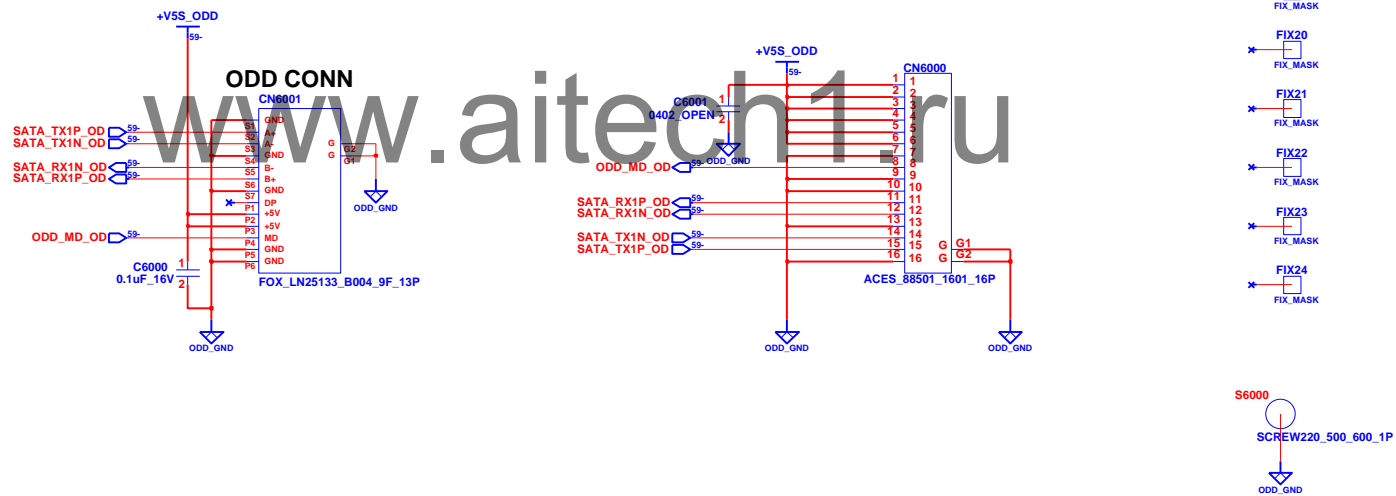
SIZE A3	CODE CS	DOC. NUMBER 1310A23165-0-MTR	REV X01
SHEET 58		OF 65	

CHANGE by **EDI CHEN** 20-Aug-2009

www.qdzbxw.com

SATA ODD

ODD Board



INVENTEC

TITLE
ROMEO
ODD EXT BOARD

SIZE CODE DOC. NUMBER REV

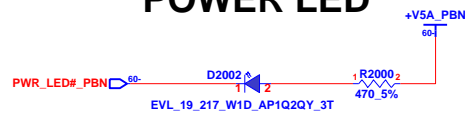
A3 CS 1310A23162-0-MTR X01

CHANGE by EDI CHEN 20-Aug-2009

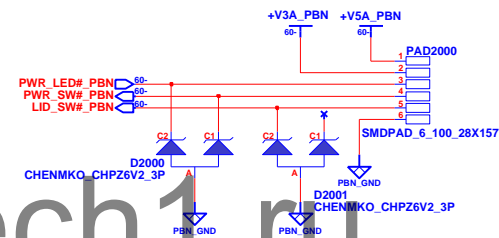
SHEET 59 OF 65

Power Button

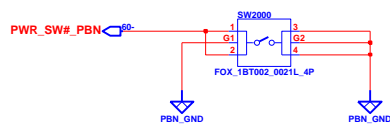
POWER LED



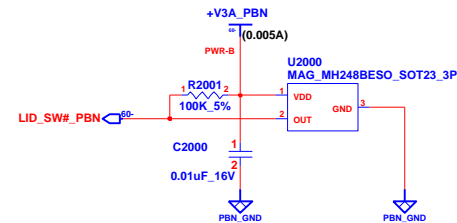
PBN Cable CN on PBN



POWER BUTTON



LID SWITCH



INVENTEC

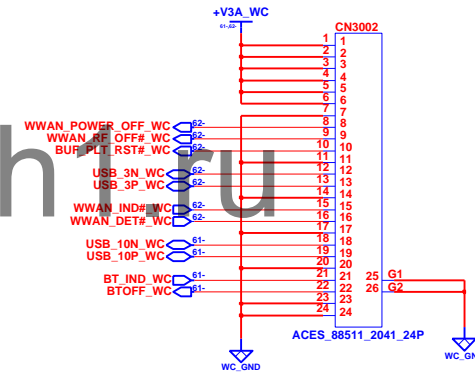
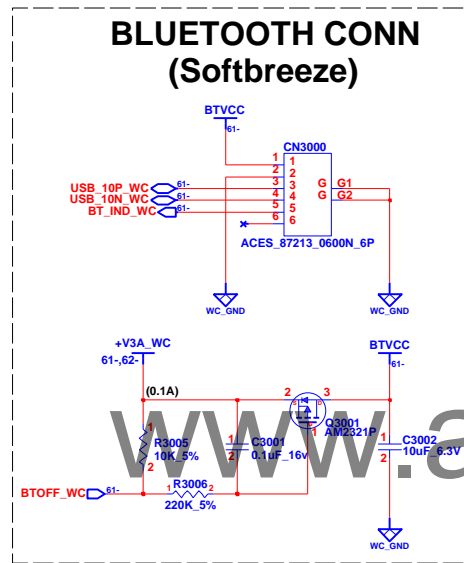
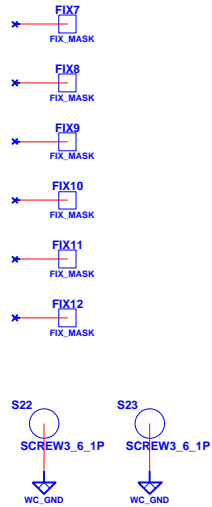
TITLE
ROMEO

SIZE A3	CODE CS	DOC. NUMBER 1310A23174-0-MTR	REV X01
SHEET 60		OF 65	

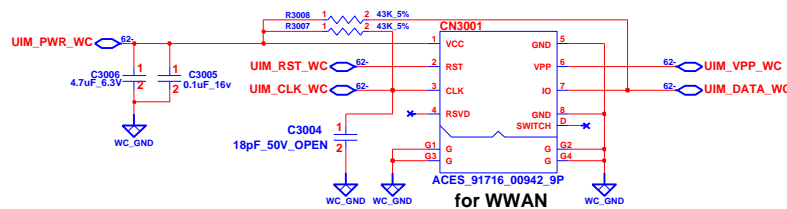
CHANGE by **EDI CHEN**

20-Aug-2009

WC Board-1



SIM CARD CONN



INVENTEC

TITLE
ROMEO

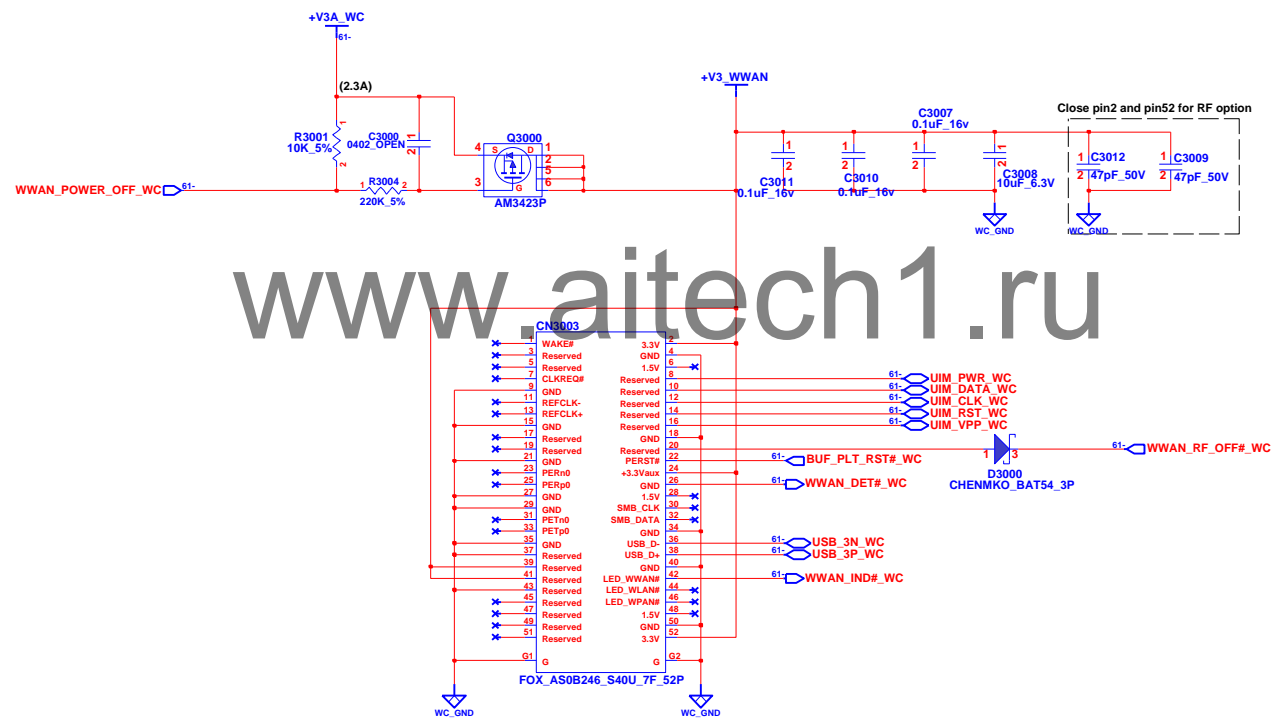
SIZE CODE DOC. NUMBER REV
A3 CS 1310A23164-0-MTR X01

CHANGE by **EDI CHEN** 20-Aug-2009

SHEET 61 OF 65

WC Board-2

WWAN



www.aitech1.ru

INVENTEC

TITLE
ROMEO

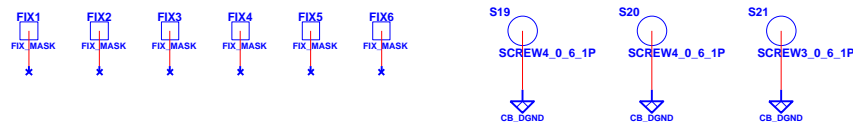
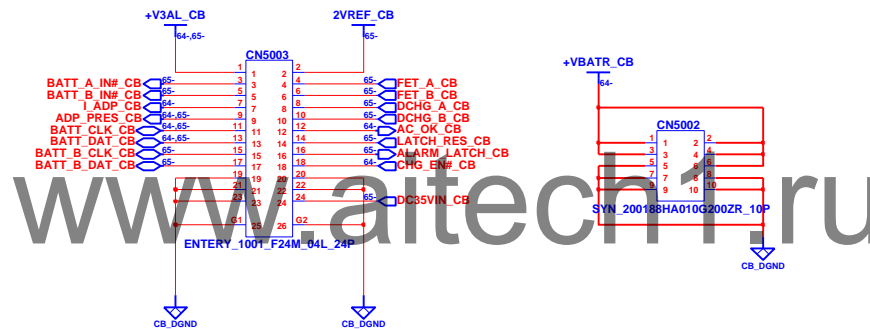
SIZE CODE CS DOC. NUMBER REV
A3 **1310A23164-0-MTR** **X01**

SHEET 62 OF 65

CHANGE by EDI CHEN 20-Aug-2009

www.qdzbxw.com

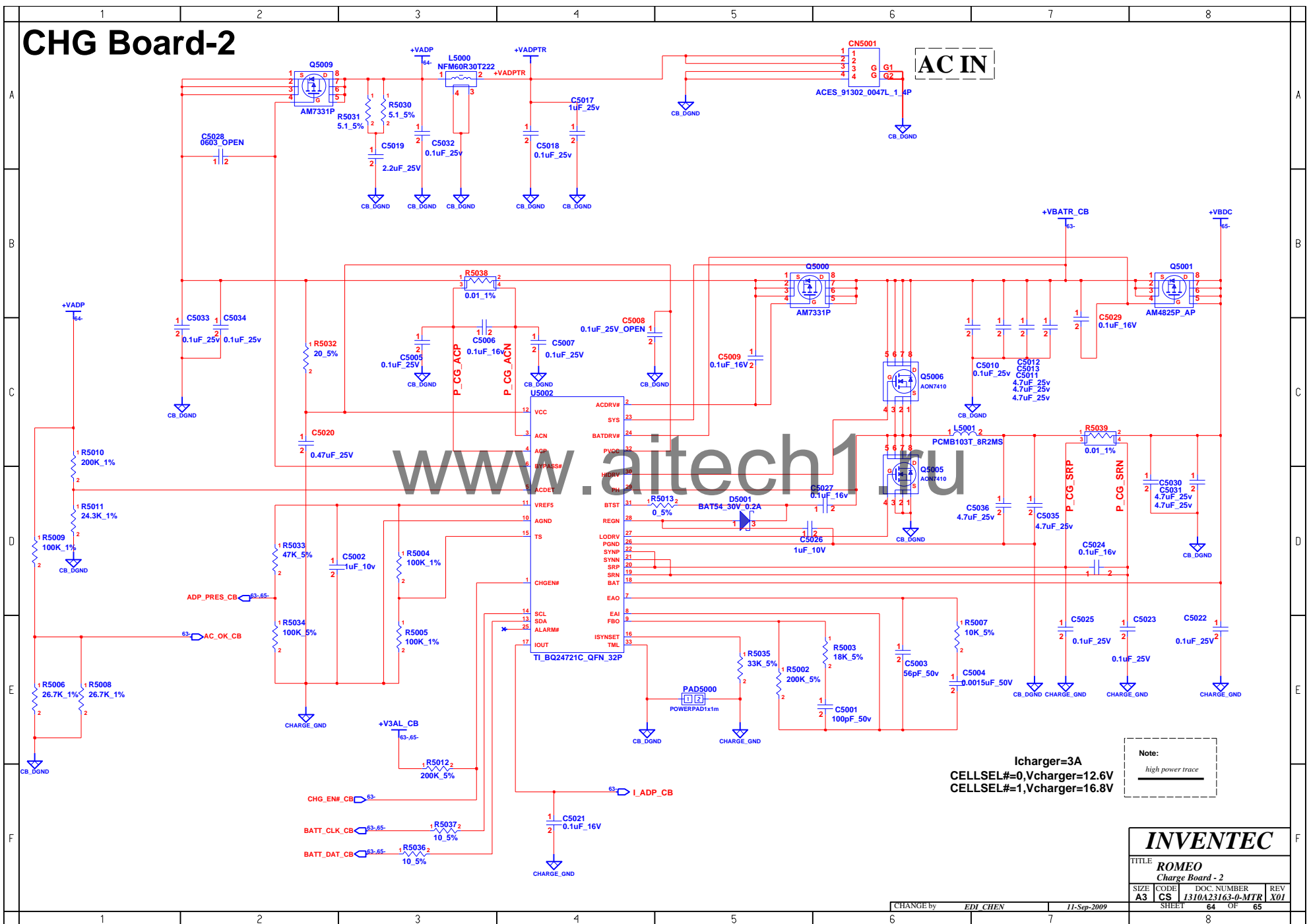
CHG Board-1



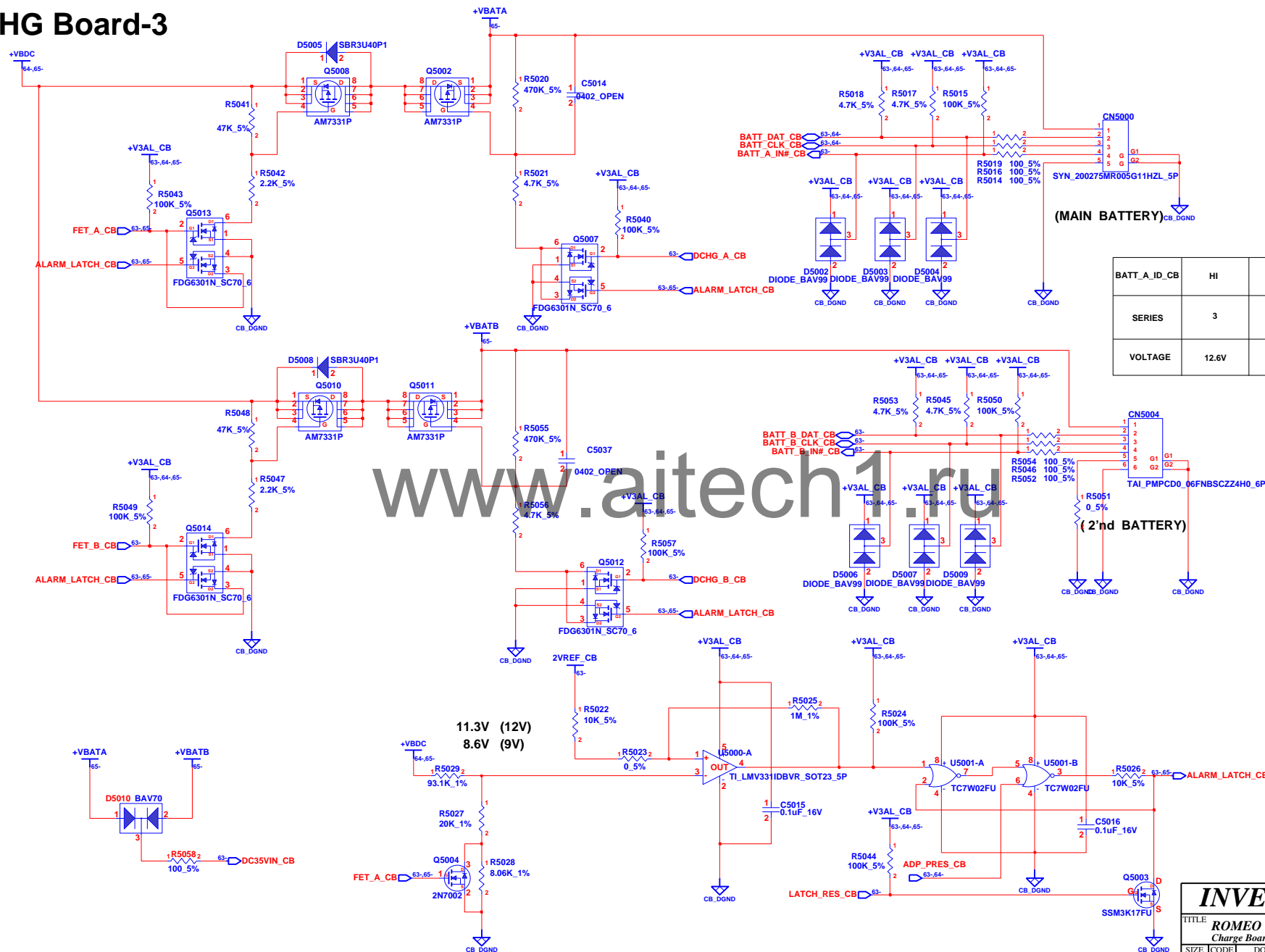
INVENTEC			
TITLE ROMEO Charge Board - 1			
SIZE A3	CODE CS	DOC. NUMBER 1310A23163-0-MTR	REV X01
SHEET 63		OF 65	

CHANGE by EDI CHEN 20-Aug-2009

CHG Board-2



CHG Board-3



BATT_A_ID_CB	HI	LOW
SERIES	3	4
VOLTAGE	12.6V	16.8V

INVENTEC

TITLE: **ROMEO**
Charge Board - 3

SIZE CODE DOC NUMBER REV
A3 CS 1310A23163-0-MTR X01

SHEET 65 OF 65

CHANGE by EDI CHEN 11-Sep-2009