HSF Property:ROHS or Halogen-Free

1310A2548301 (SAMSUNG) R5061 CHANGE TO 6013A0107901 (45.3K OHM)
1310A2548302 (MICRON) R5061 CHANGE TO 6013A0017501 (30.1K OHM)

15CR-GV2-MV-0118

2013.01.18

Chief River						
UMA	DIS					
PGA 35W(dual)-HM77						
NA	N14P-GV2 23*23				N14P-GT 29*29	
NA	900MHz 256Mx16 DDR3 4pcs (2G)		900MHz 256Mx16 DDR3 8pcs (4G)		1GHz 128Mx16 GDDR5 8pcs (2G)	
	Samsung K4W4G1646B-HC11	Micron MT41K256M16HA-107G:E	Samsung K4W4G1646B-HC11	Micron MT41K256M16HA-107G:E	Hynix H5GQ2H24AFR-T2C	Samsung K4G20325FD-FC04
6050A2548201	6050A2548301				6050A2548401	
PCB-1(6L)	PCB-2 (8L)				PCB-3 (8L)	
1310A2548201	1310A2548301	1310A2548302	1310A2548303	1310A2548304	1310A2548401	1310A2548402

Location	Part number	Factory	Manufacturer Part No	Marking
D300	1st : 6011A0026801	DIODES	D-BAT54-7	KL1
	2nd : 60110GA0367T	NXP	BAT54	L4
Q300	1st : 6015B0110701	TOSHIBA	SSM3K7002BFU	NM
Q301	2nd : 6015B0142901	DIODES	DMN65D8LW-7	MM3
U301	1st : 6019B0932401	MXIC	MX25L512EMI-10G	
512KB	2nd : 6019B0816001	ATMEL	AT25F512B-SSH-T	
U301	1st : 6019B1016101	WINBOND	W25Q32FVSSIG	
4MB	2nd : 6019B0794701	MXIC	MX25L3206EM2I-12G	
U301	1st : 6019B0955901	WINBOND	W25Q64FVSSIG	
8MB	2nd : 6019B0813101	MXIC	MX25L6406EM2I-12G	

2012/5/02	DB	X01
18-DEC-2012		
DATE	CHANGE NO.	REV

	EE	DATE	POWER	DATE
DRAWER	Abel			
DESIGN	Alan			
CHECK	Alan			
RESPONSIBLE				

SIZE: VER:
FILE NAME:
PIN: Wison_Lin

INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Main Board

SIZE	CODE	DOC.NUMBER	REV
C	CS	1310A2548301	A02

SHEET 1 of 69

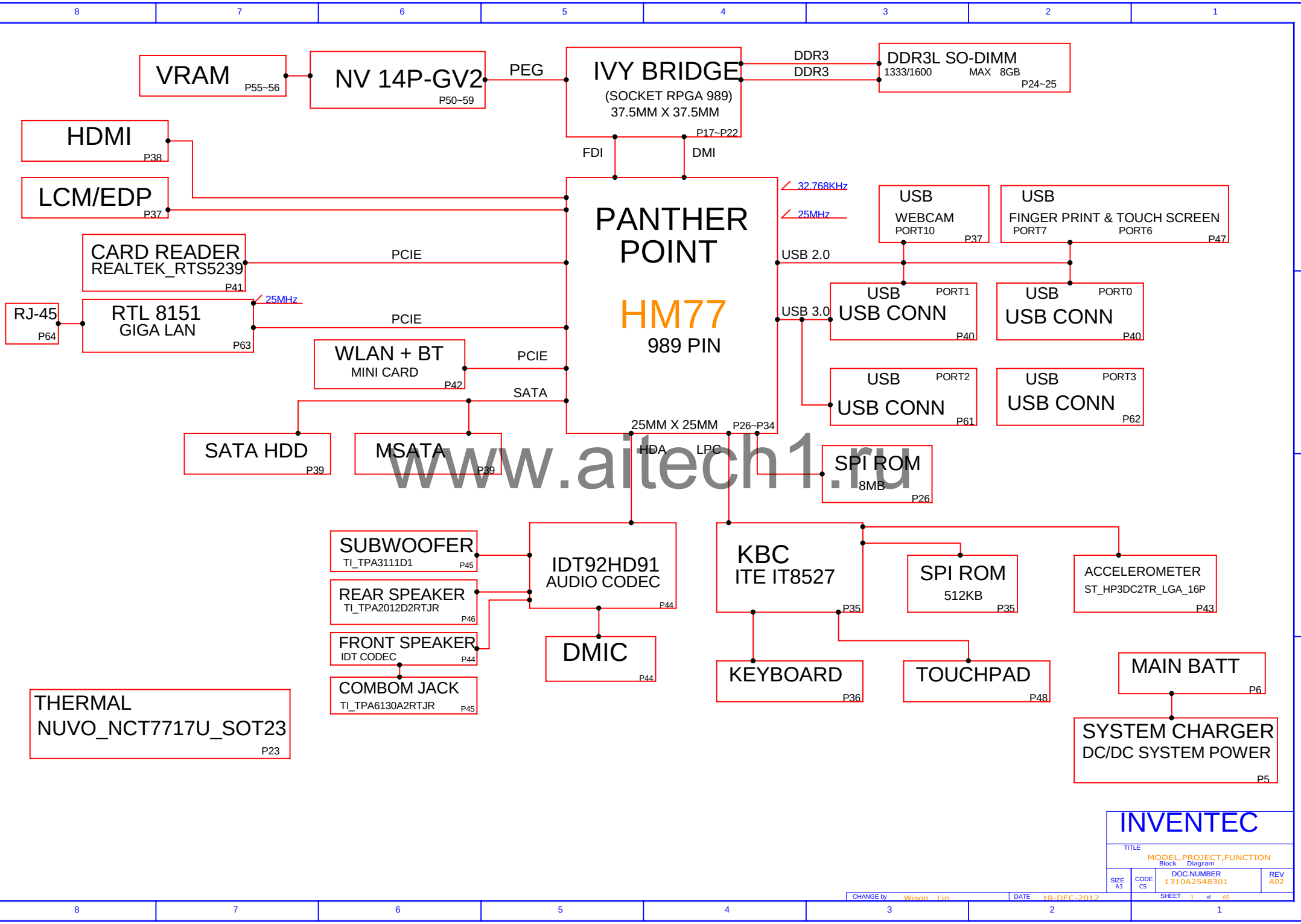
Index

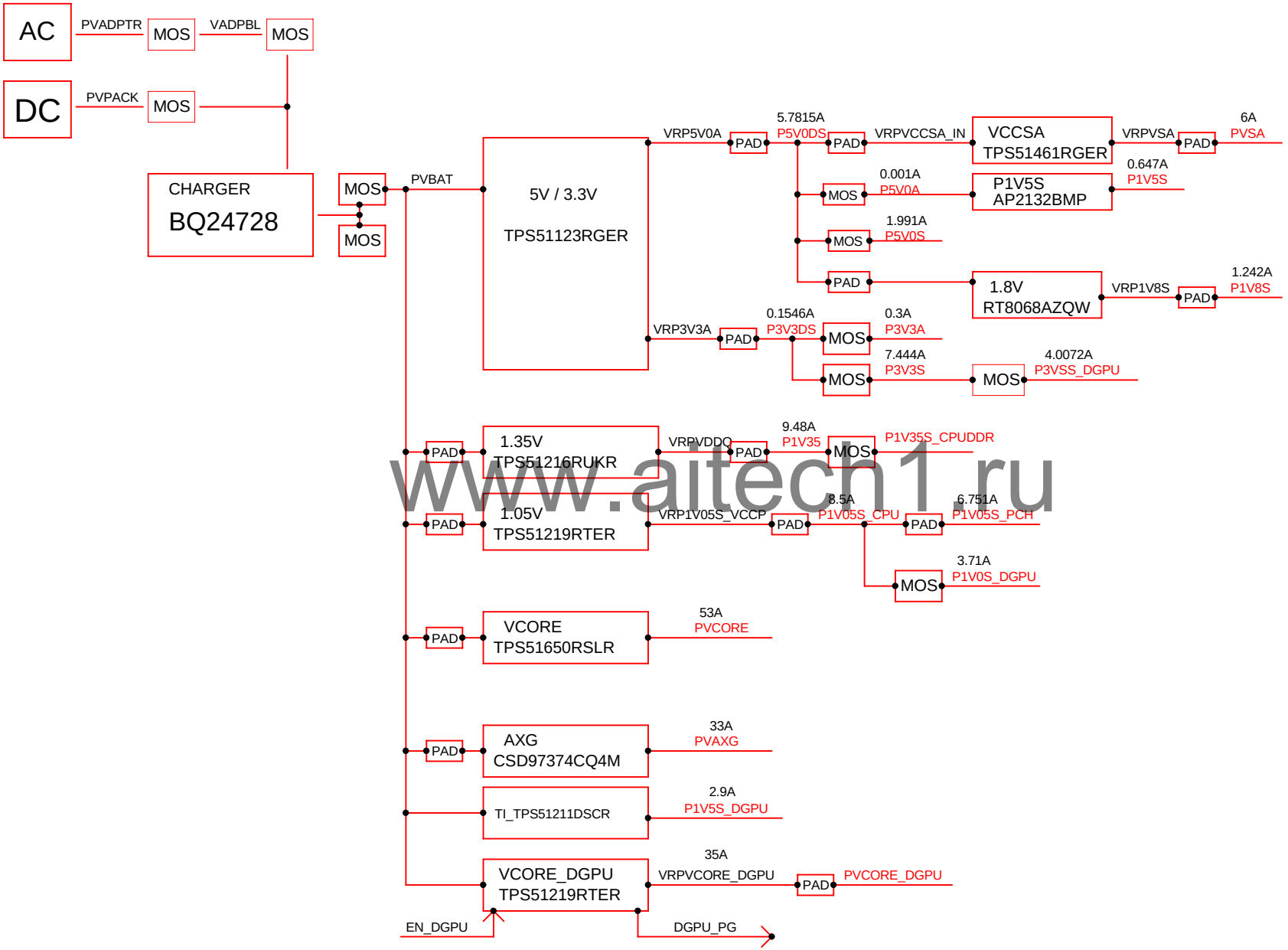
INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
INDEX

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by Wison_Lin DATE 18-DEC-2012 SHEET 2 of 69



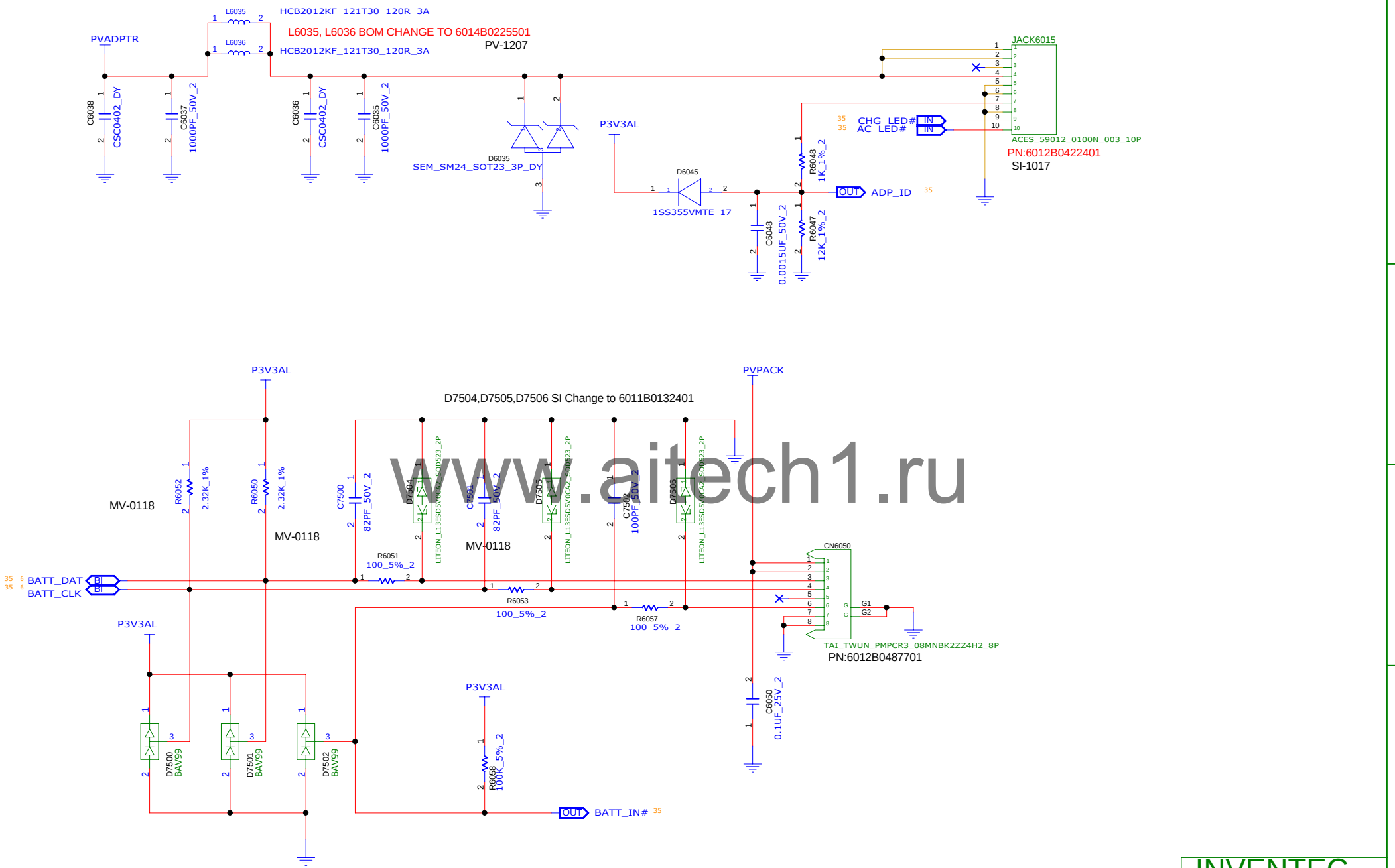


INVENTEC

TITLE
MODEL,PROJECT,FUNCTION
POWER PROCEDURE

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by Wison_Lin DATE 18-DEC-2012 SHEET 4 of 69

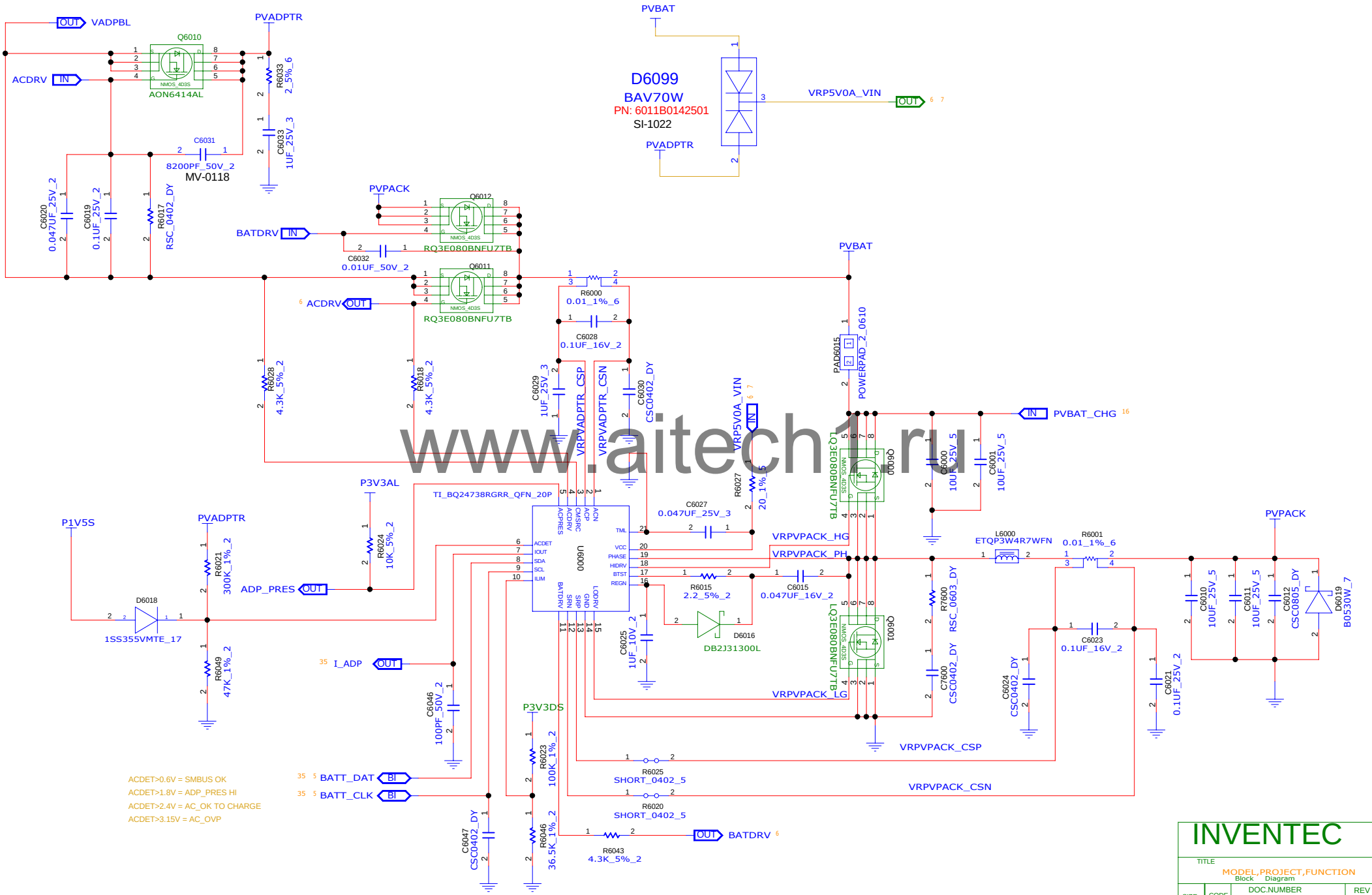


INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by: Wison Lin
DATE: 18-DEC-2012
SHEET 5 of 69

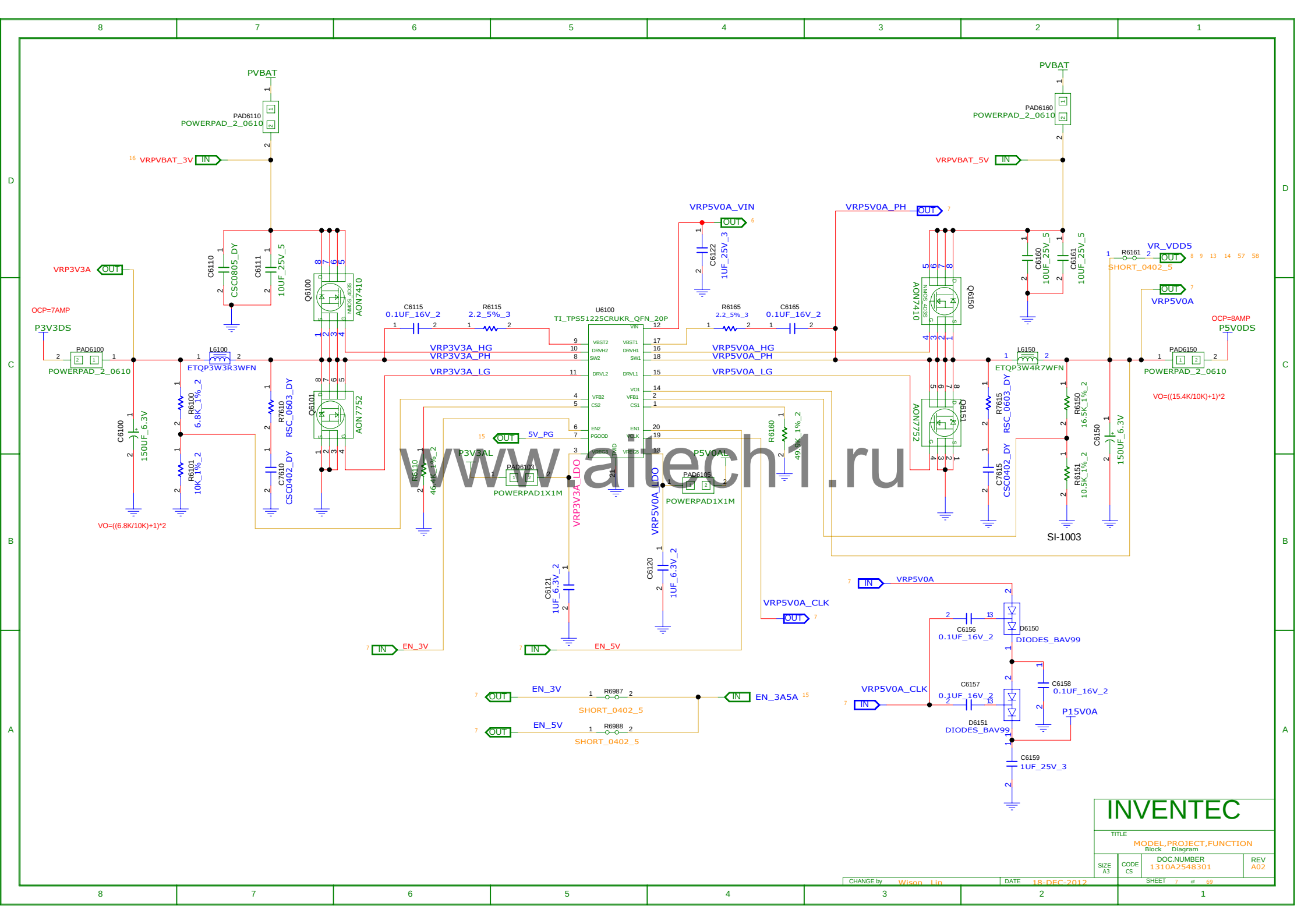


INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by: Wison Lin | DATE: 18-DEC-2012 | SHEET 6 of 69



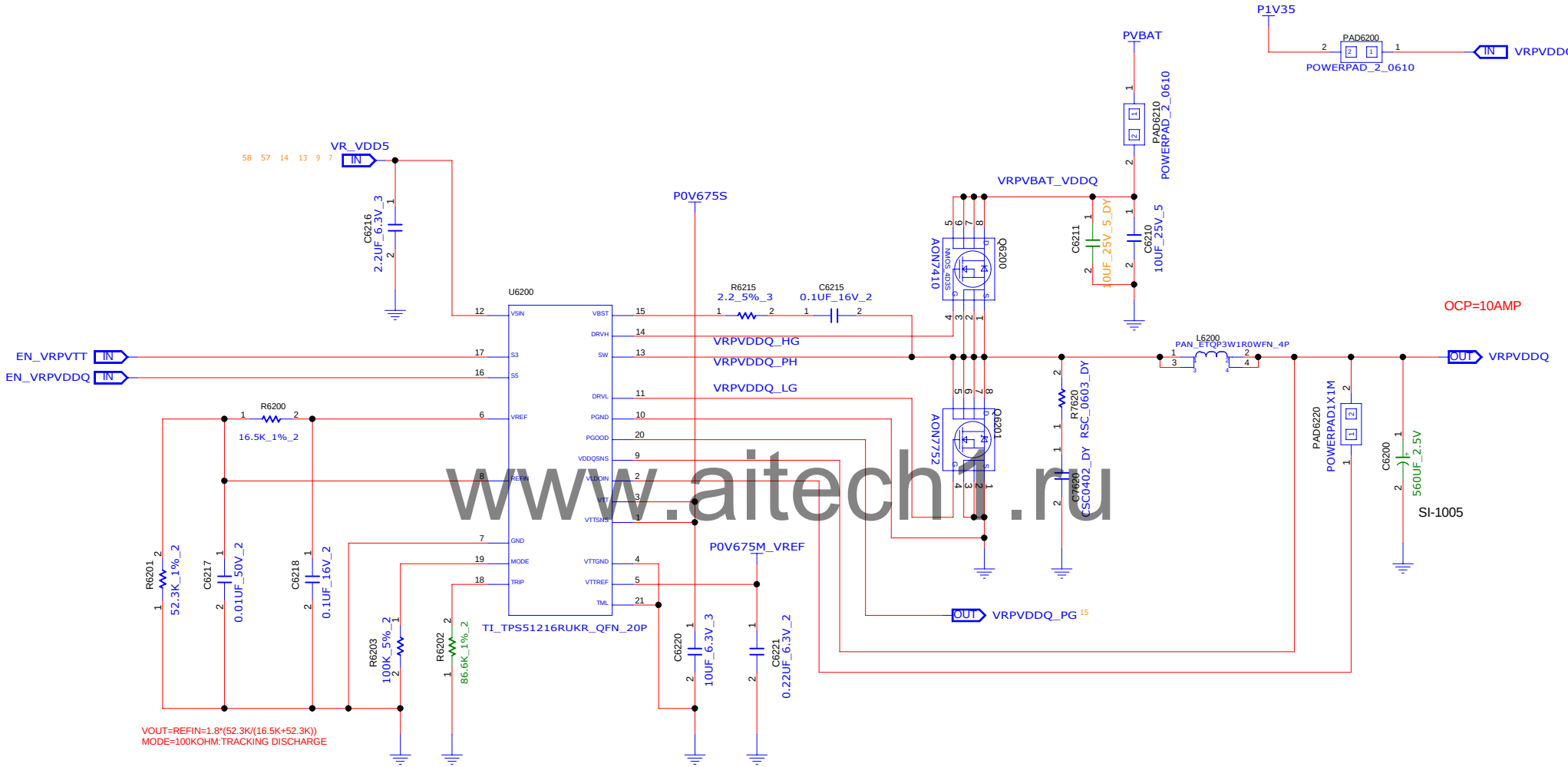


Table 1. S3/S5 Power State Control

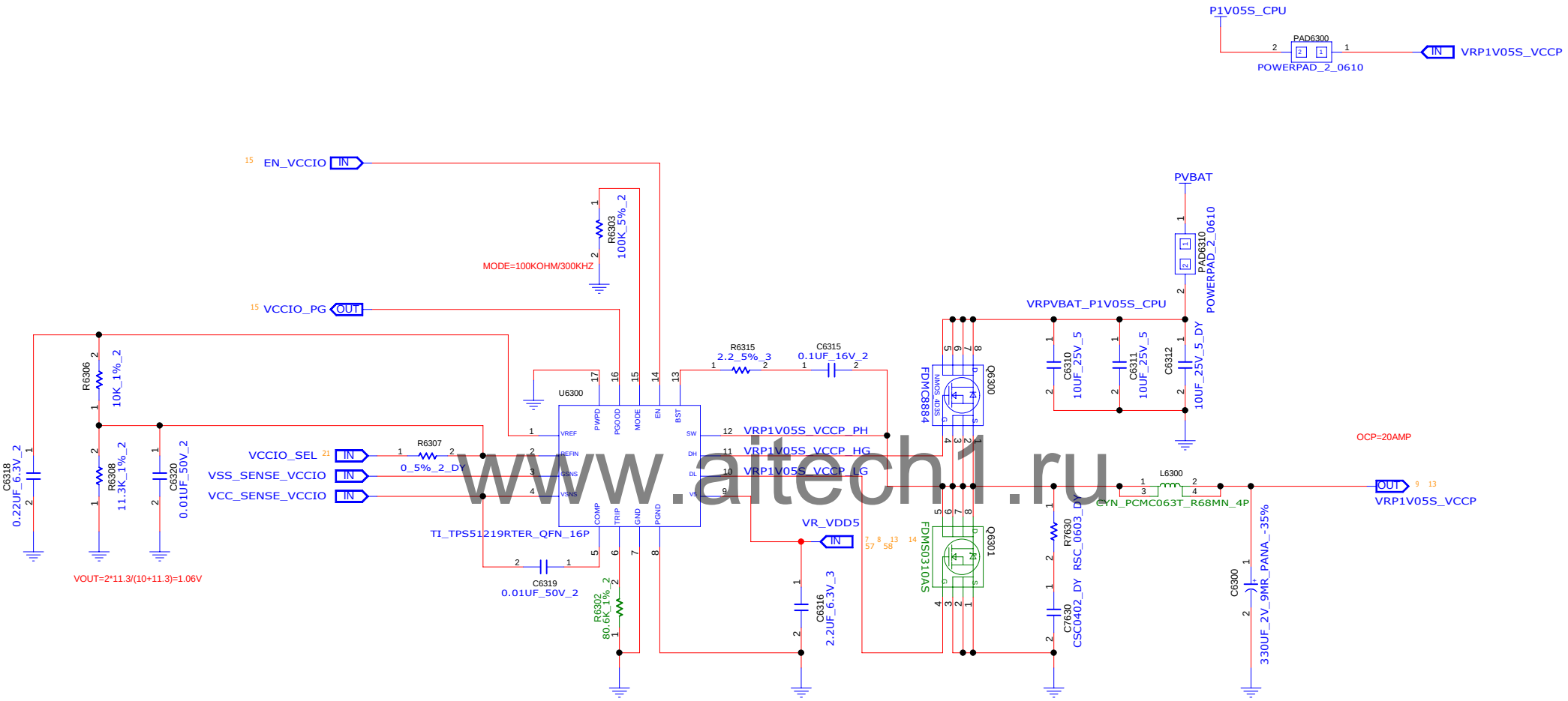
STATE	S3	S5	VREF	VDDQ	VTTREF	VTT
S0	HI	HI	ON	ON	ON	ON
S3	LO	HI	ON	ON	ON	OFF(High-Z)
S4/S5	LO	LO	OFF	OFF(Discharge)	OFF(Discharge)	OFF(Discharge)

INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by Wison Lin DATE 18-DEC-2012 SHEET 8 of 69

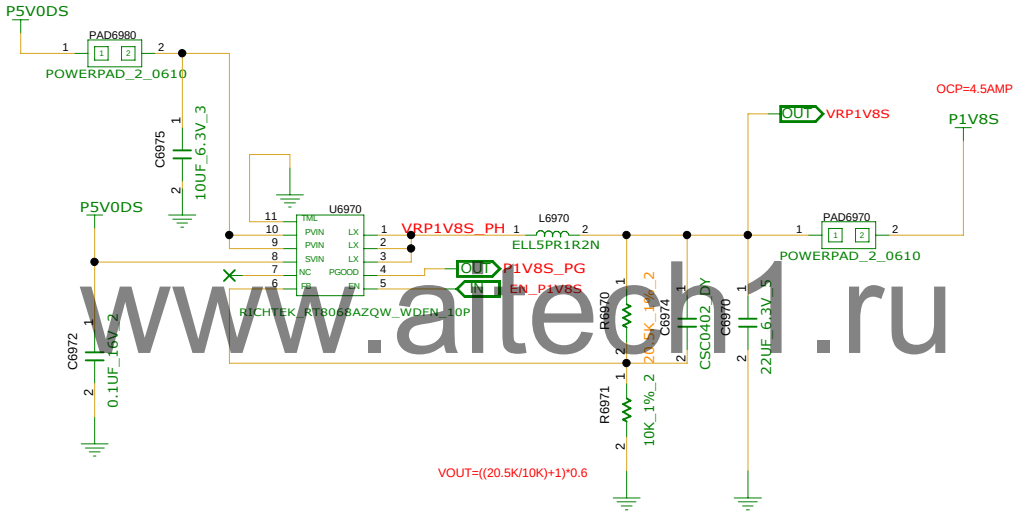


INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by Wison Lin DATE 18-DEC-2012 SHEET 9 of 69



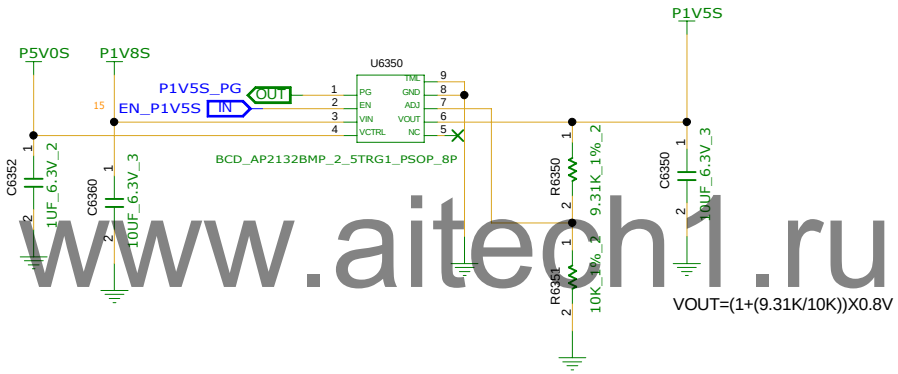
INVENTEC

TITLE
MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

SHEET 10 of 69

CHANGE by Wison Lin DATE 18-DEC-2012



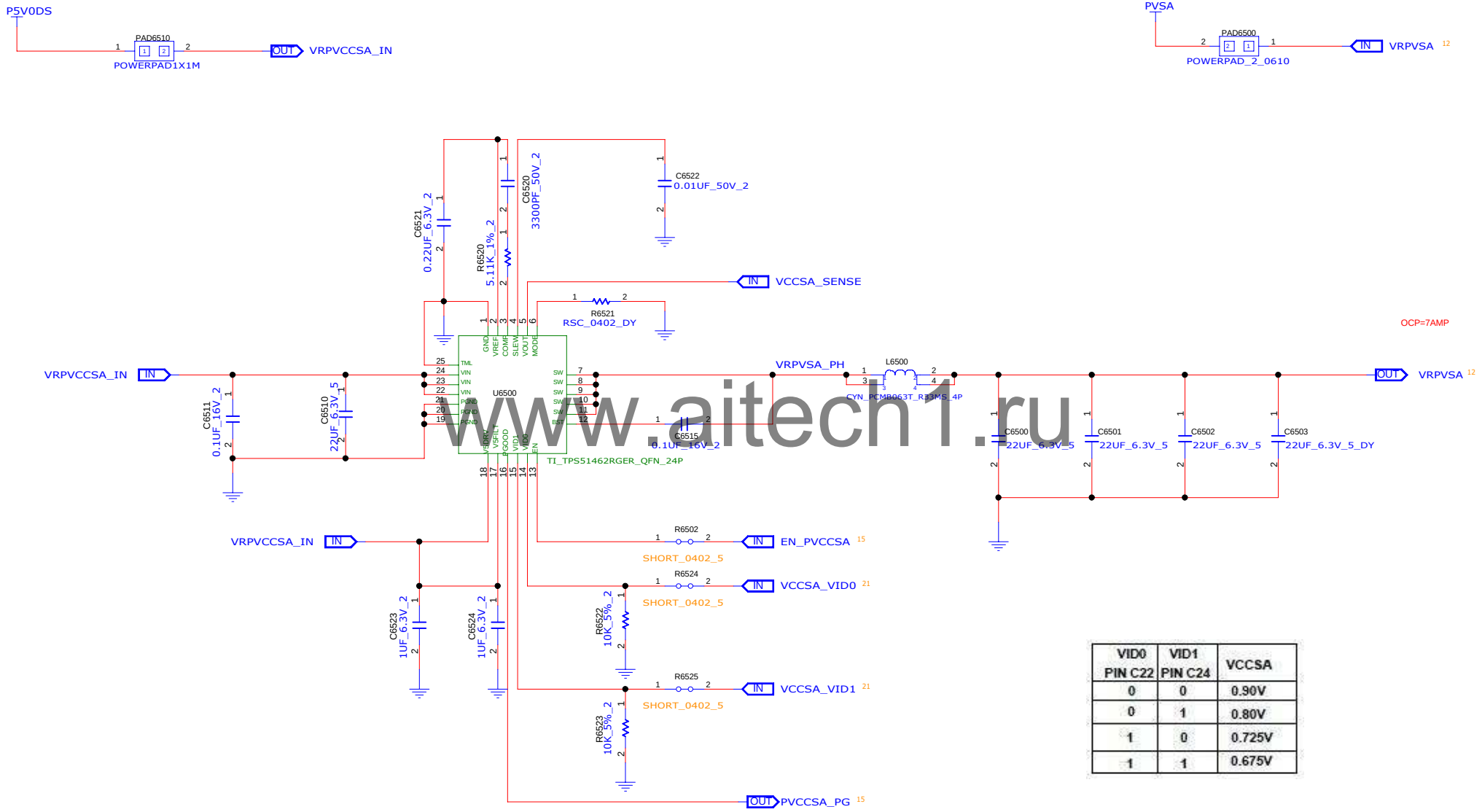
INVENTEC

TITLE
MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

SHEET 11 of 69

CHANGE by Wison_Lin DATE 18-DEC-2012



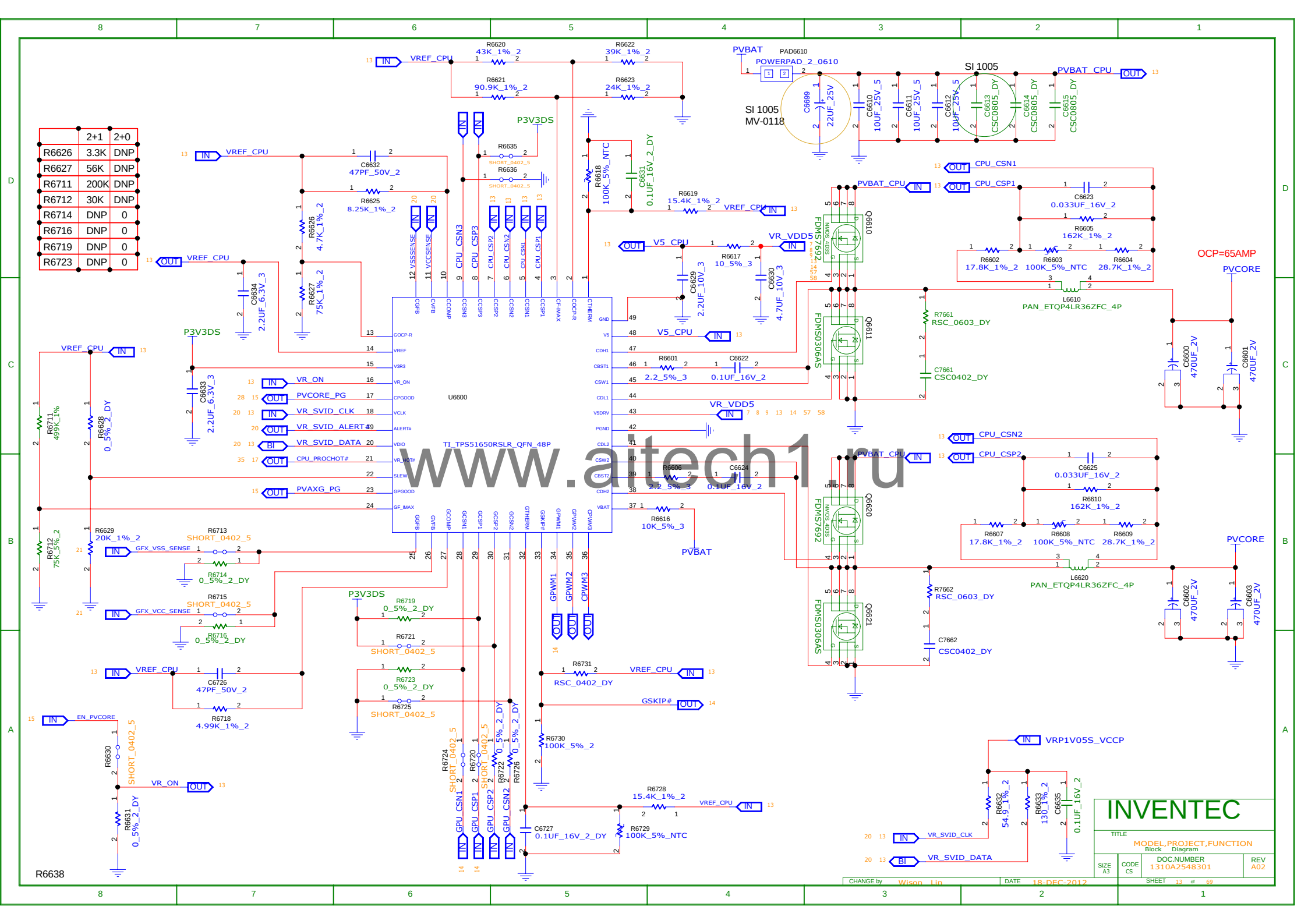
VID0 PIN C22	VID1 PIN C24	VCCSA
0	0	0.90V
0	1	0.80V
1	0	0.725V
1	1	0.675V

INVENTEC

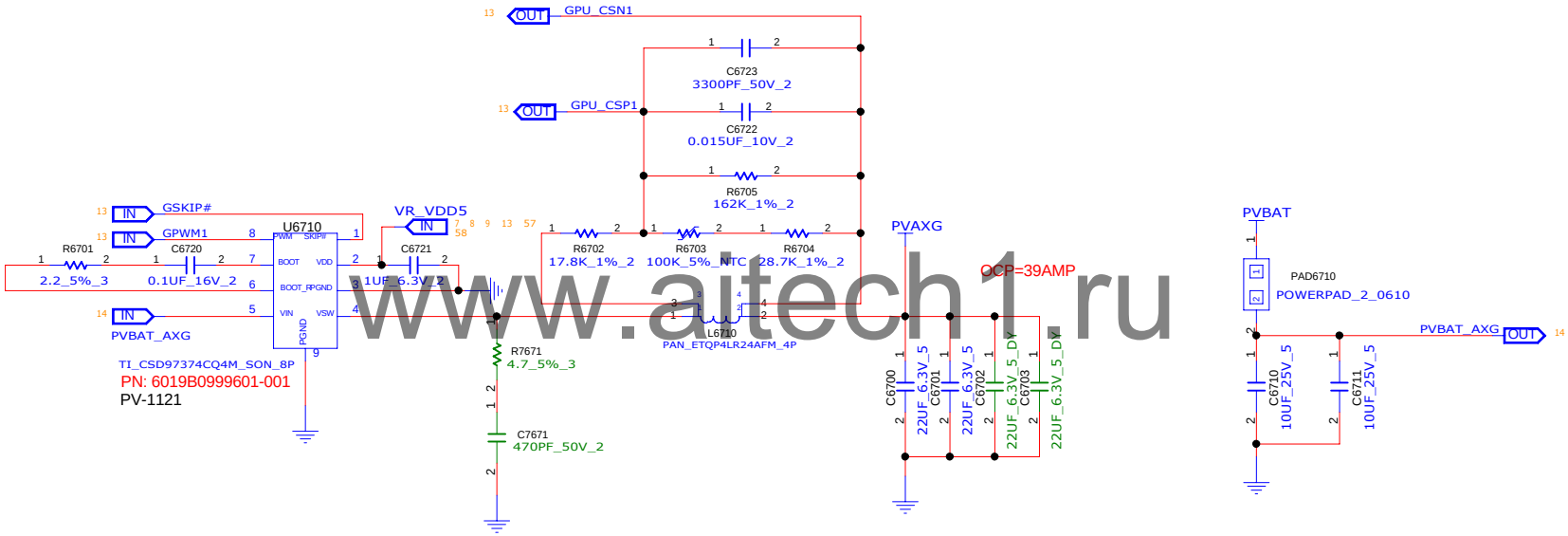
TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by Wison Lin DATE 18-DEC-2012 SHEET 12 of 69



	2+1	2+0
R6626	3.3K	DNP
R6627	56K	DNP
R6711	200K	DNP
R6712	30K	DNP
R6714	DNP	0
R6716	DNP	0
R6719	DNP	0
R6723	DNP	0

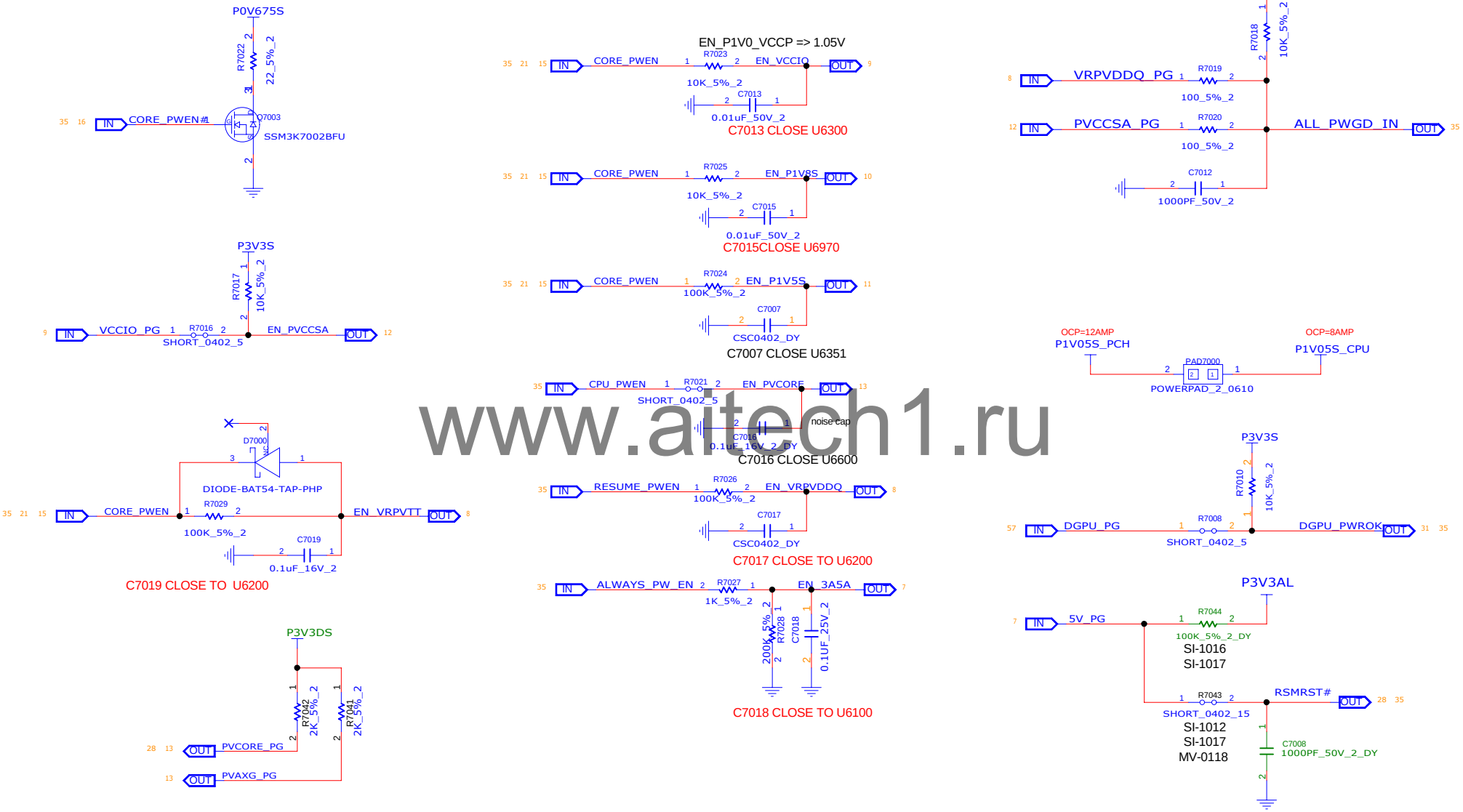


INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

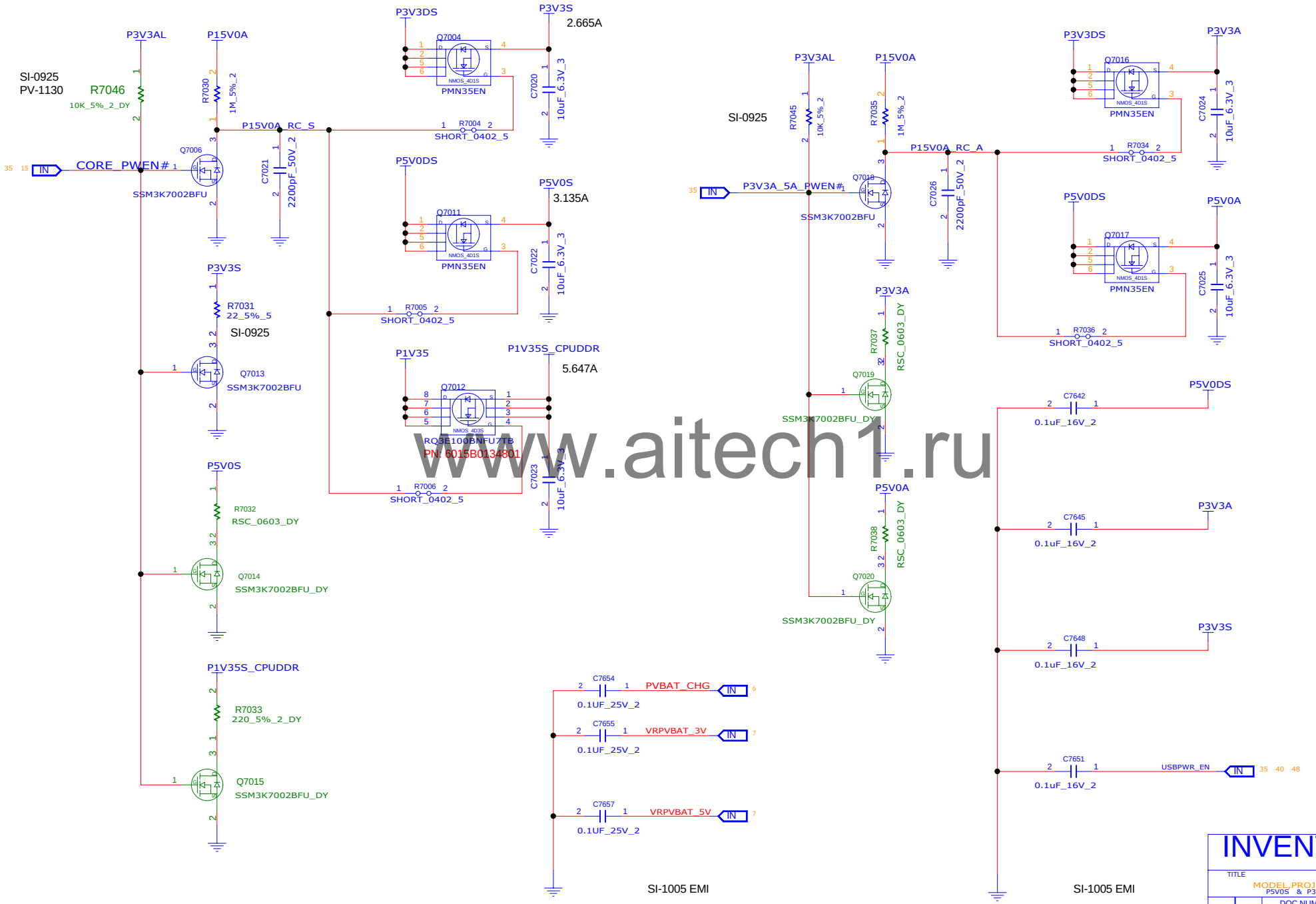
SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by Wison Lin DATE 18-DEC-2012 SHEET 14 of 69



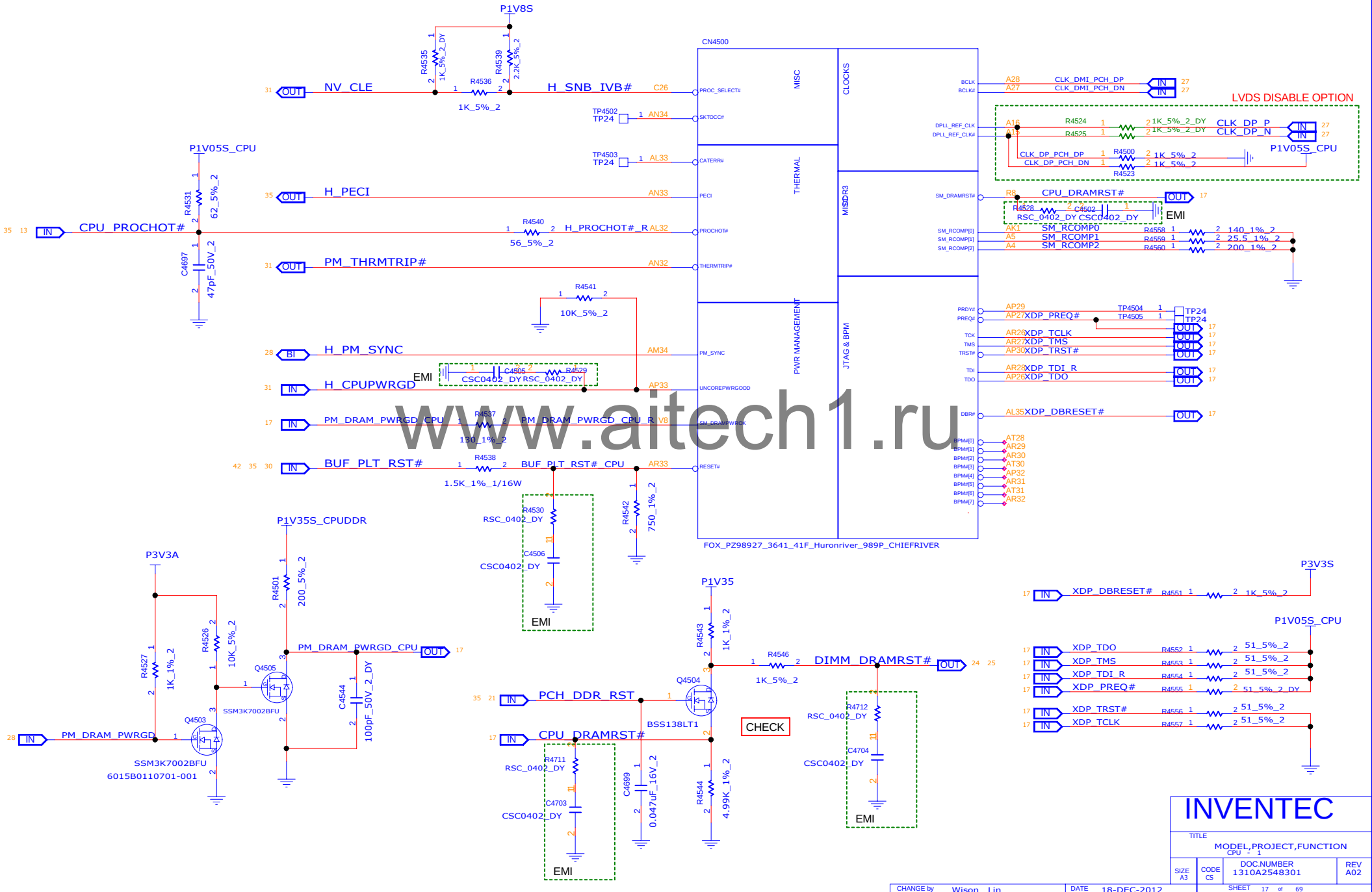
INVENTEC

TITLE	MODEL,PROJECT,FUNCTION		
	POWER TO EE PORT & EMI PART		
SIZE A3	CODE CS	DOC.NUMBER 1310A2548301	REV A02
CHANGE by Wison_Lin	DATE 18-DEC-2012	SHEET 15 of 69	



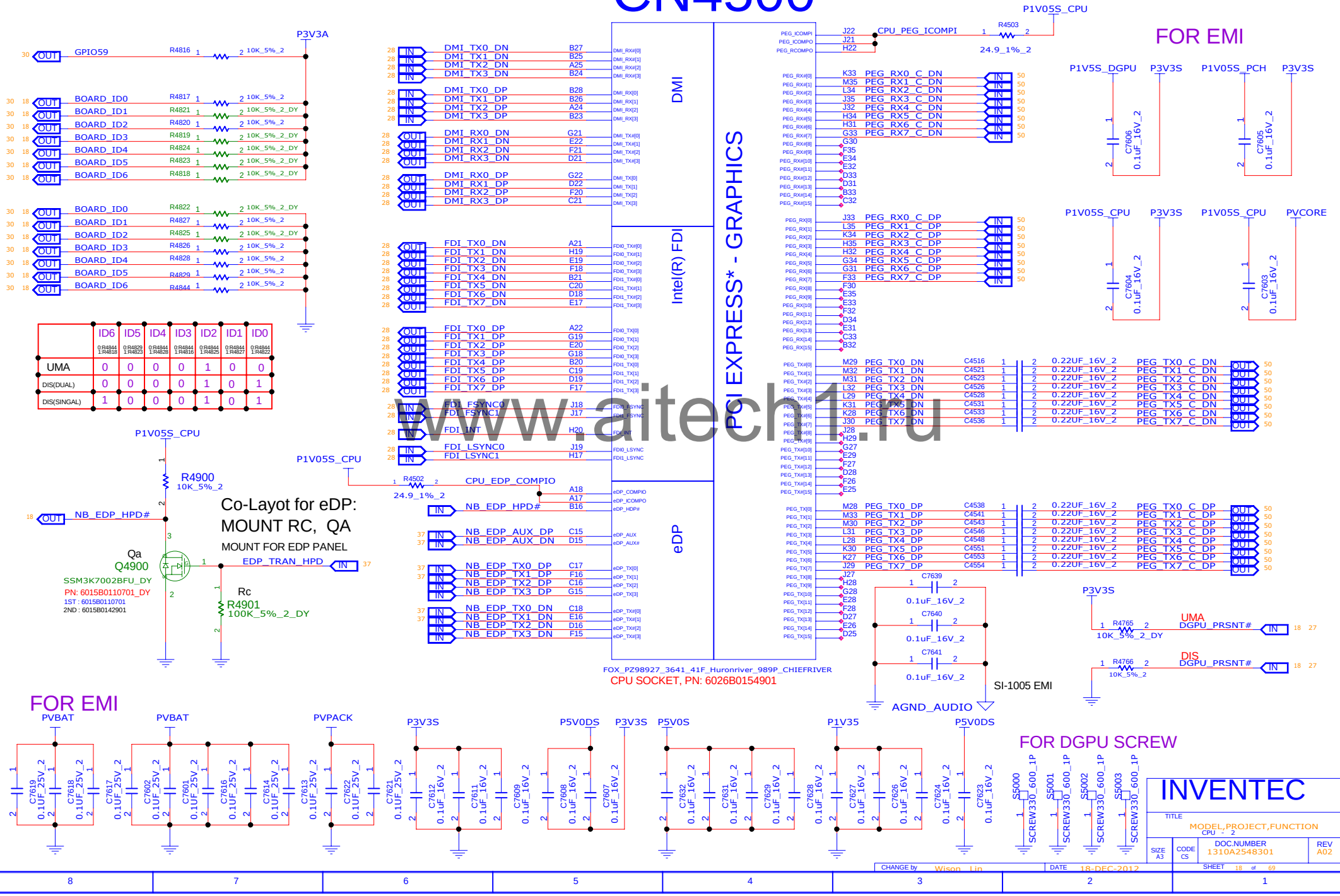
CHIEF RIVER CPU

LOCATION 4500~4699
VER.001_20120807



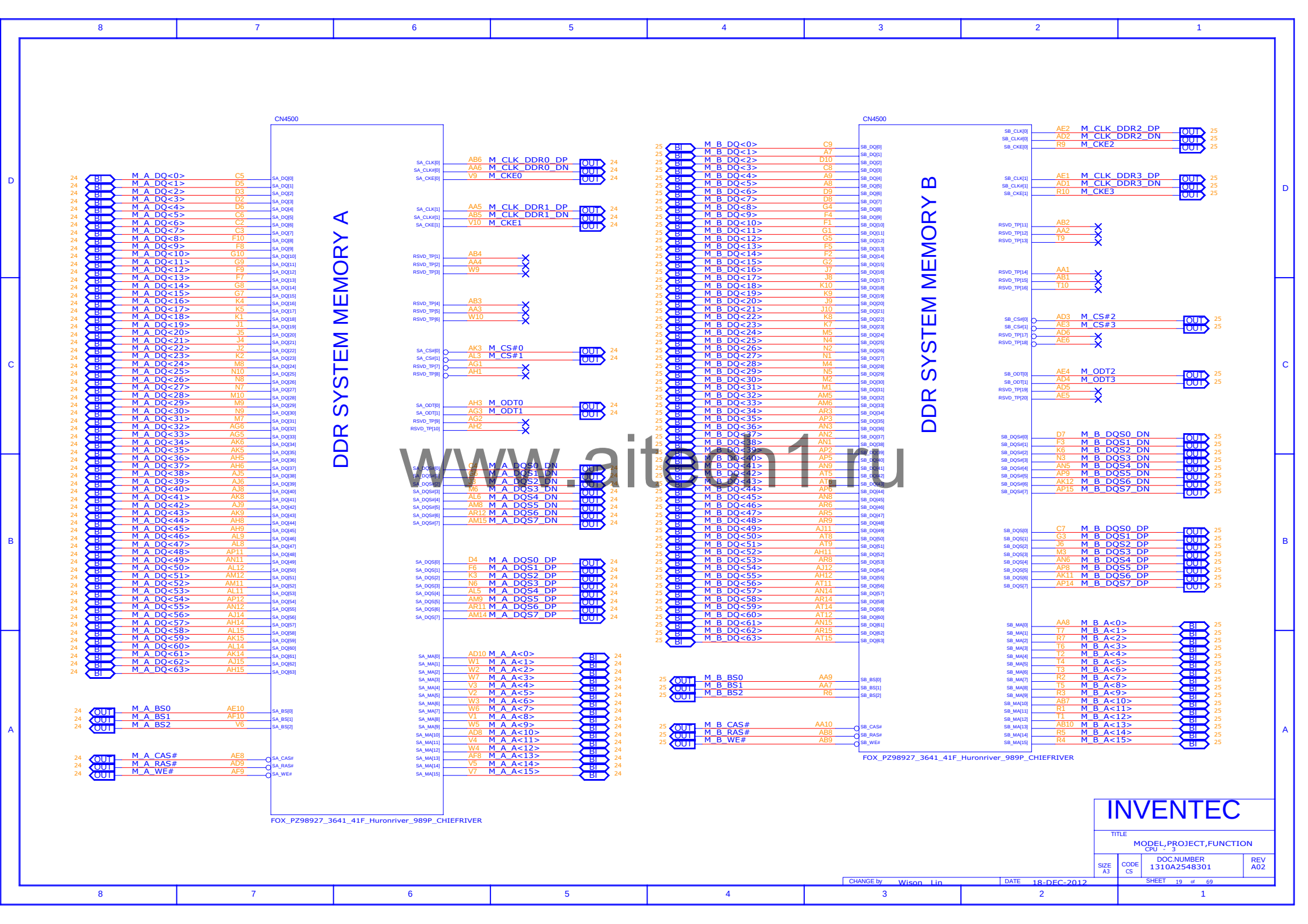
INVENTEC			
TITLE: MODEL,PROJECT,FUNCTION (CPU - 1)			
SIZE: A3	CODE: CS	DOC.NUMBER: 1310A2548301	REV: A02
CHANGE by: Wison_Lin	DATE: 18-DEC-2012	SHEET 17 of 69	

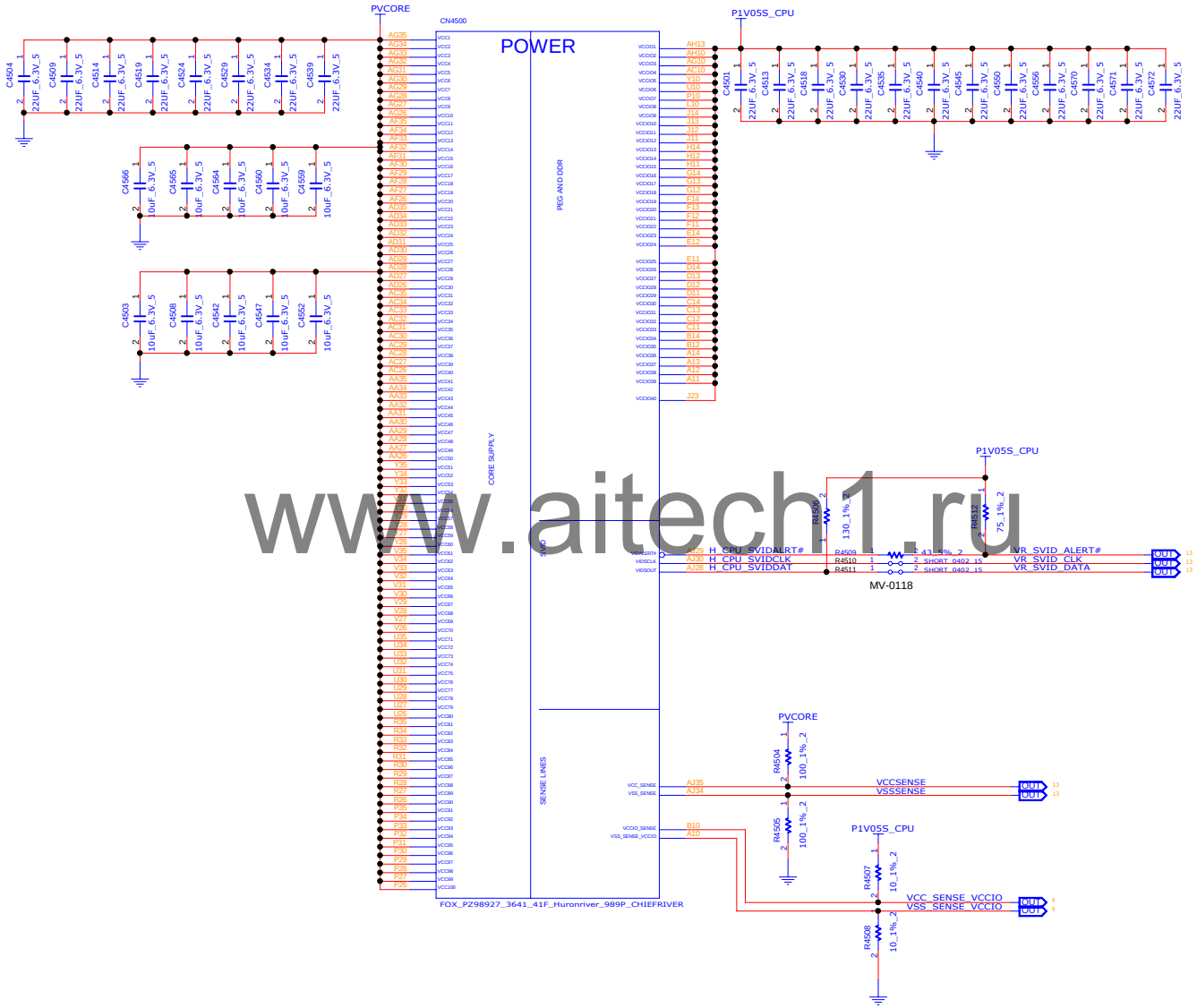
CN4500



INVENTEC

TITLE	MODEL,PROJECT,FUNCTION		
	CPU - 2		
SIZE A3	CODE CS	DOC.NUMBER 1310A2548301	REV A02
CHANGE by Wison_Lin	DATE 18-DEC-2012	SHEET 18 of 69	



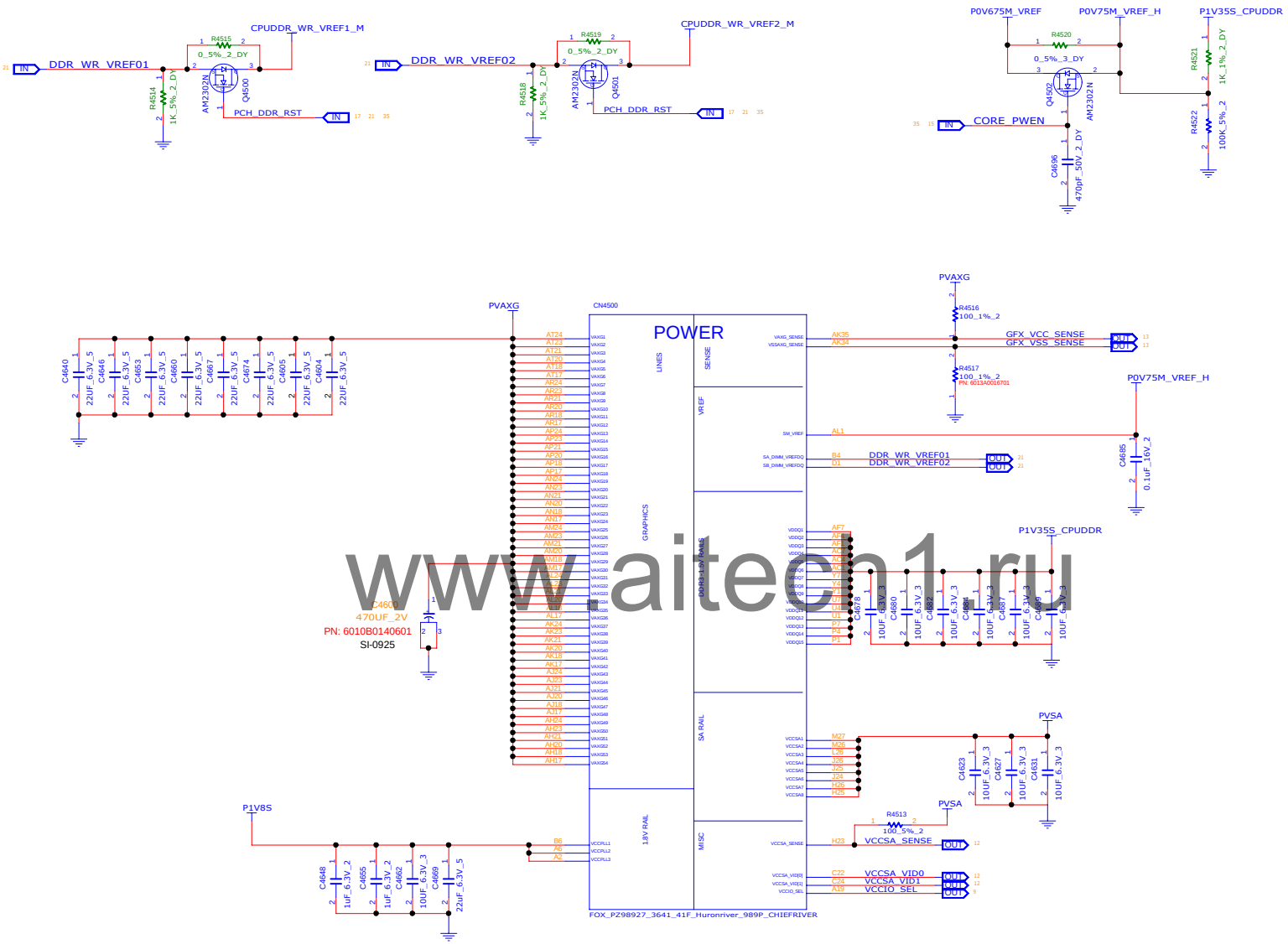


INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
CPU4

SIZE	CODE	DOC NUMBER	REV
C	CS	1310A2548301	A02

CHANGE by: Wison_Lin DATE: 18-DEC-2012 SHEET 20 of 69



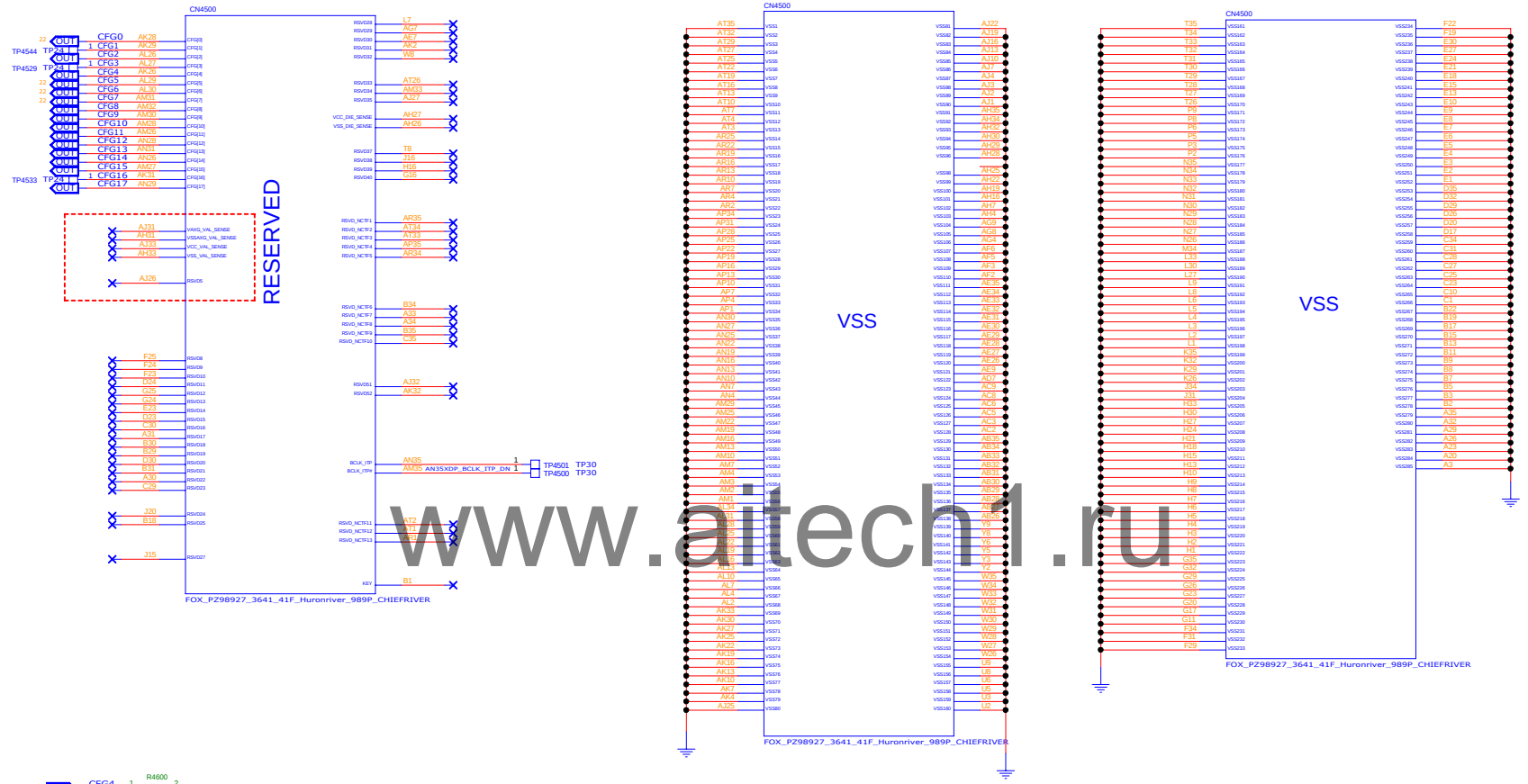
INVENTEC

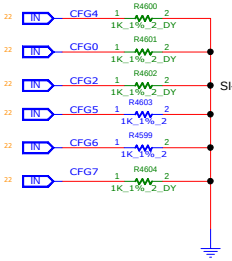
TITLE: MODEL,PROJECT,FUNCTION
CPUS

SIZE	CODE	DOC NUMBER	REV
C	CS	1310A2548301	A02

SHEET 21 of 69

CHANGE by Wison_Lin DATE 18-DEC-2012





CFG[2] : PCI Express* Static x16 Lane Numbering Reversal.
1 = NORMAL MODE
0 = LANE REVERSED

CFG[4] : eDP enable
1 = Disabled
0 = Enabled

CFG[6:5] : PCI Express Bifurcation:
00 = 1 x8, 2 x4 PCI Expres
01 = reserved
10 = 2 x8 PCI Express
11 = 1 x16 PCI Express

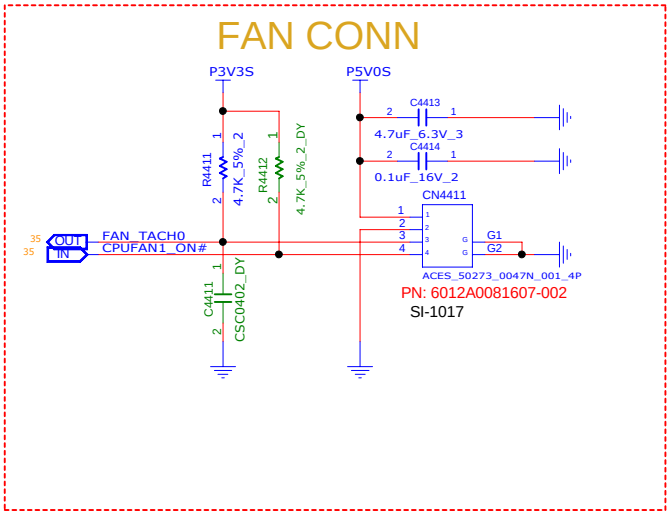
CFG[7] :PEG DEFER TRAINING
1: (Default) PEG Train immediately following RESETB deassertion
0: PEG Wait for BIOS for training

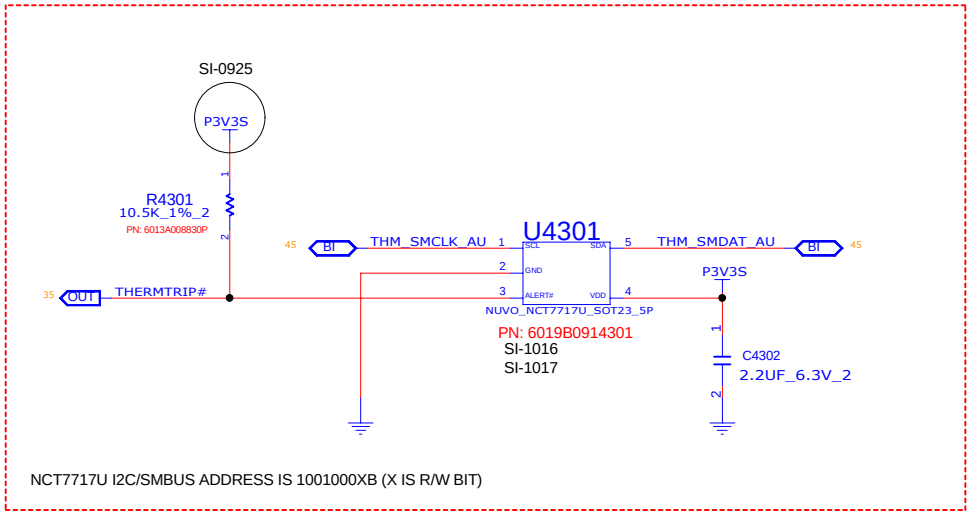
INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
CPU6

SIZE	CODE	DOC NUMBER	REV
C	CS	1310A2548301	A02

CHANGE by: Wison_Lin DATE: 18-DEC-2012 SHEET 22 of 69





NCT7717U I2C/SMBUS ADDRESS IS 1001000XB (X IS R/W BIT)

6.6 ALERT# point hardware power-on setting

The default value could be set after power up 100ms by different pull-up resistor of ALERT# pin:

PULL-UP RESISTOR		TEMPERATURE (℃)
ALERT	2KΩ	75
	7.5KΩ	90
	10.5KΩ	100
	14KΩ	105
	18.7KΩ	110

1. THERMAL SENSOR ON PCB TO PROTECT AGAINST POSSIBLE SYSTEM CASE DEFORMATION. SENSOR SHOULD BE ABLE TO THROTTLE SYSTEM AND ALSO CAUSE SYSTEM SHUT DOWN IF NEEDED.(FOR ALL PLATFORM)
2. SUPPORT DPTF FUNCTION. (FOR INTEL SBY)

INVENTEC

TITLE: MODEL_PROJECT_FUNCTION
THERMAL & FAN

SIZE A3 | CODE CS | DOC.NUMBER 1310A2548301 | REV A02

CHANGE by Wison_Lin | DATE 18-DEC-2012 | SHEET 23 of 69

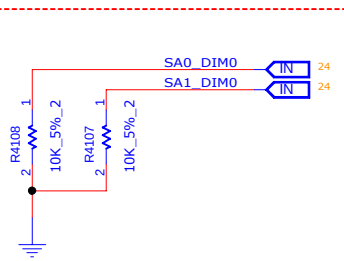
DDR3 (8MM) P/N : 6026B0216601

BOM CHANGE TO 6026B0221101

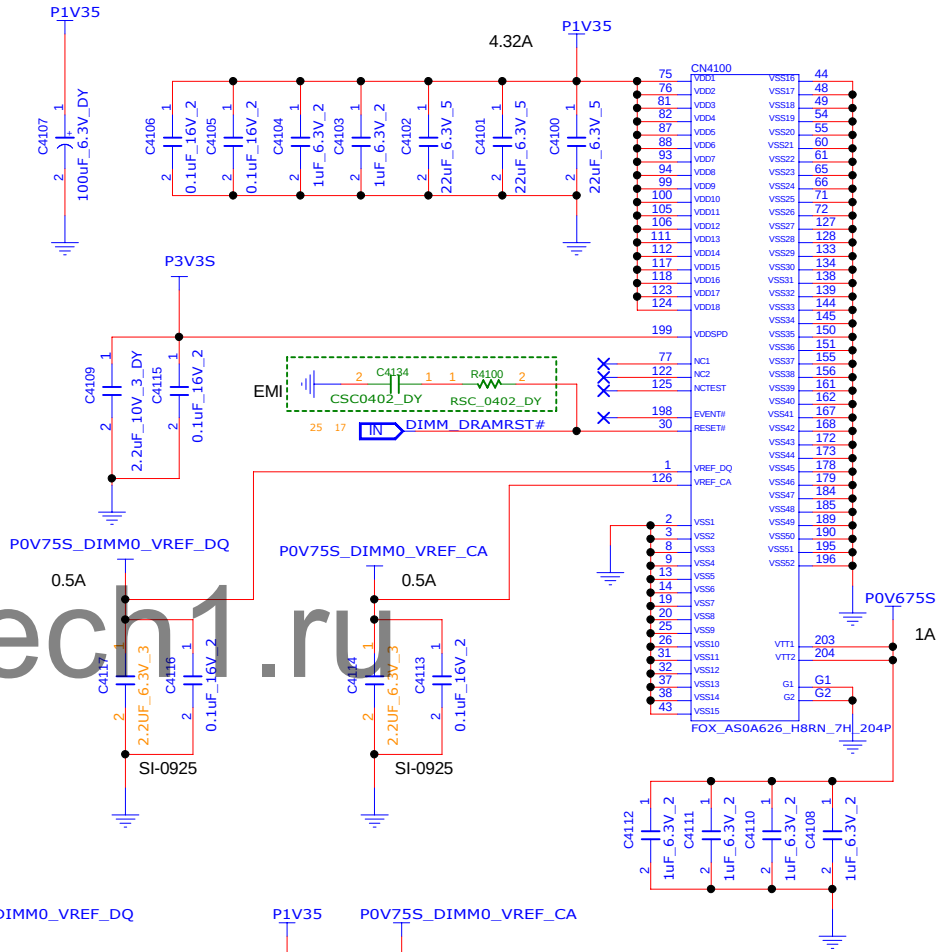
Note :

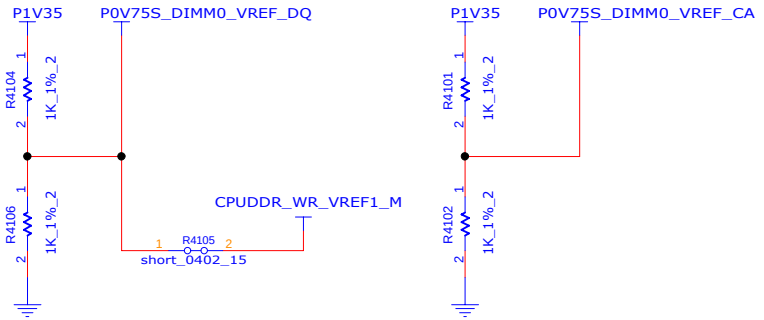
SO-DIMMA SPD Address is 0xA0

SO-DIMMA TS Address is 0x30



SI-1012





SANDY BRIDGE + IVY BRIDGE DG4.14

INVENTEC

TITLE: MODEL,PROJECT,FUNCTION

DDR3 - 1

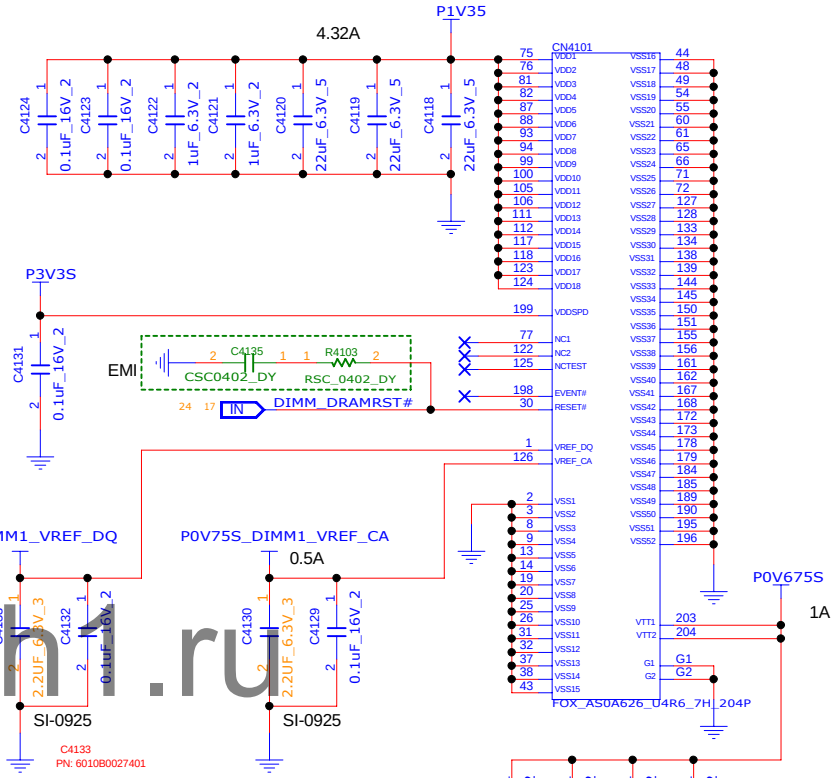
SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

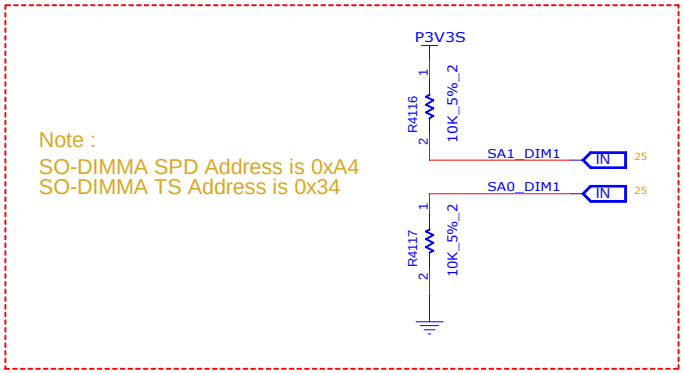
CHANGE by: Wison_Lin DATE: 18-DEC-2012 SHEET 24 of 69

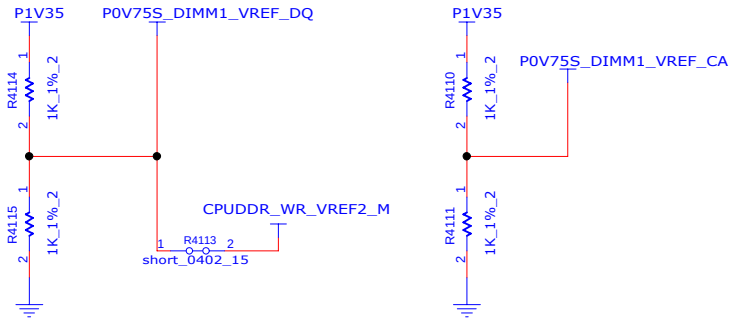
DDR3 (4MM) P/N : 6026B0216701

BOM CHANGE TO 6026B0221601

SI-1012







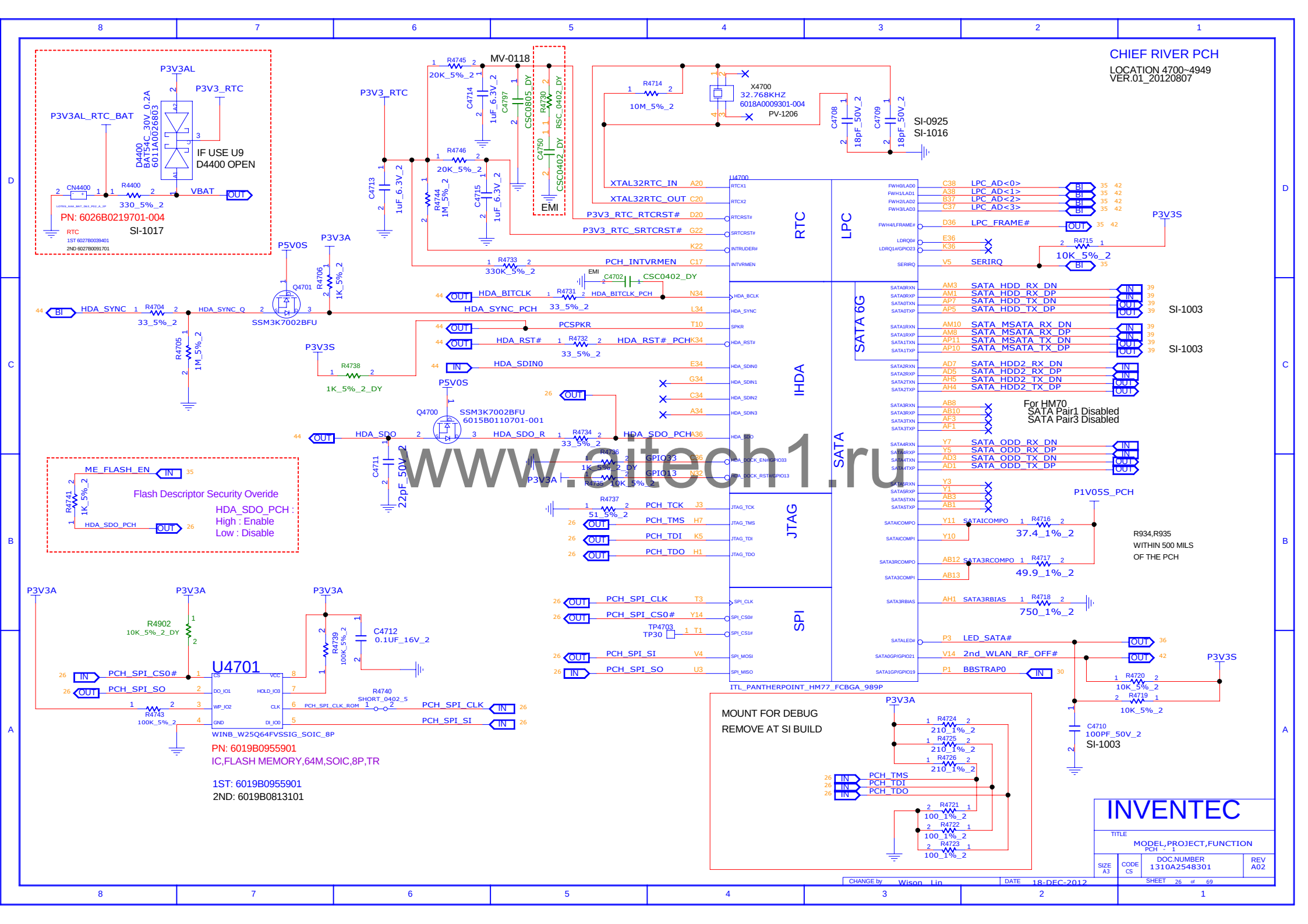
SANDY BRIDGE + IVY BRIDGE DG4.14

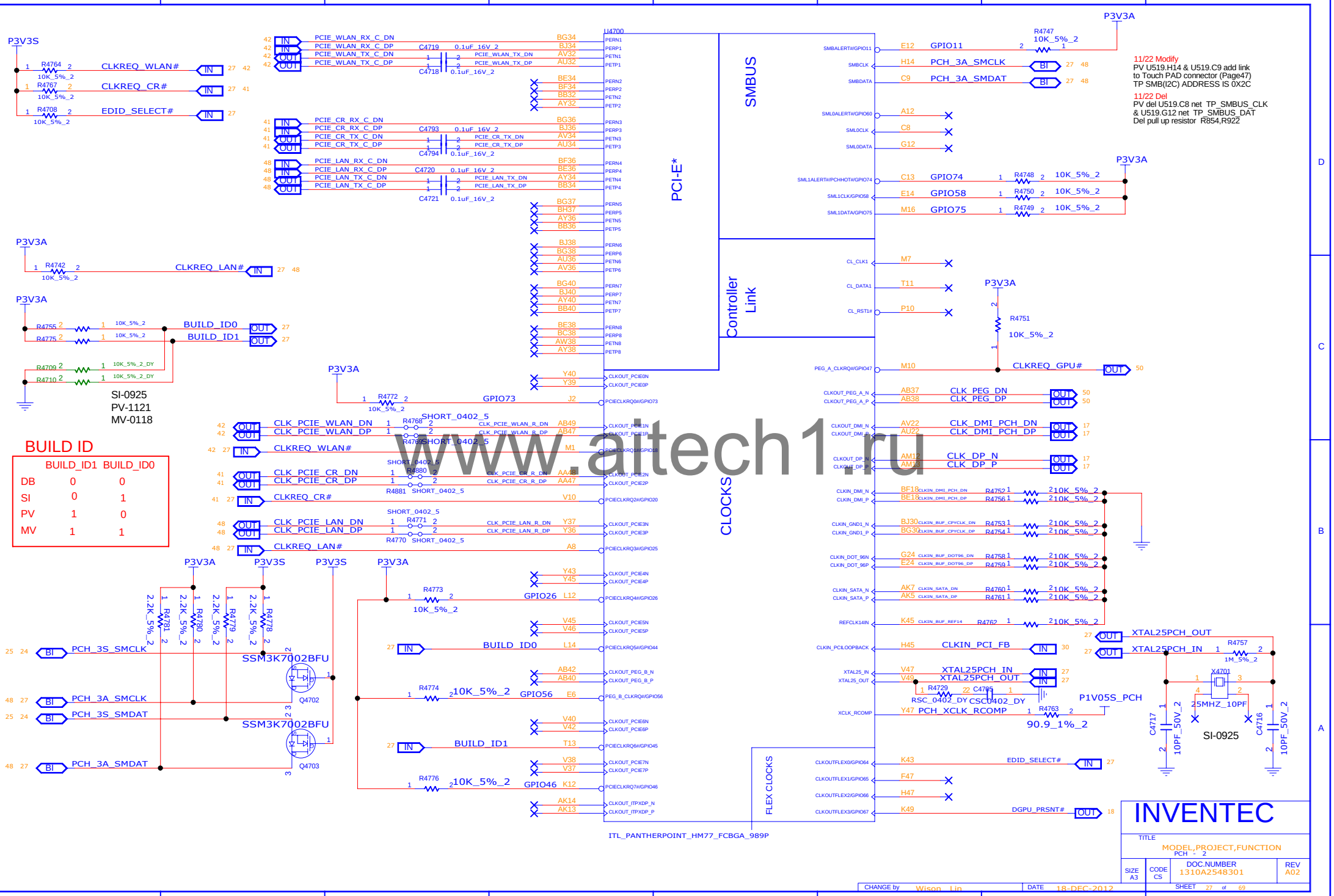
INVENTEC

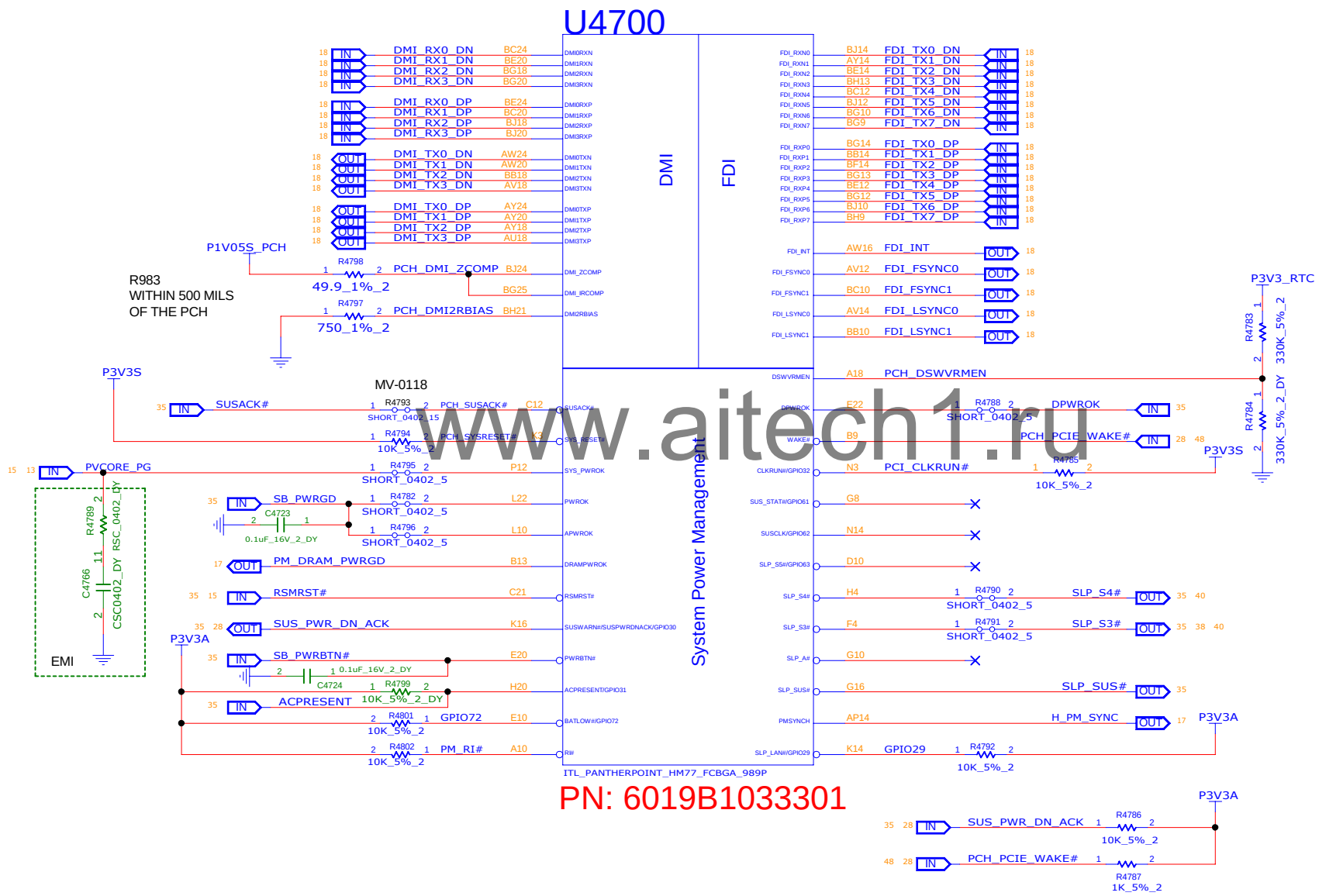
TITLE: MODEL,PROJECT,FUNCTION
DDR3 - 2

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by: Wison_Lin | DATE: 18-DEC-2012 | SHEET 25 of 69

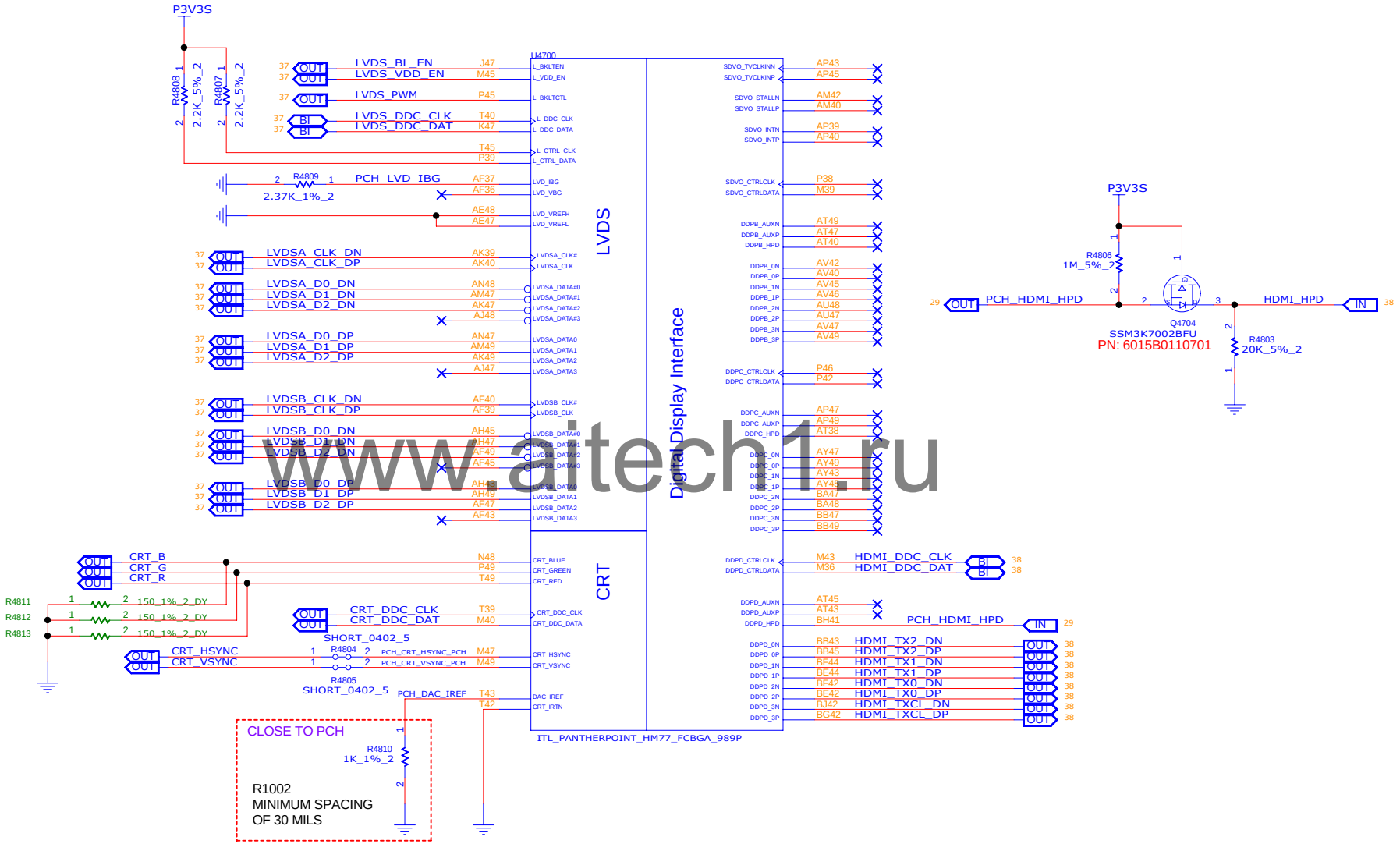






PN: 6019B1033301

INVENTEC			
TITLE: MODEL,PROJECT,FUNCTION PCH - 3			
SIZE A3	CODE CS	DOC.NUMBER 1310A2548301	REV A02
CHANGE by Wison_Lin	DATE 18-DEC-2012	SHEET 28 of 69	

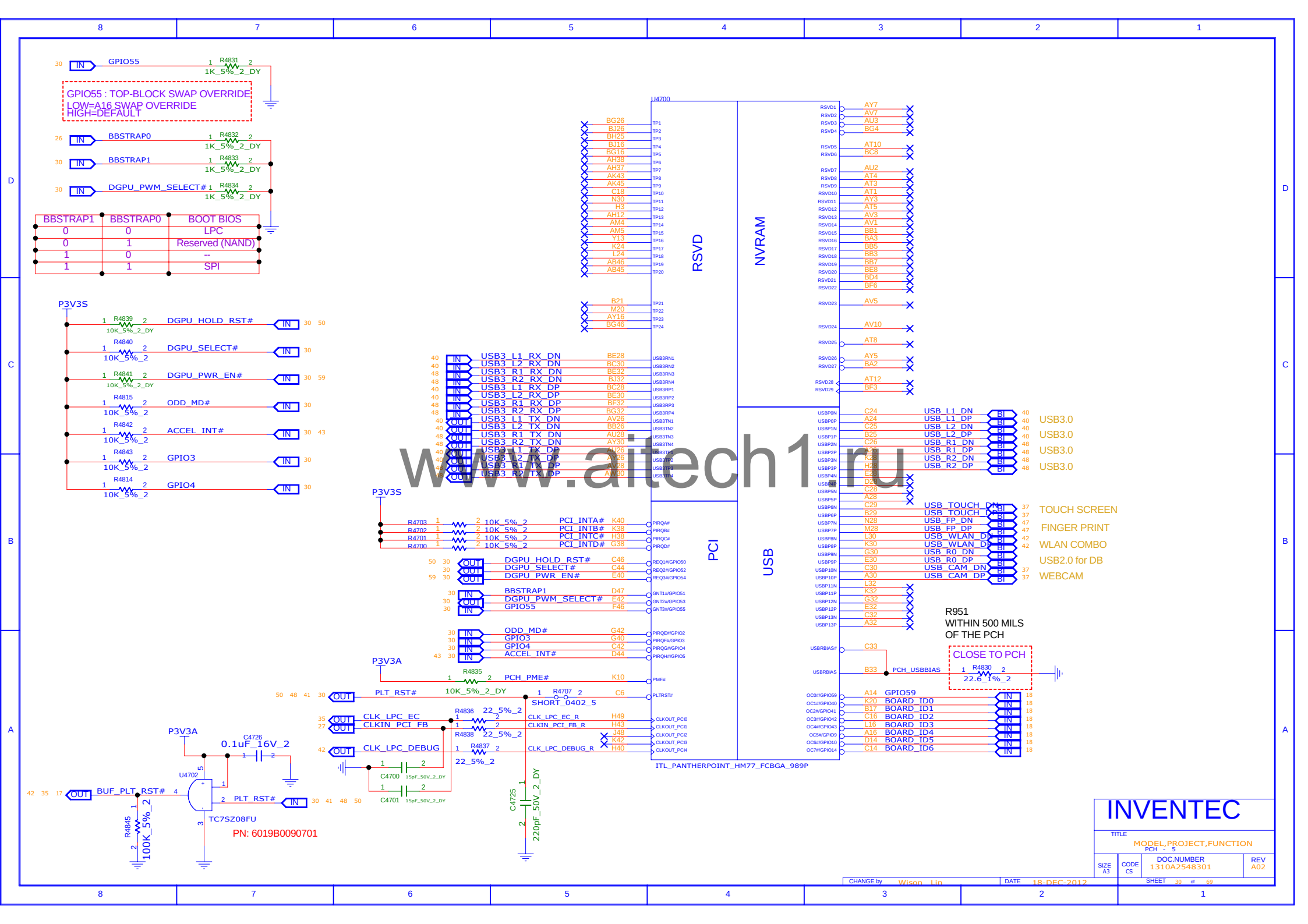


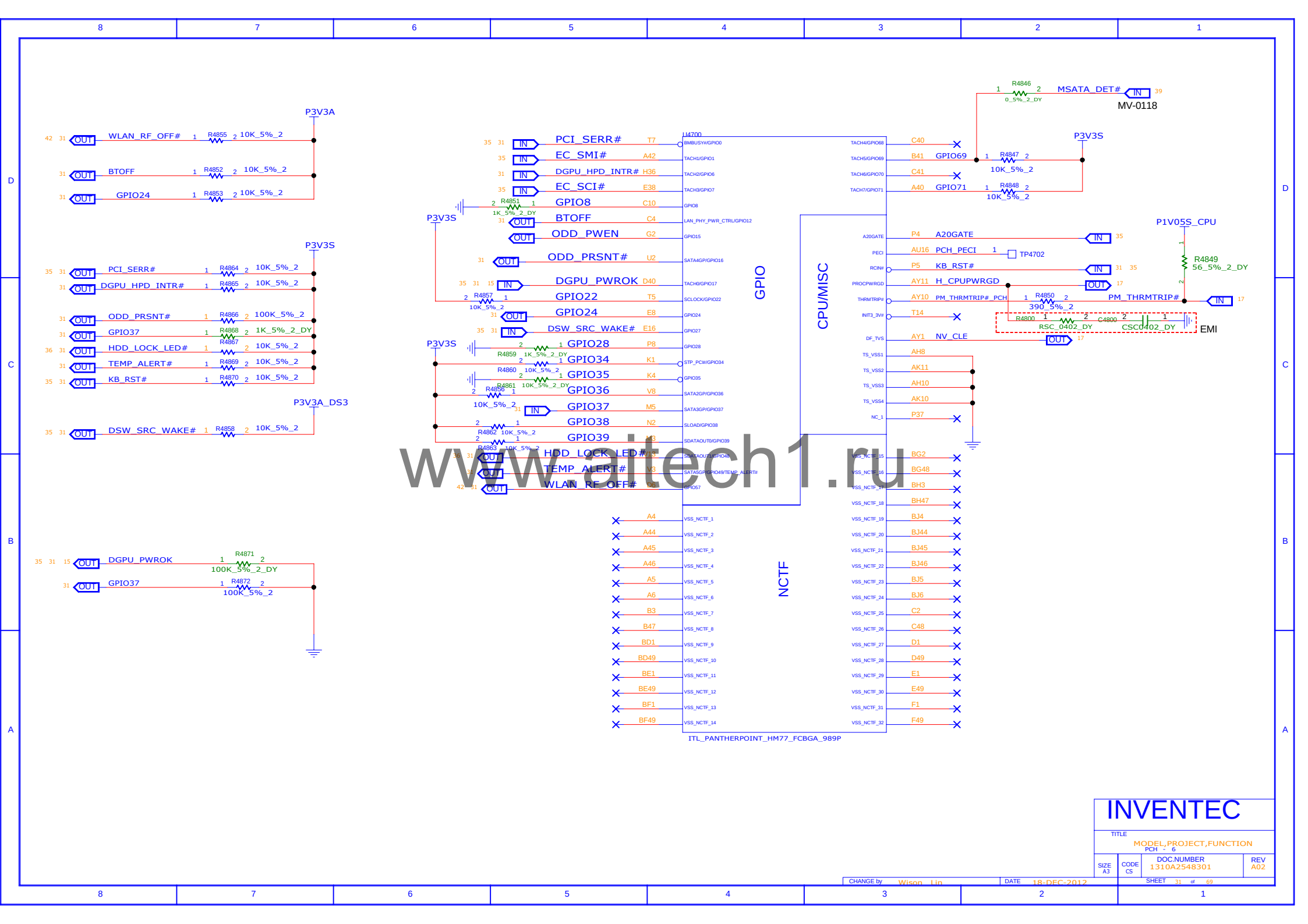
INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
PCH - 4

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by: Wison_Lin | DATE: 18-DEC-2012 | SHEET 29 of 69



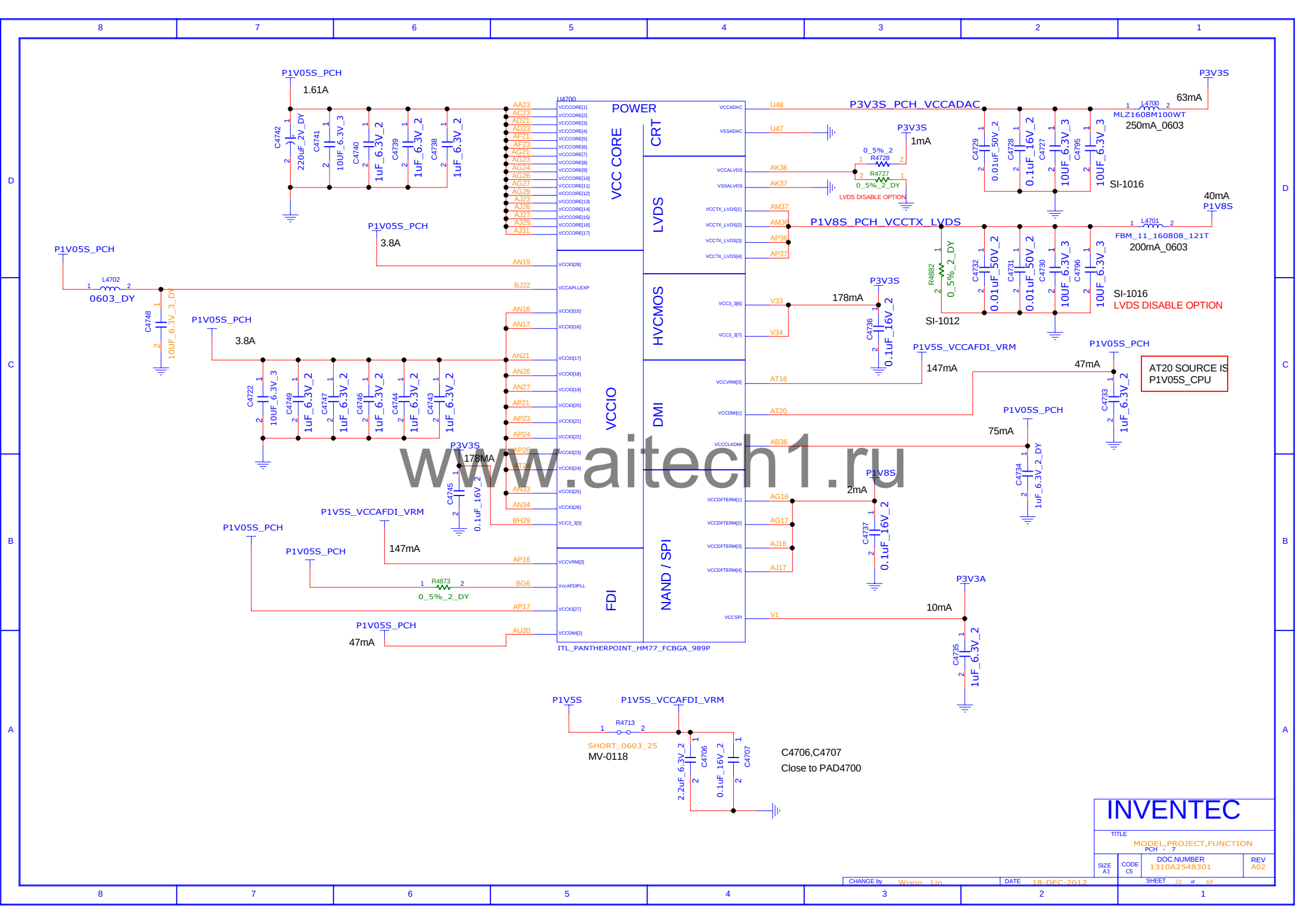


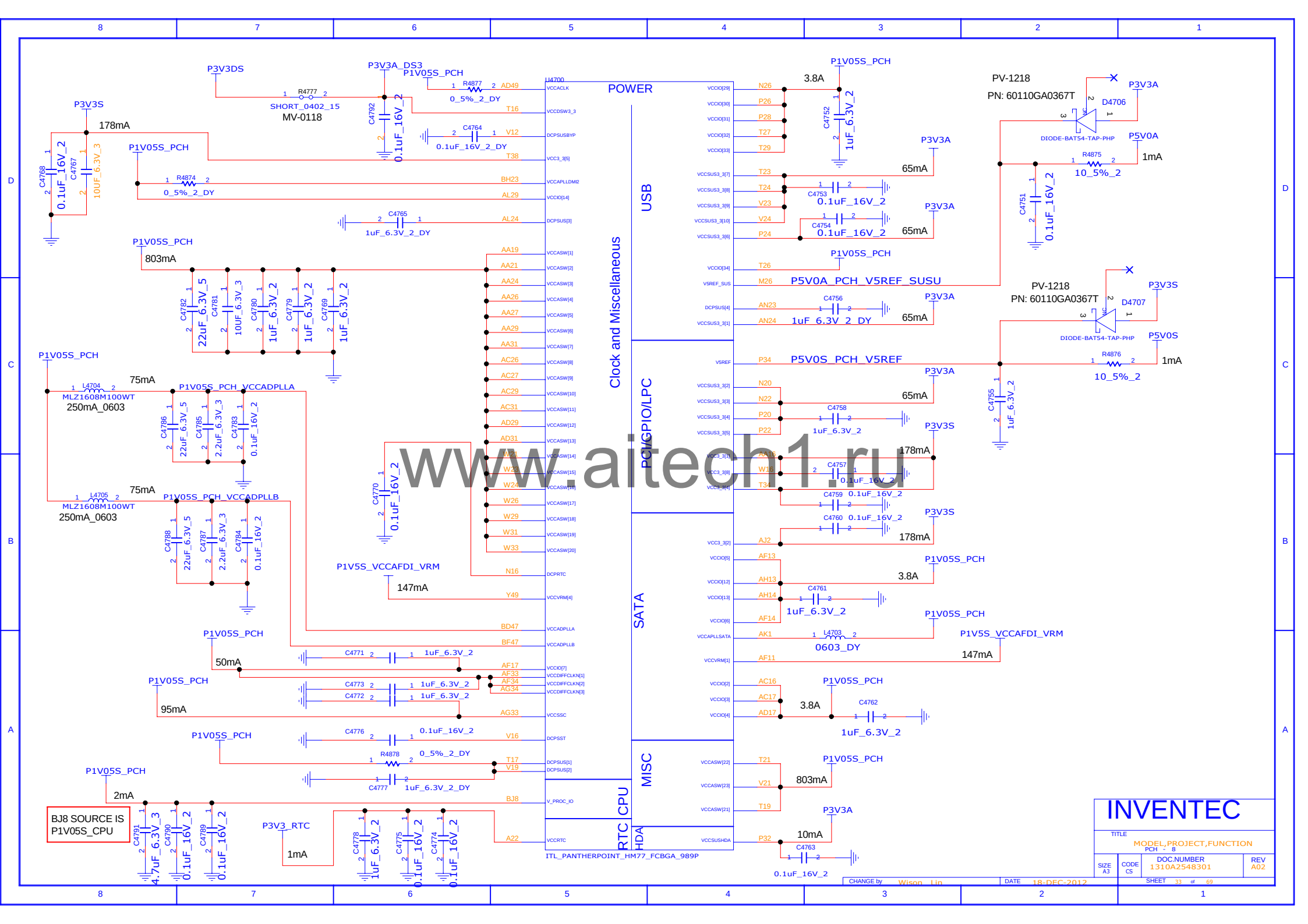
INVENTEC

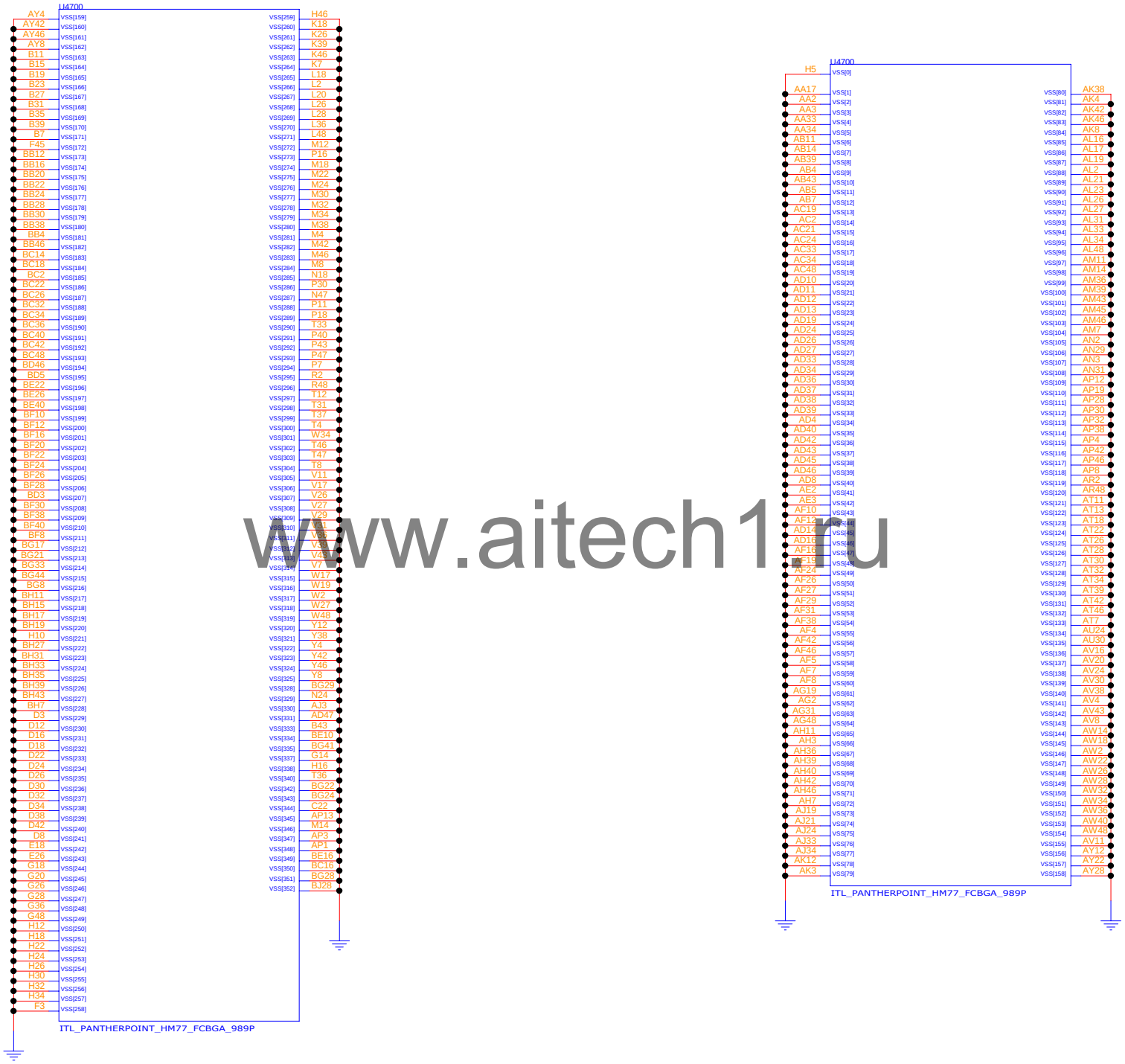
TITLE: MODEL,PROJECT,FUNCTION
PCH - 6

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by: Wison_Lin | DATE: 18-DEC-2012 | SHEET 31 of 69


P1V05S_PCH
1.61A
P3V3S
63mA
P3V3S_PCH_VCCADAC
MLZ1608M100WT
250mA_0603
SI-1016
P3V3S
1mA
0_5%_2
R4728
R4727
0_5%_2_DY
LVDS DISABLE OPTION
40mA
P1V8S
P1V8S_PCH_VCCTX_LVDS
FBM_11_160808_121T
200mA_0603
SI-1016
LVDS DISABLE OPTION
SI-1012
P1V05S_PCH
3.8A
P1V05S_PCH
0603_DY
P3V3S
178mA
P1V5S_VCCAFDI_VRM
147mA
P1V05S_PCH
47mA
AT20 SOURCE IS
P1V05S_CPU
P1V05S_PCH
3.8A
P1V05S_PCH
75mA
P3V3S
178MA
P1V8S
2mA
P1V5S_VCCAFDI_VRM
147mA
P1V05S_PCH
P1V05S_PCH
P1V05S_PCH
47mA
P3V3A
10mA
P1V5S
P1V5S_VCCAFDI_VRM
SHORT_0603_25
MV-0118
C4706,C4707
Close to PAD4700
POWER
VCC CORE
CRT
LVDS
HVCMOS
VCCIO
DMI
NAND / SPI
FDI
ITL_PANTHERPOINT_HM77_FCBGA_989P
www.aitech1.ru
INVENTEC
TITLE
MODEL,PROJECT,FUNCTION
PCH - 7
SIZE A3
CODE CS
DOC.NUMBER 1310A2548301
REV A02
CHANGE by Wison_Lin
DATE 18-DEC-2012
SHEET 32 of 69





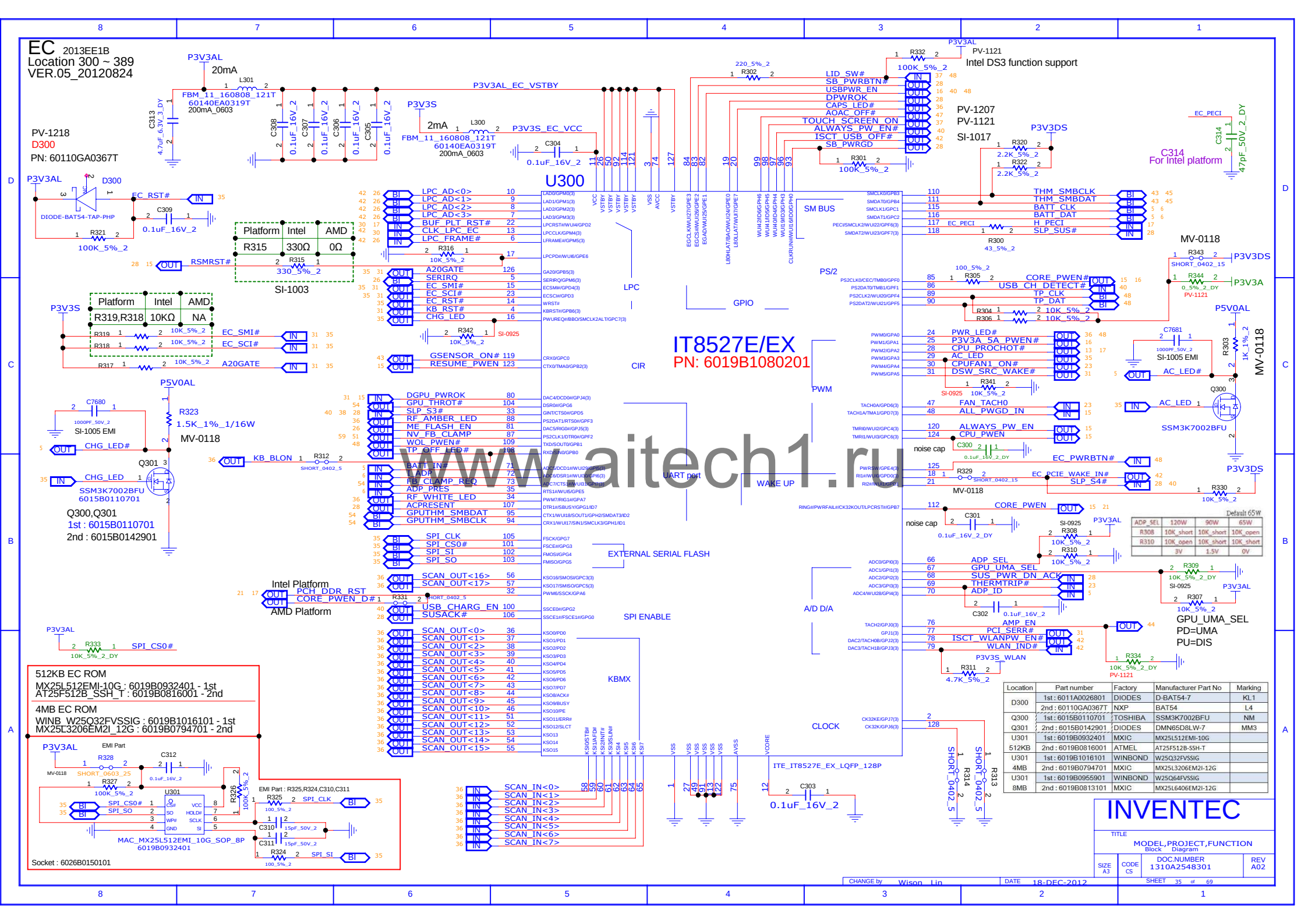
INVENTEC

TITLE
MODEL,PROJECT,FUNCTION
PCH - 9

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

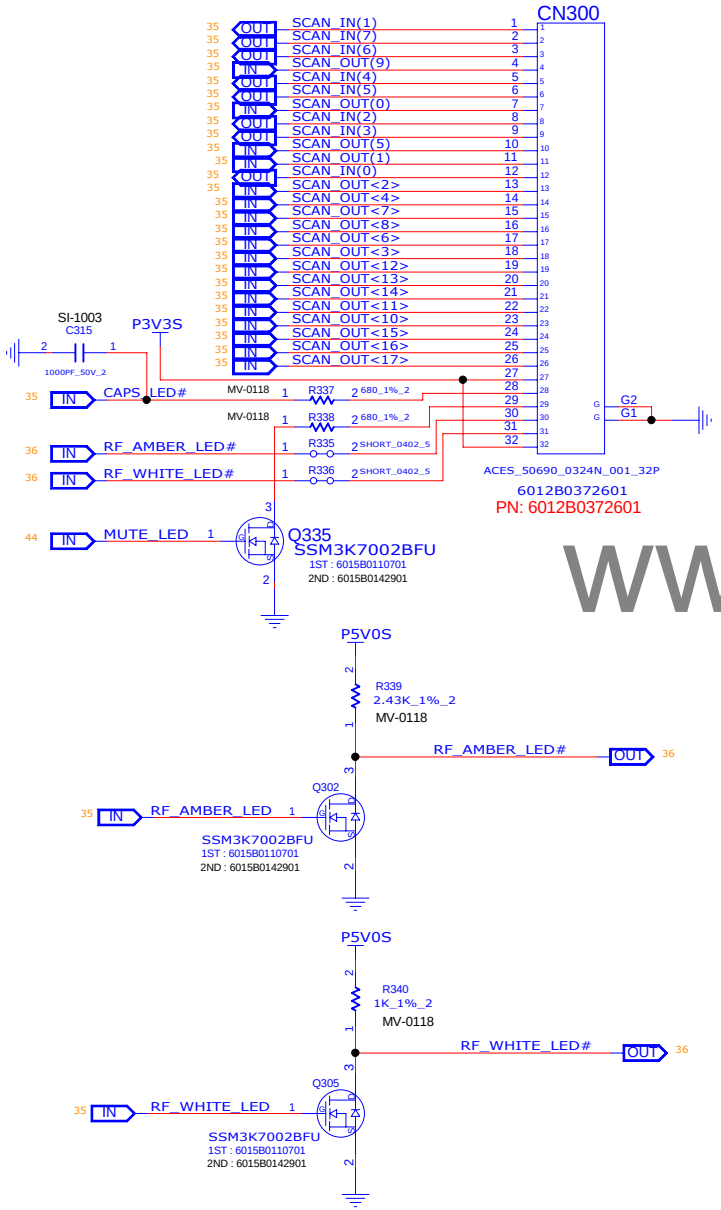
SHEET 34 of 69

CHANGE by Wison_Lin DATE 18-DEC-2012



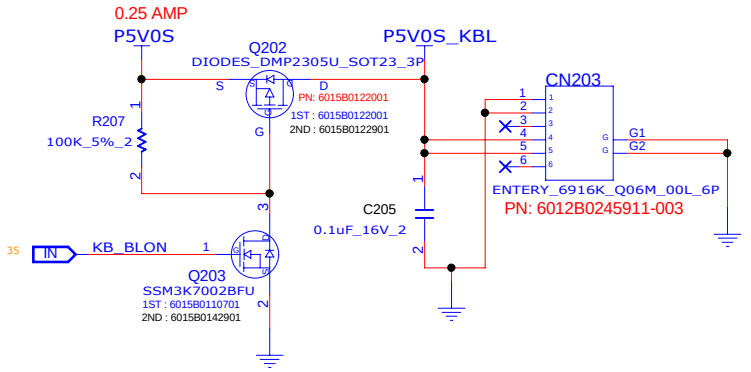
Location	Part number	Factory	Manufacturer Part No	Marking
D300	1st : 6011A0026801	DIODES	D-BAT54-7	KL1
	2nd : 60110GA0367T	NXP	BAT54	L4
Q300	1st : 6015B0110701	TOSHIBA	SSM3K7002BFU	NM
Q301	2nd : 6015B0142901	DIODES	DMN65D8LW-7	MM3
U301	1st : 6019B0932401	MXIC	MX25L512EMI-10G	
512KB	2nd : 6019B0816001	ATMEL	AT25F512B-SSH-T	
U301	1st : 6019B1016101	WINBOND	W25Q32FVSSIG	
4MB	2nd : 6019B0794701	MXIC	MX25L3206EM2I-12G	
U301	1st : 6019B0955901	WINBOND	W25Q64FVSSIG	
8MB	2nd : 6019B0813101	MXIC	MX25L6406EM2I-12G	

KEYBOARD CONN(32 PIN)



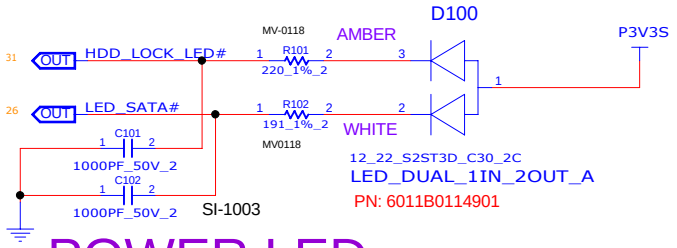
CONNECTOR KEY BOARD 200~299

KEYBOARD BACKLIGHT

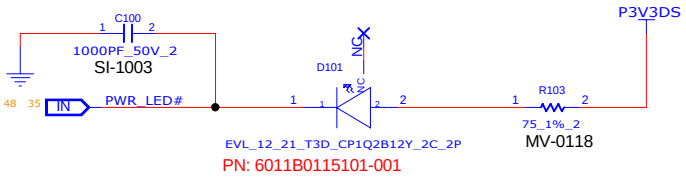


LED 100~199

HDD LED



POWER LED



INVENTEC

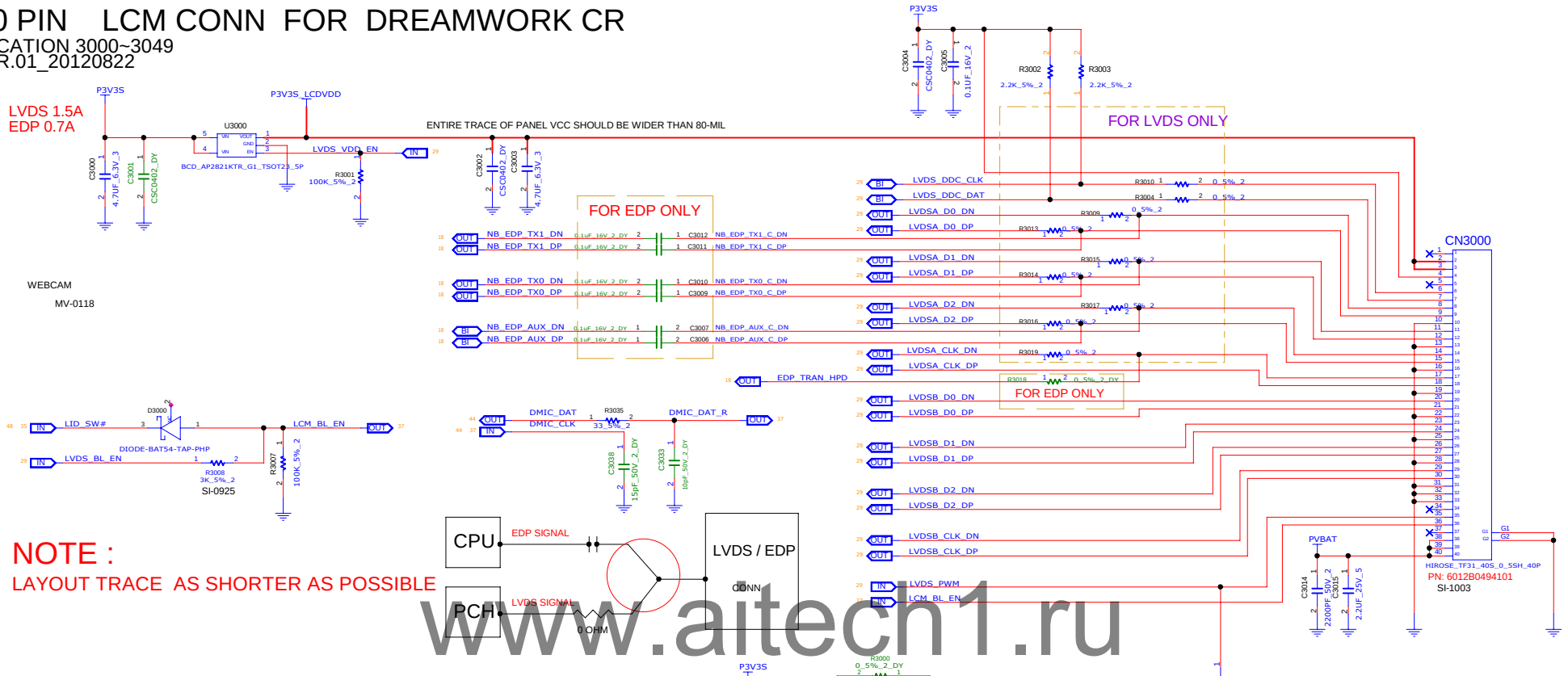
TITLE: MODEL,PROJECT,FUNCTION
KB CONN & LED

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by: Wison Lin | DATE: 18-DEC-2012 | SHEET 36 of 69

40 PIN LCM CONN FOR DREAMWORK CR

LOCATION 3000~3049
VER.01_20120822



NOTE :

LAYOUT TRACE AS SHORTER AS POSSIBLE

CO-LAYOUT	LVDS	EDP
Q4900, R4901	X	O
R4600	X	O
R4500, R4523	O	X
R4524, R4525	X	O
C3006, C3007, C3009 C3010, C3011, C3012	X	O
R3018	X	O
R4727, R4882	X	O
C4730, C4731, C4732 L4701, R4728, C4796	O	X
R4807, R4808	O	X
R3002, R3003, R3004 R3009, R3010, R3013 R3014, R3015, R3016 R3017, R3019	O	X

WEBCAM+TOUCN SCREEN

INVENTEC

MODEL,PROJECT,FUNCTION
LVDS

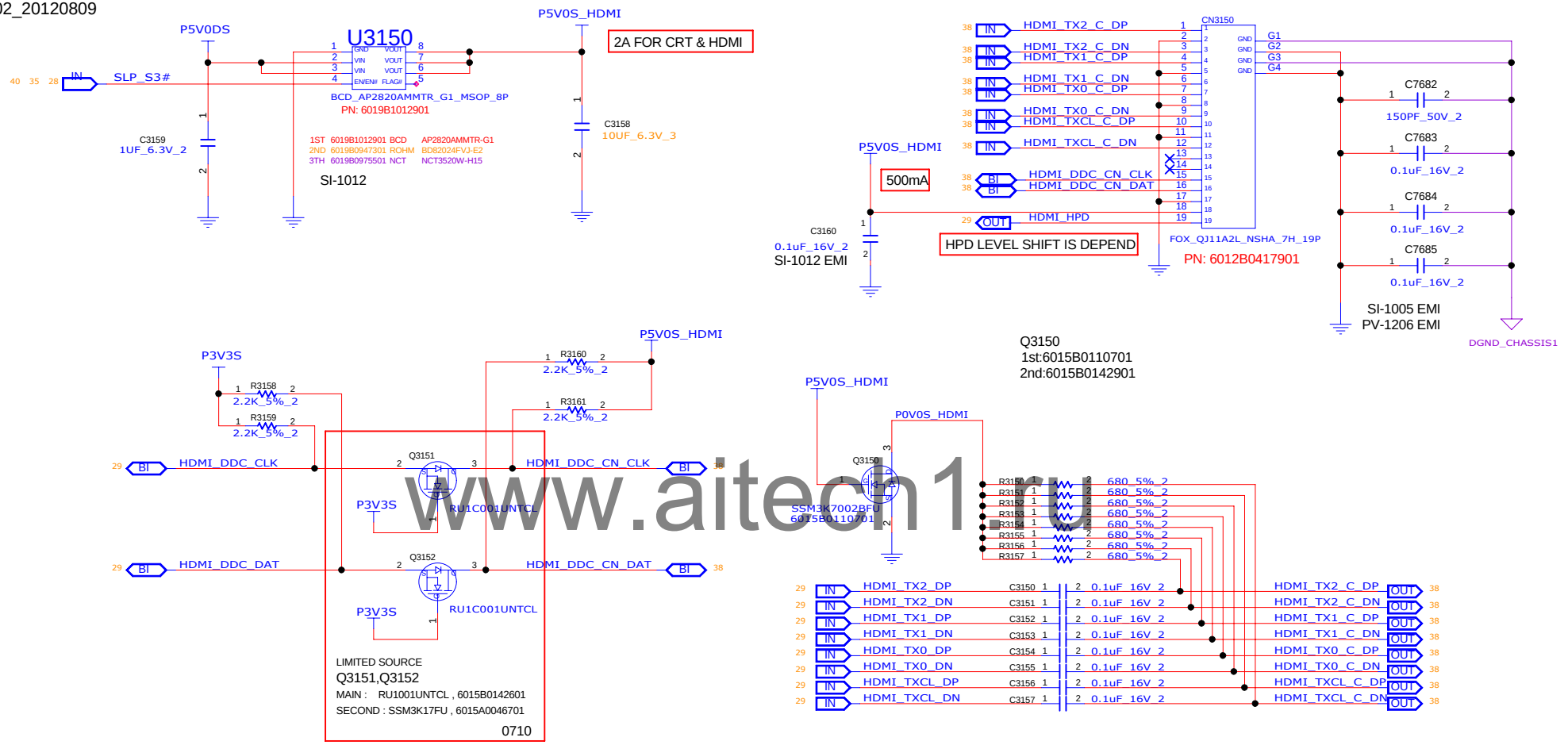
SIZE C | CODE CS | DOC NUMBER 1310A2548301 | REV A02

CHANGE by Wison_Lin DATE 18-DEC-2012

SHEET 37 of 69

HDMI

Location 3150 ~ 3199
Ver.02_20120809



Location	Part number	Factory	Manufacturer Part No	Marking
D300	1ST : 6011A0026801	DIODES	D-BAT54-7	KL1
	2nd : 60110GA0367T	NXP	BAT54	
Q300	1ST : 6015B0124601	NXP	2N7002P	LWx
Q301	2nd : 6015B0140901	DIODES	DMN65D8L-7	MM6
U301	1ST : 6019B0932401	MXIC	MX25L512EMI-10G	
512KB	2nd : 6019B0816001	ATMEL	AT25F512B-SSH-T	
U301	1ST : 6019B1016101	WINBOND	W25Q32FVSSIG	
4MB	2nd : 6019B0794701	MXIC	MX25L3206EM2I-12G	

INVENTEC

TITLE
MODEL,PROJECT,FUNCTION
HDMI CONN

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

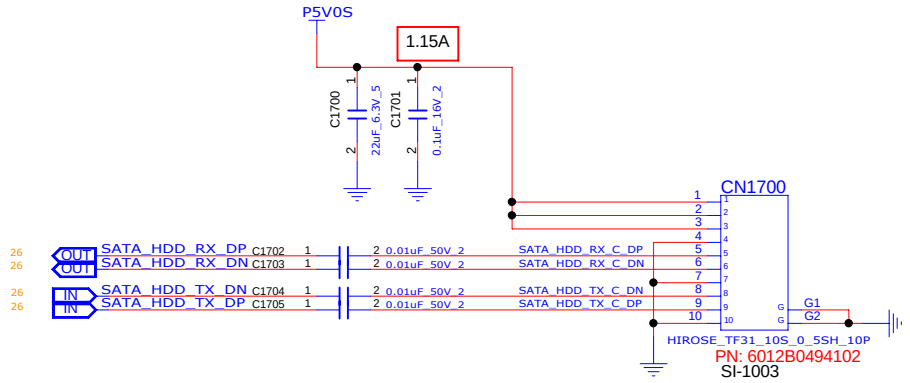
CHANGE by Wison Lin DATE 18-DEC-2012 SHEET 38 of 69

SATA HDD
Location 1700 ~ 1749

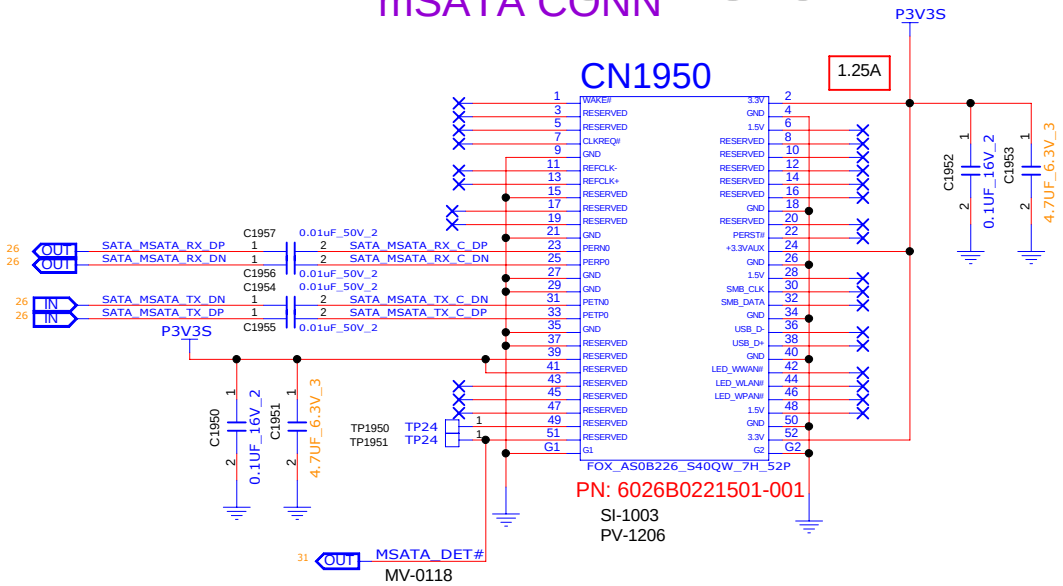
mSATA
Location 1950 ~ 1999

Ver.01_20120808

SATA HDD CABLE CONN on MB



mSATA CONN

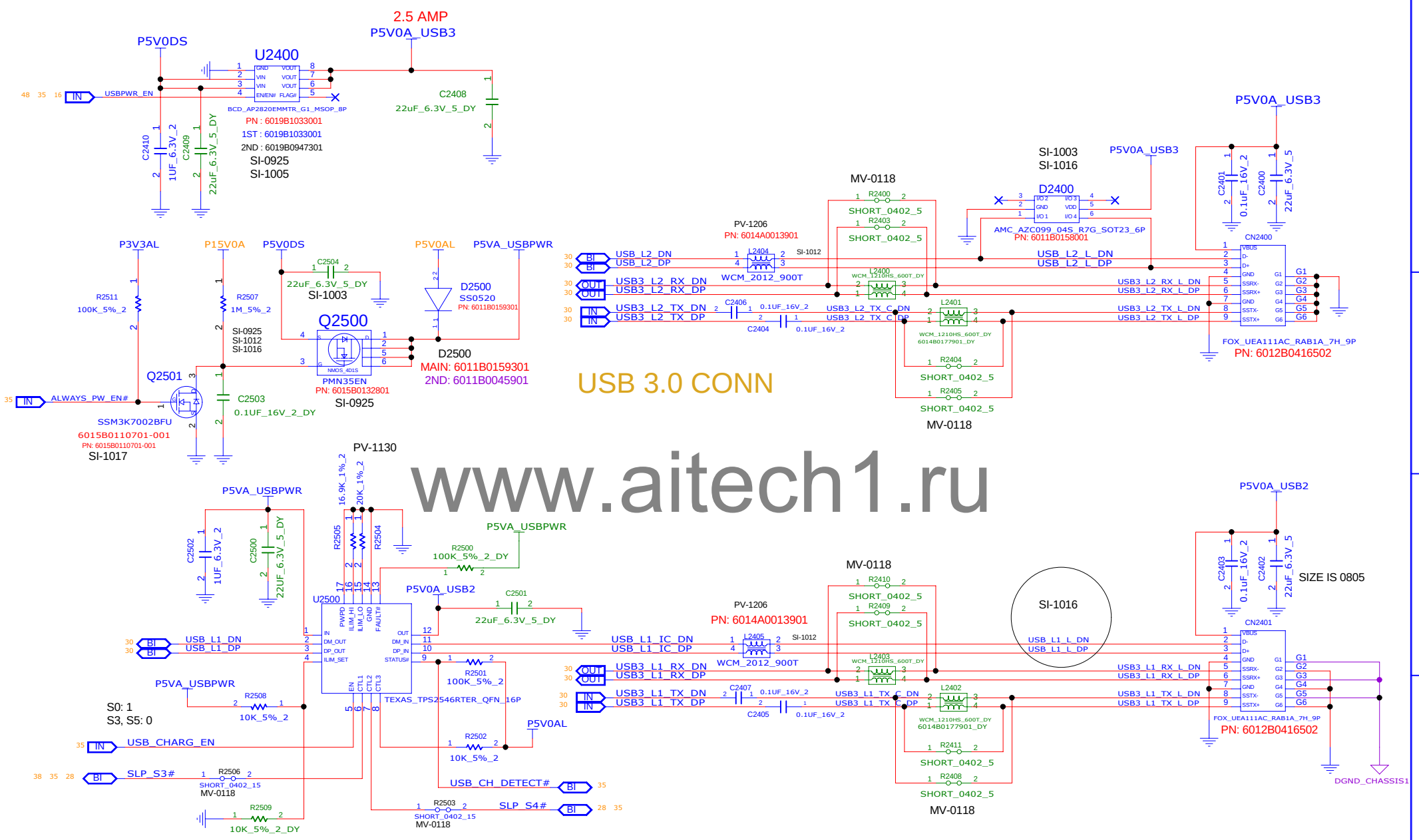


INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
SATA_HDD & SATA_ODD

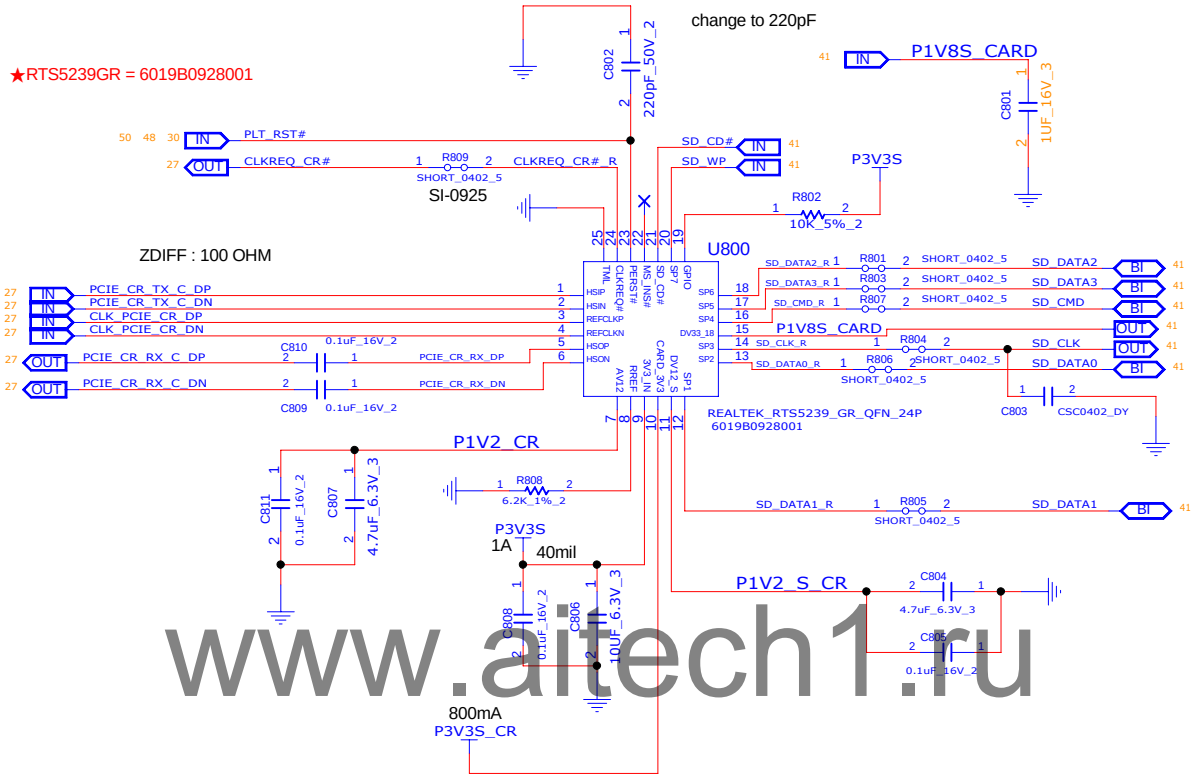
SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by Wison_Lin DATE 18-DEC-2012 SHEET 39 of 69

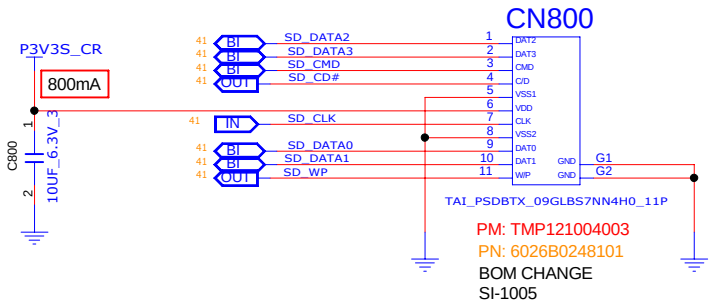


CARD READER
RTS5239

LOCATION: 800~899
VER_04 . 20120823



CARDREADER CONN



INVENTEC

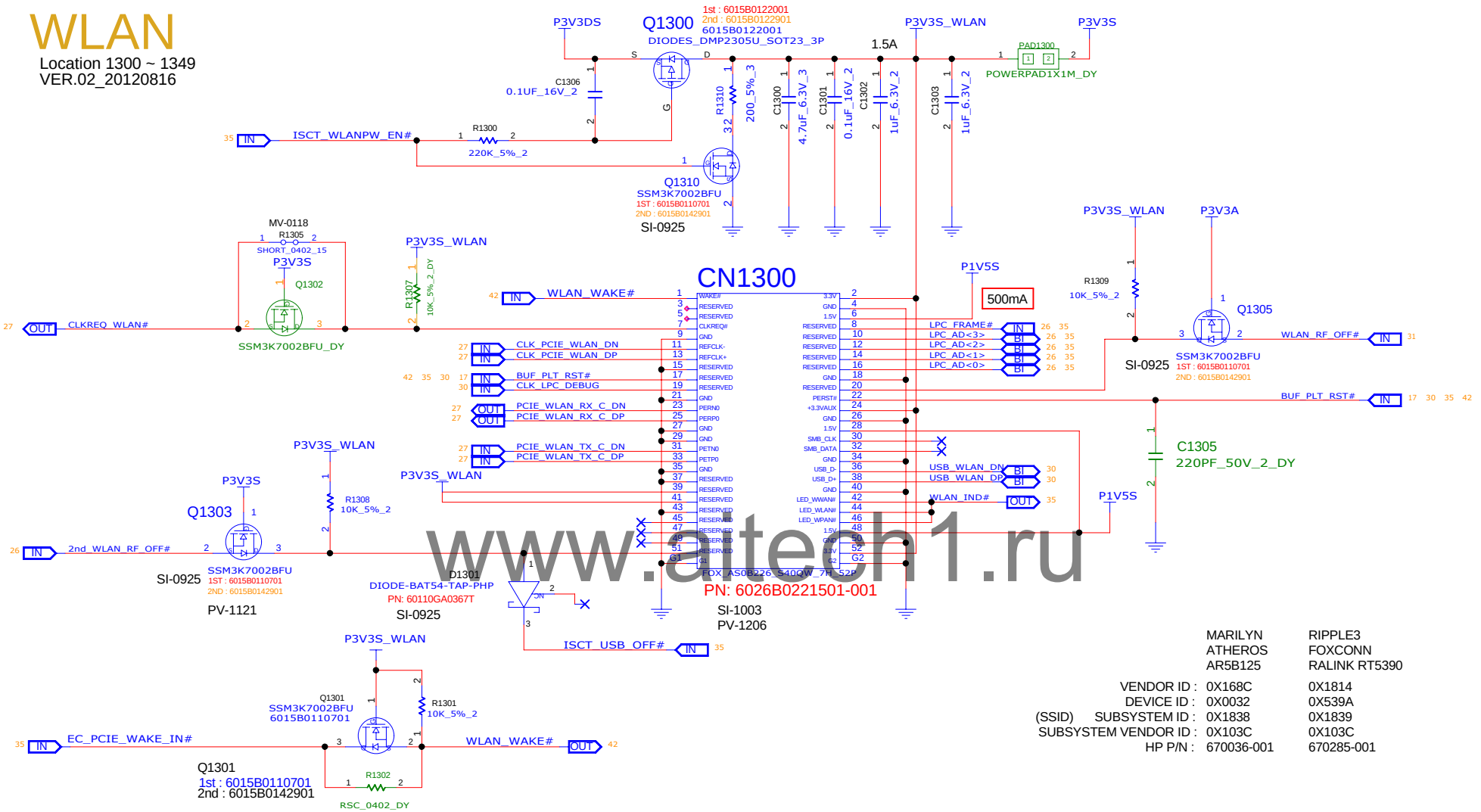
TITLE: MODEL,PROJECT,FUNCTION
CARD READER

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by Wison_Lin DATE 18-DEC-2012 SHEET 41 of 69

WLAN

Location 1300 ~ 1349
VER.02_20120816



	MARILYN	RIPPLE3
	ATHEROS	FOXCONN
	AR5B125	RALINK RT5390
VENDOR ID :	0X168C	0X1814
DEVICE ID :	0X0032	0X539A
(SSID) SUBSYSTEM ID :	0X1838	0X1839
SUBSYSTEM VENDOR ID :	0X103C	0X103C
HP P/N :	670036-001	670285-001

Location	Part number	Factory	Manufacturer Part No	Marking
D1300	1st : 6011A0026801	DIODES	D-BAT54-7	KL1
	2nd : 60110GA0367T	NXP	BAT54	
Q1301	1st : 6015B0110701	TOSHIBA	SSM3K7002BFU	NM
	2nd : 6015B0142901	DIODES	DMN65D8LW-7	MM3
Q1300	1st : 6015B0122001	DIODES	DMP2305U	23P
	2nd : 6015B0122901	TOSHIBA	SSM3J327R	KFG

INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
WLAN & BT

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

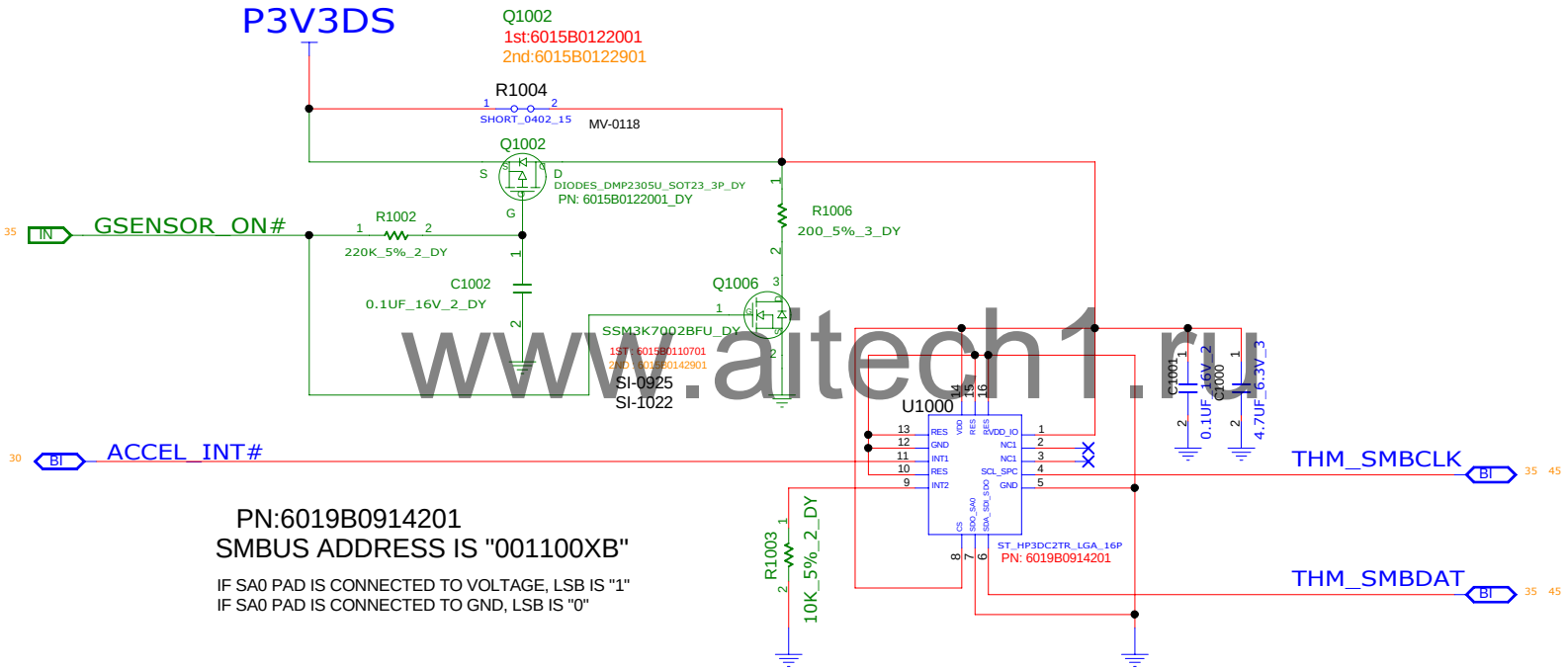
CHANGE by: Wison_Lin | DATE: 18-DEC-2012 | SHEET 42 of 69

G-Sensor

Loctaion 1000 ~ 1099

VER.02_20120925

HARDDRIVE PROTECTION



INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

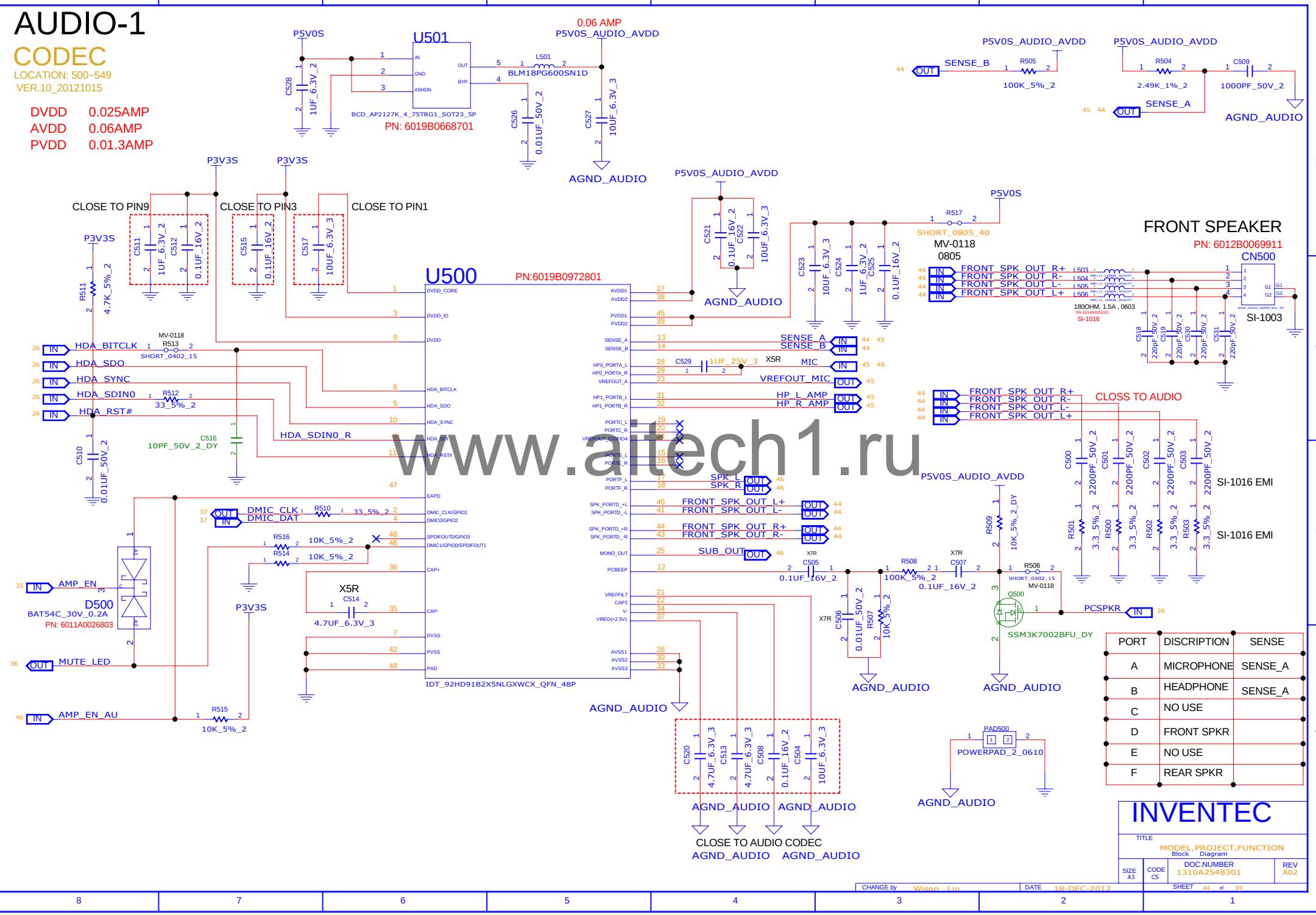
CHANGE by Wison_Lin DATE 18-DEC-2012 SHEET 43 of 69

AUDIO-1

CODEC

LOCATION: 500~549
VER.10_20121015

DVDD	0.025AMP
AVDD	0.06AMP
PVDD	0.01.3AMP



PORT	DISCRIPTION	SENSE
A	MICROPHONE	SENSE_A
B	HEADPHONE	SENSE_A
C	NO USE	
D	FRONT SPKR	
E	NO USE	
F	REAR SPKR	

INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

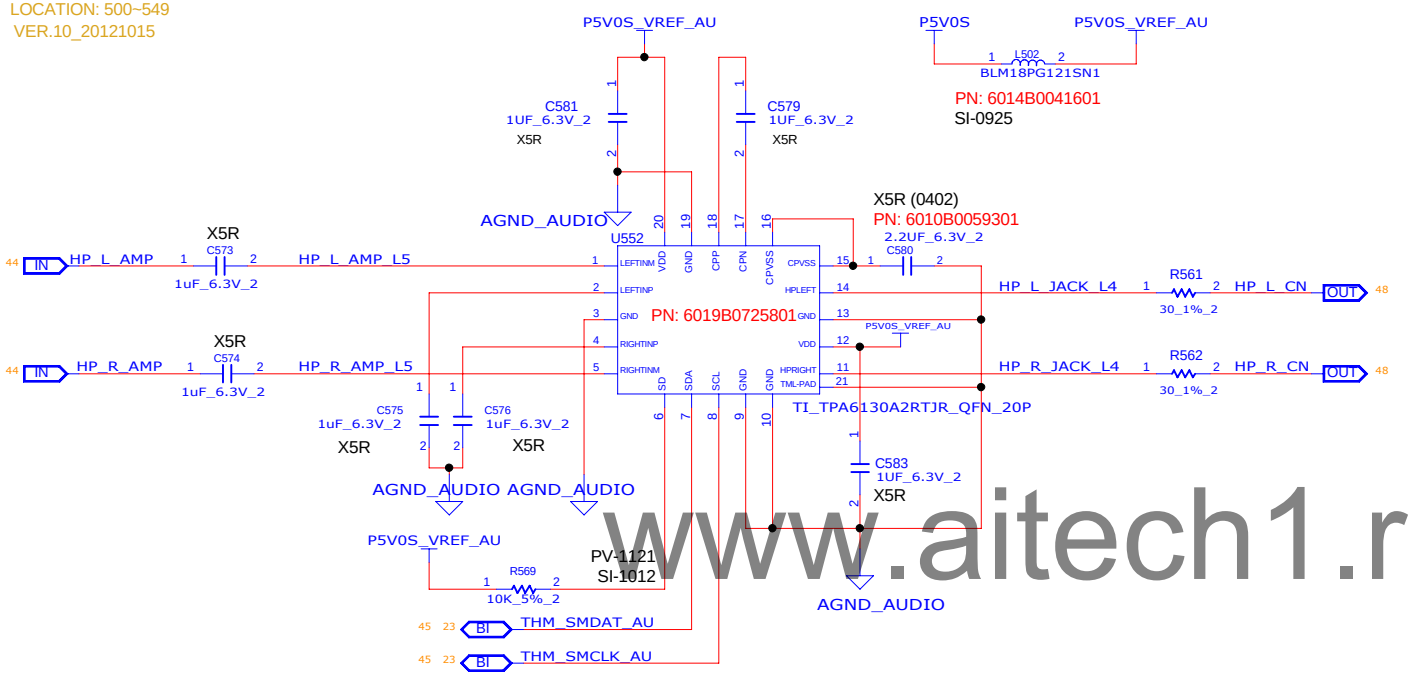
SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by: Wison_Lin | DATE: 18-DEC-2012 | SHEET 44 of 69

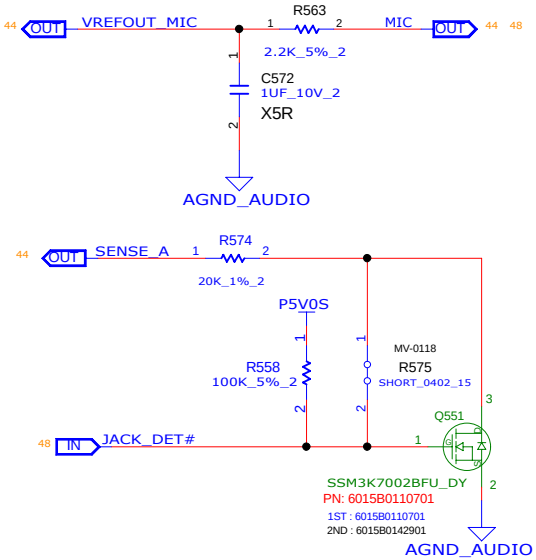
AUDIO-2

CODEC

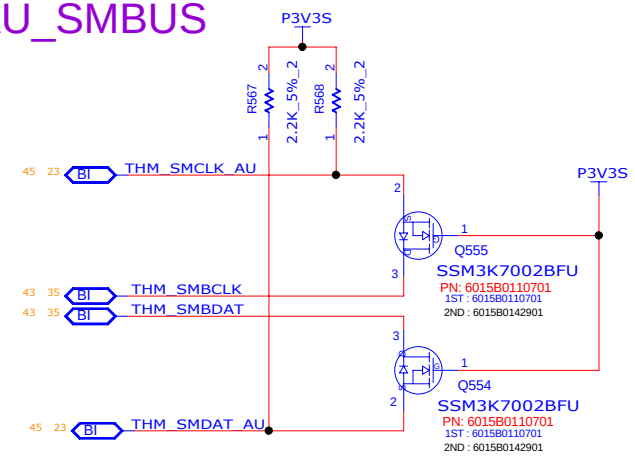
LOCATION: 500~549
VER.10_20121015



COMBO JACK



AU_SMBUS



Location	Part number	Factory	Manufacturer Part No	Marking
Q9401	1st : 6015B0122001	DIODES	DMP2305U	23P
	2nd : 6015B0122901	TOSHIBA	SSM3J327R	KFG
L9401	1st : 6014B0200401	TAI-TECH	SWF2520CF-2R2M-R15	
	2nd : 6014B0190301	CYNTEC	PHI25201B-2R2MS	
X9401	1st : 6018B0060301	EPSON	FA-238G	2500M
	2nd : 6018B0054701	TXC	7V25000014	T250

INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

SIZE A3 | CODE CS | DOC.NUMBER 1310A2548301 | REV A02

CHANGE by Wison Lin | DATE 18-DEC-2012 | SHEET 45 of 69

AUDIO (AMP) 550~599

AUDIO-3

CODEC

LOCATION: 500~549
VER.10_20121015

SUBWOOFER

0.9495 AMP

PVBAT

PVBAT_AMP_AVCC

PAD550

POWERPAD1X1M

Q552

DIODES_DMP3160L_7_3P_DY

PN: 6015B0123601_DY
SI-0925

R580 100K_5%_2_DY

C592 1UF_25V_3_DY

R581 47K_5%_2_DY

P5V0S

Q553

SSM3K7002BFU_DY
PN: 6015B0110701_DY

BACK UP SOLUTION FOR SUB CHIP

REAR SPEAKER

P5V0S 0.42 AMP

X5R C564 4.7UF_6.3V_3

X5R C563 1UF_16V_3

X7R C556 0.1UF_16V_2

SI-1016
180OHM, 1.5A , 0603
PN: 6014A0035301

L573 L572 L566 L571

SI-1016 EMI

IN SPK_L — C570 X7R 0.015UF_10V_2 — SPK_L_R1 — R560 1.96K_1%_2 — SPK_L_R2

IN SPK_R — C569 X7R 0.015UF_10V_2 — SPK_R_R1 — R559 1.96K_1%_2 — SPK_R_R2

U551

REAR_SPK_OUT_L+ / REAR_SPK_OUT_L-

REAR_SPK_OUT_R+ / REAR_SPK_OUT_R-

REAR_SPK_OUT_B_L+ / REAR_SPK_OUT_B_L-

REAR_SPK_OUT_B_R+ / REAR_SPK_OUT_B_R-

BI AMP_EN_AU

IN GAIN0

IN GAIN1

TI_TPA2012D2RTJR_QFN_20P

R565 1.96K_1%_2

R564 1.96K_1%_2

C568 0.015UF_10V_2 X7R

C571 0.015UF_10V_2 X7R

IN SUB_GAIN0

IN SUB_GAIN1

R550 100K_5%_2_DY

R551 100K_5%_2_DY

R578 100K_5%_2

R577 100K_5%_2

REAR SPEAKER

CN551

REAR_SPK_OUT_B_R+
REAR_SPK_OUT_B_R-
REAR_SPK_OUT_B_L-
REAR_SPK_OUT_B_L+

ACES_50224_0040N_001_4P

PN: 6012B0069911
SI-1003

C590 C589 C588 C587 220PF_50V_2

PVBAT

PVBAT_AMP_AVCC

IN AMP_EN_AU

OUT SUB_GAIN0

OUT SUB_GAIN1

R570 10_5%_6
SIZE IS 1206

C561 X5R, 0805 4.7UF_25V_5_DY

C582 X5R, 0805 10UF_25V_5

SI-1005

R556 47.5K_1%_2

R555 100K_5%_2

SUB_OUT — C560 X5R 1UF_25V_3

U550

TI_TPA3111D1_TSSOP_28P

C559 C550 C562 1UF_25V_3

R557 16.2K_1%_2

C577 C578 4.7UF_25V_5

C565 C566 0.1UF_25V_2

1000PF_50V_2

C567 X5R, 0603 0.47UF_25V

C558 0.47UF_25V X5R, 0603

C555 C554 4.7UF_25V_5

C557 C553 0.1UF_25V_2

1000PF_50V_2

TI TPA3111D1 (HP PART NUMBER HPA00836PWPR)

SUBWOOFER

CN550

ENTERY_3800K_F02N_00R_2P

PN: 6012B0226310

OUTNL_AU — L555 BLM18PG121SN1 — OUTNL_AU_CN

OUTNR_AU — L552 BLM18PG121SN1 — OUTNR_AU_CN

PN: 6014B0041601
SI-0925

C551 680PF_50V_2 X7R 0402

C552 680PF_50V_2 X7R 0402

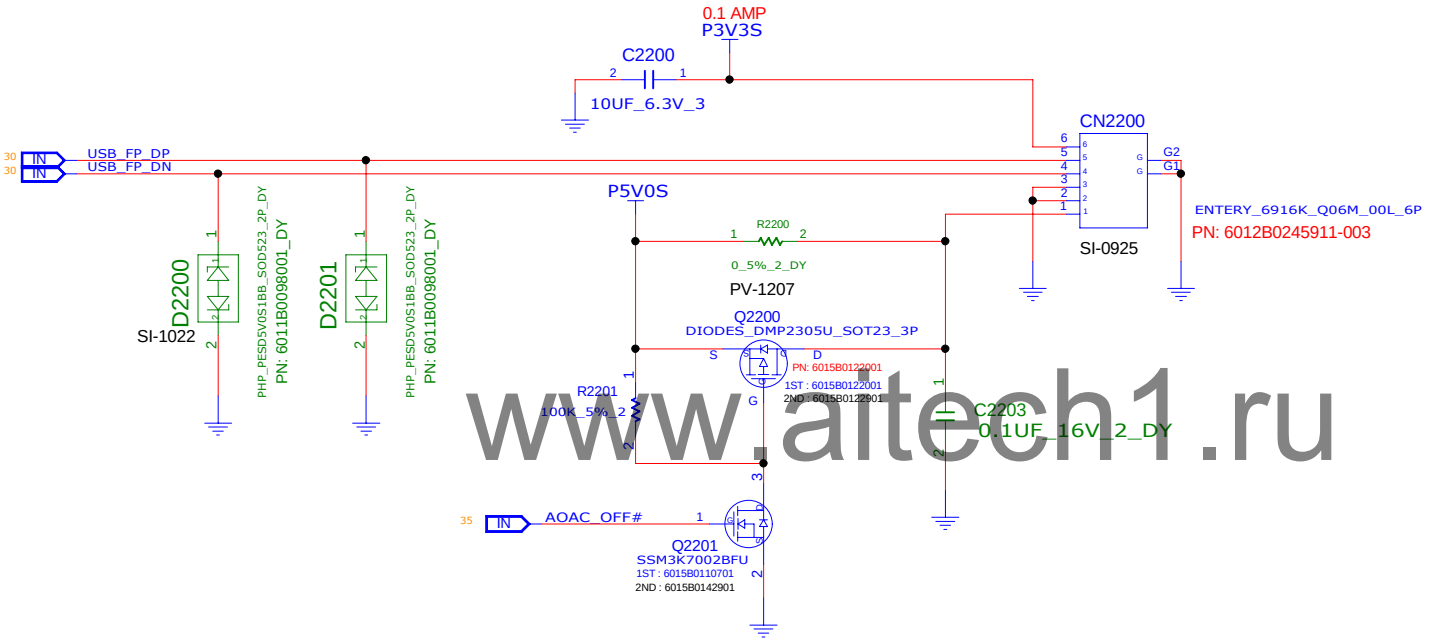
INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by Wison Lin DATE 18-DEC-2012 SHEET 46 of 69

FINGER PRINT



VFM5302-3192 PIN ASSIGNMENTS

Pin Number	Signal Name	Test Point
1	$3.3V_{CC}$	TP3
2	DP	TP1
3	DM	TP2
4	GND	TP4
5	GND	TP4
6	$5V_{CC}$	TP6

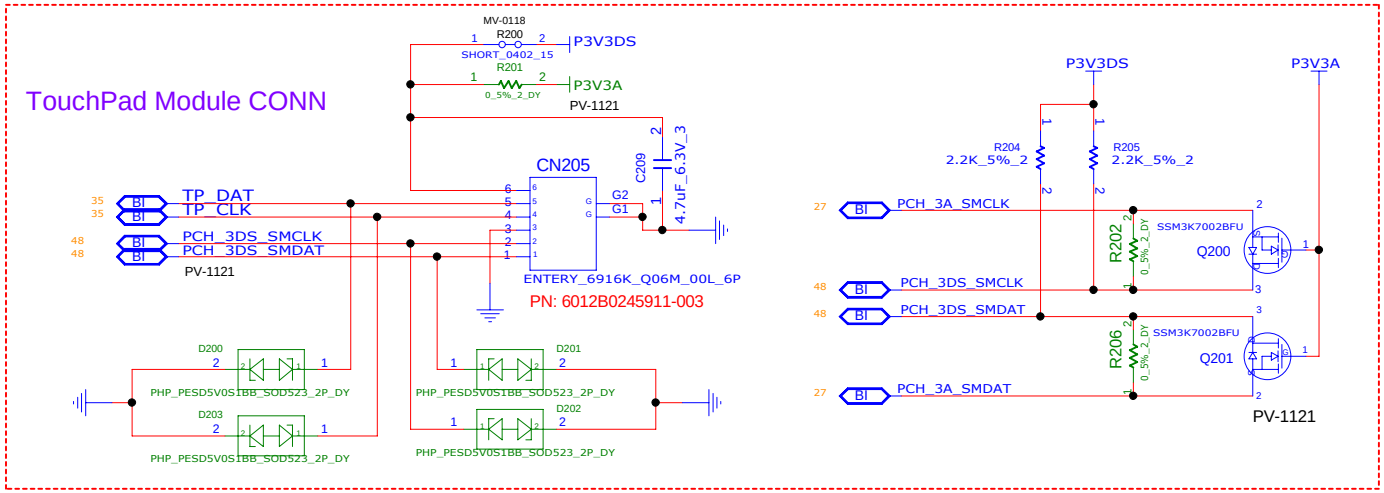
Figure 4 - Connector Pin-out

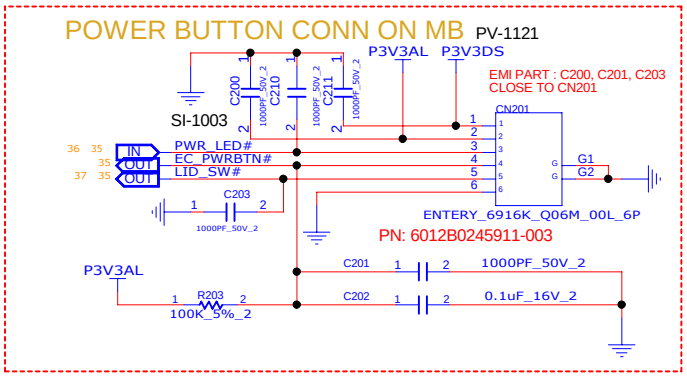
INVENTEC

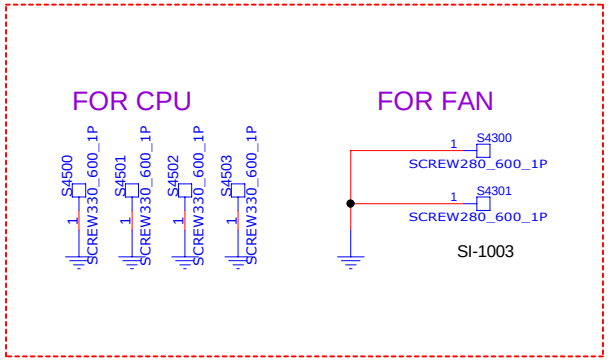
TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

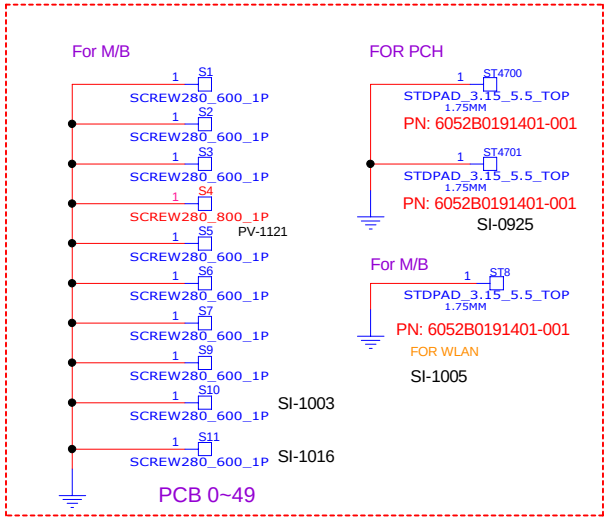
SIZE A3 | CODE CS | DOC.NUMBER 1310A2548301 | REV A02

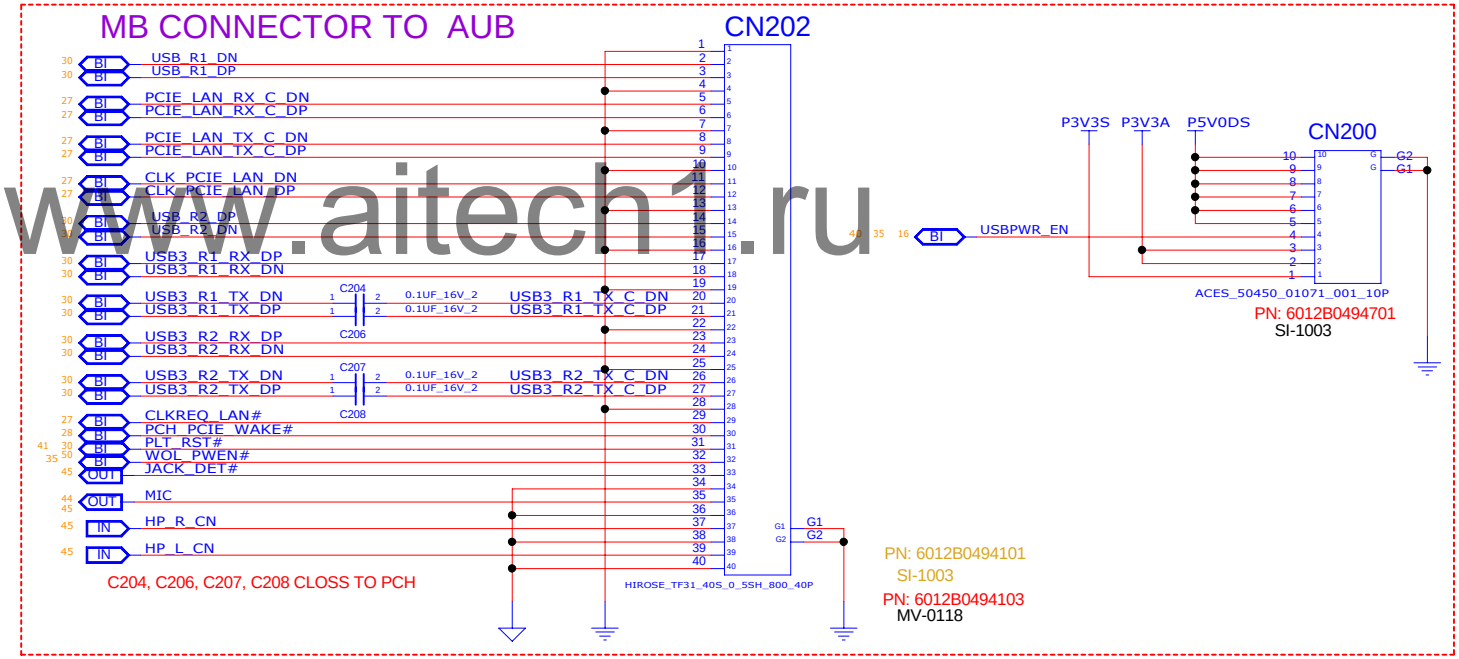
CHANGE by Wison_Lin | DATE 18-DEC-2012 | SHEET 47 of 69

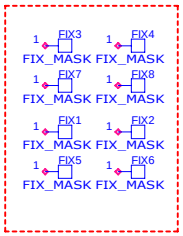












INVENTEC

TITLE: MODEL,PROJECT,FUNCTION POWER BUTTON			
SIZE A3	CODE CS	DOC.NUMBER 1310A2548301	REV A02
CHANGE by Wison Lin	DATE 18-DEC-2012	SHEET 48 of 69	

GPU

Location:GPU 5000~5499 VRAM 5500~5799 GPU SWITCH 7400~7499

VER.11_20120824

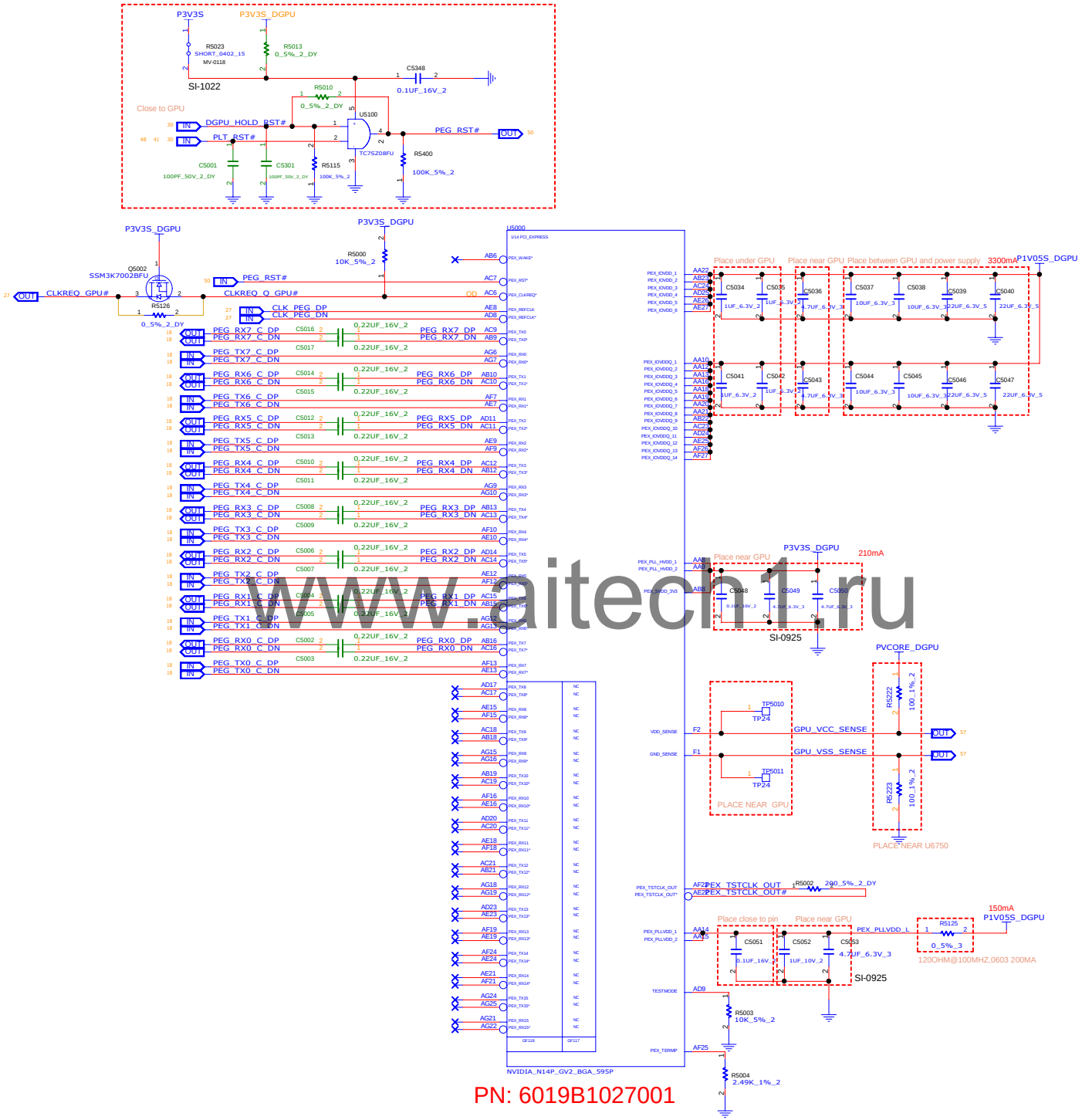
N14P-GV2 GB2-64 25W DUAL RANK DDR3

INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

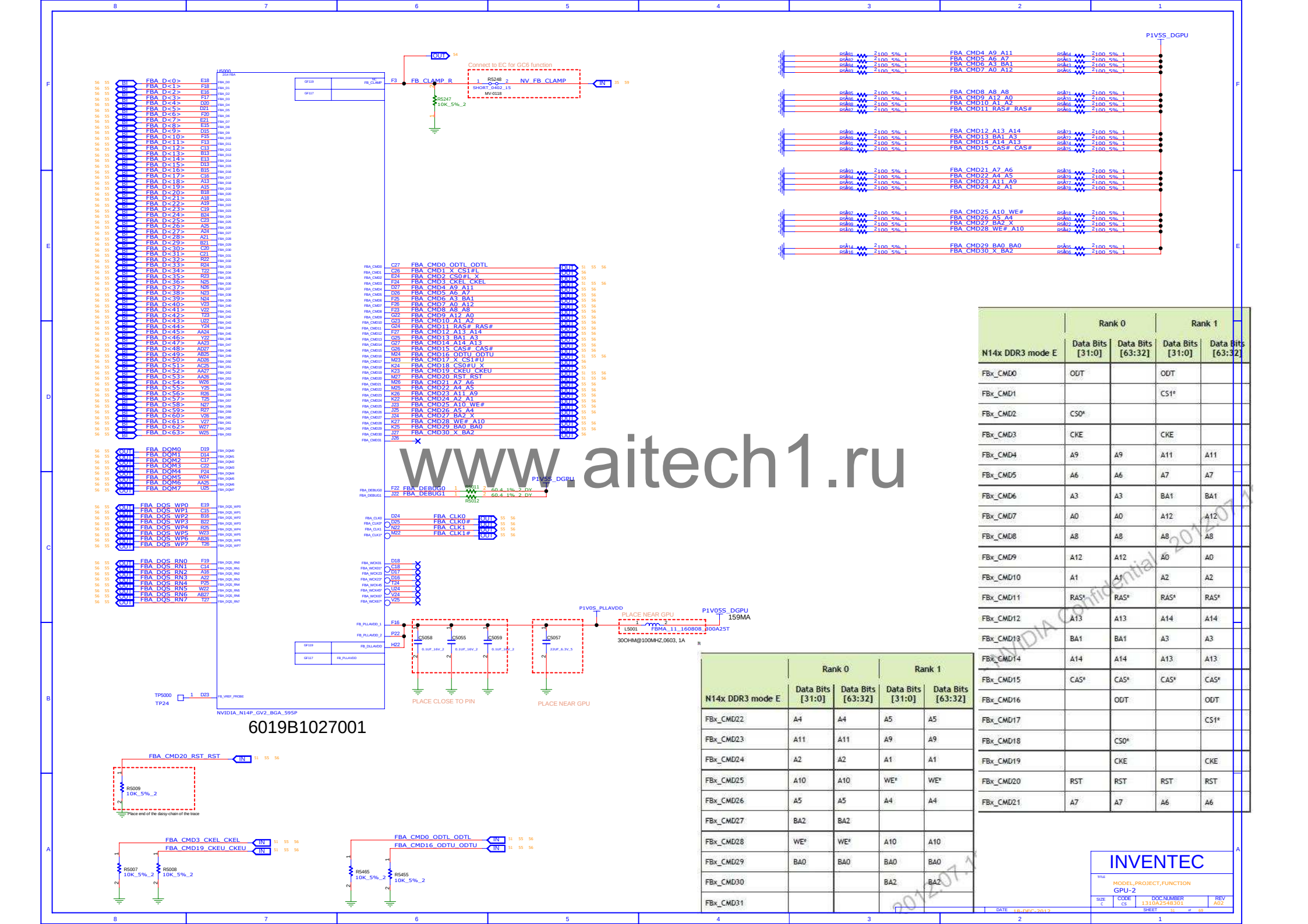
SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by Wison Lin | DATE 18-DEC-2012 | SHEET 49 of 69



PN: 6019B1027001

INVENTEC			
TITLE: MODEL,PROJECT,FUNCTION			
GPU-1			
SIZE: C	CODE: CS	DOC NUMBER: 1310A2548301	REV: A02
CHANGE by: Wison_Lin	DATE: 18-DEC-2012	SHEET: 30 of 69	



N14x DDR3 mode E	Rank 0		Rank 1	
	Data Bits [31:0]	Data Bits [63:32]	Data Bits [31:0]	Data Bits [63:32]
FBx_CMD0	ODT		ODT	
FBx_CMD1			CS1*	
FBx_CMD2	CS0*			
FBx_CMD3	CKE		CKE	
FBx_CMD4	A9	A9	A11	A11
FBx_CMD5	A6	A6	A7	A7
FBx_CMD6	A3	A3	BA1	BA1
FBx_CMD7	A0	A0	A12	A12
FBx_CMD8	A8	A8	A8	A8
FBx_CMD9	A12	A12	A0	A0
FBx_CMD10	A1	A1	A2	A2
FBx_CMD11	RAS*	RAS*	RAS*	RAS*
FBx_CMD12	A13	A13	A14	A14
FBx_CMD13	BA1	BA1	A3	A3
FBx_CMD14	A14	A14	A13	A13
FBx_CMD15	CAS*	CAS*	CAS*	CAS*
FBx_CMD16		ODT		ODT
FBx_CMD17				CS1*
FBx_CMD18		CS0*		
FBx_CMD19		CKE		CKE
FBx_CMD20	RST	RST	RST	RST
FBx_CMD21	A7	A7	A6	A6

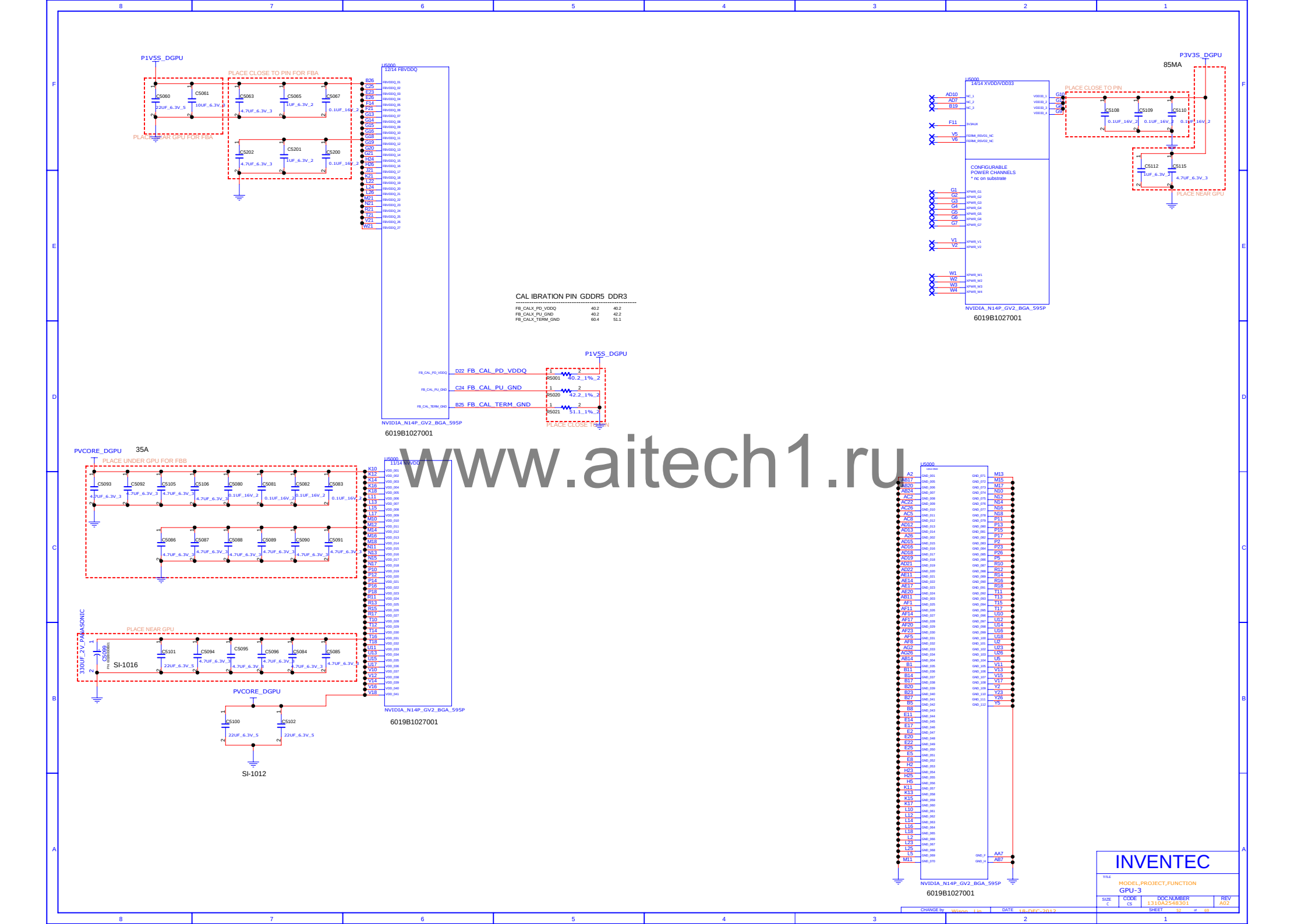
N14x DDR3 mode E	Rank 0		Rank 1	
	Data Bits [31:0]	Data Bits [63:32]	Data Bits [31:0]	Data Bits [63:32]
FBx_CMD22	A4	A4	A5	A5
FBx_CMD23	A11	A11	A9	A9
FBx_CMD24	A2	A2	A1	A1
FBx_CMD25	A10	A10	WE*	WE*
FBx_CMD26	A5	A5	A4	A4
FBx_CMD27	BA2	BA2		
FBx_CMD28	WE*	WE*	A10	A10
FBx_CMD29	BA0	BA0	BA0	BA0
FBx_CMD30			BA2	BA2
FBx_CMD31				

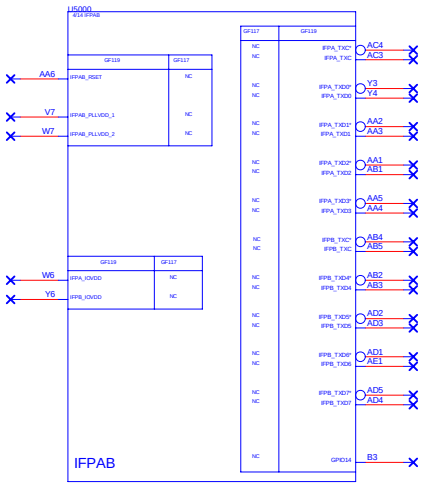
INVENTEC

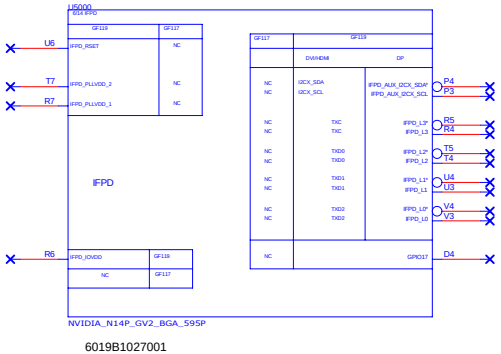
MODEL,PROJECT,FUNCTION
GPU-2

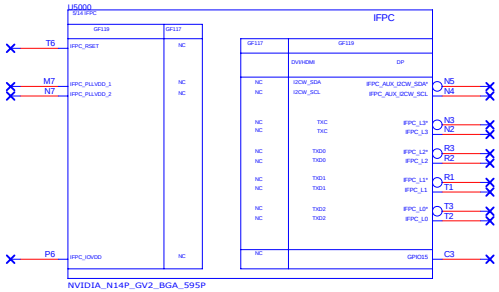
SIZE	CODE	DOC NUMBER	REV
C	CS	1310A2548301	A02

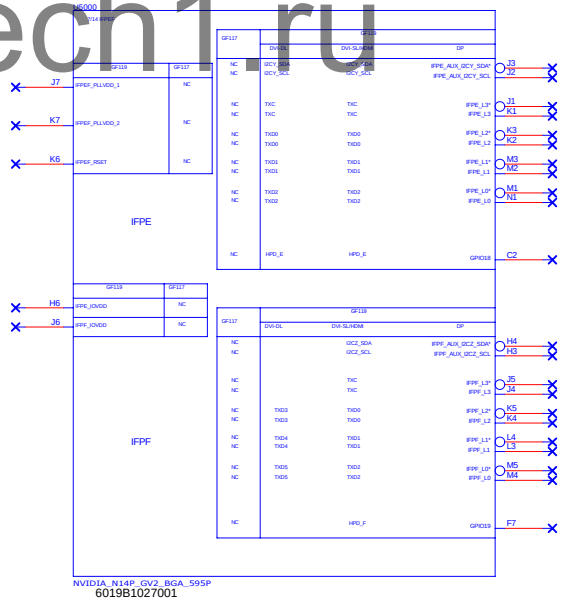
DATE 18-DEC-2012 SHEET 31 of 69











INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
GPU-4

SIZE	CODE	DOC NUMBER	REV
C	CS	1310A2548301	A02

CHANGE by Wison_Lin DATE 18-DEC-2012

SHEET 53 of 69

Resistor Values	Pull-up to VDD33	Pull-down to GND
4.99 k	1000	0000
10.0 k	1001	0001
15.0 k	1010	0010
20.0 k	1011	0011
24.9 k	1100	0100
30.1 k	1101	0101
34.8 k	1110	0110
45.3 k	1111	0111

Strap Pin Name	Logical Strapping Bit 3	Logical Strapping Bit 2	Logical Strapping Bit 1	Logical Strapping Bit 0
ROM_SCLK	PCI_DEVID[4]	SUB_VENDOR	PCI_DEVID[5]	PEX_PLL_EN_TERM
ROM_SI	RAM_CFG[3]	RAM_CFG[2]	RAM_CFG[1]	RAM_CFG[0]
ROM_SO	FB[1]	FB[0]	SMB_ALT_ADDR	VGA_DEVICE
STRAP0	USER[3]	USER[2]	USER[1]	USER[0]
STRAP1	3GIO_PADCFG[3]	3GIO_PADCFG[2]	3GIO_PADCFG[1]	3GIO_PADCFG[0]
STRAP2	PCI_DEVID[3]	PCI_DEVID[2]	PCI_DEVID[1]	PCI_DEVID[0]
STRAP3	SOR3_EXPOSED	SOR2_EXPOSED	SOR1_EXPOSED	SOR0_EXPOSED
STRAP4	RESERVED	PCIE_SPEED_CHANGE_GEN3	PCIE_MAX_SPEED	DP_PLL_VDD33V

STRAP1	Description
0110	Gen 1/ Gen 2 support only
0000	Gen 3 support
Other settings	RESERVED

RAMCFG[3:] ROM_SI	Configuration
0000 5K	<reserved>
0001 10K	<reserved>
0010 15K	<reserved>
0011 20K	<reserved>
0100 25K	<reserved>
0101 30K	Samsung 32Mx32
0110 35K	<reserved>
0111 45K	<reserved>

ROM_SO	Configuration
0000 5K	00, 01, 11 : reserved
0001 10K	10 : 256M frame buffer
0010 15K	0 : I2CS slave address=0x9E
0011 20K	1 : I2CS slave address=0x9C
0100 25K	0 : 3D device
0101 30K	1 : VGA device
0110 35K	
0111 45K	

ROM_SCLK	Configuration
0000 5K	GPU device ID
0001 10K	0 : No VBIOS ROM
0010 15K	1 : VBIOS ROM is present
0011 20K	0 : Disable PCIE PLL termination
0100 25K	1 : Enable PCIE PLL termination
0101 30K	
0110 35K	
0111 45K	

STRAP4	Configuration
0000 5K	reserved
0001 10K	reserve for PCIE GEN3 speed function
0010 15K	0 : default
0011 20K	0 : limit to PCIE Gen1
0100 25K	1 : PCIE Gen2/3 capable
0101 30K	reserve for future use
0110 35K	0 : default
0111 45K	

VENDER	DENSITY	VENDER PN	IEC PN	STRAP	R5061
SAMSUNG	128MX16	K4W2G1646E-BC1A	6019B1033601	0X7	45.3K
MICRON	128MX16	MT41K128M16JT-093G:K	6019B1033501	0X5	30.1K

Table 120. Resistance Mapping to Hex Values

Resistor Values	Pull-up to VDD33	Pull-down to GND
4.99 k	1000	0000
10.0 k	1001	0001
15.0 k	1010	0010
20.0 k	1011	0011
24.9 k	1100	0100
30.1 k	1101	0101
34.8 k	1110	0110
45.3 k	1111	0111

Table 121 contains mapping tables for the Multi-Level Strapping Mode

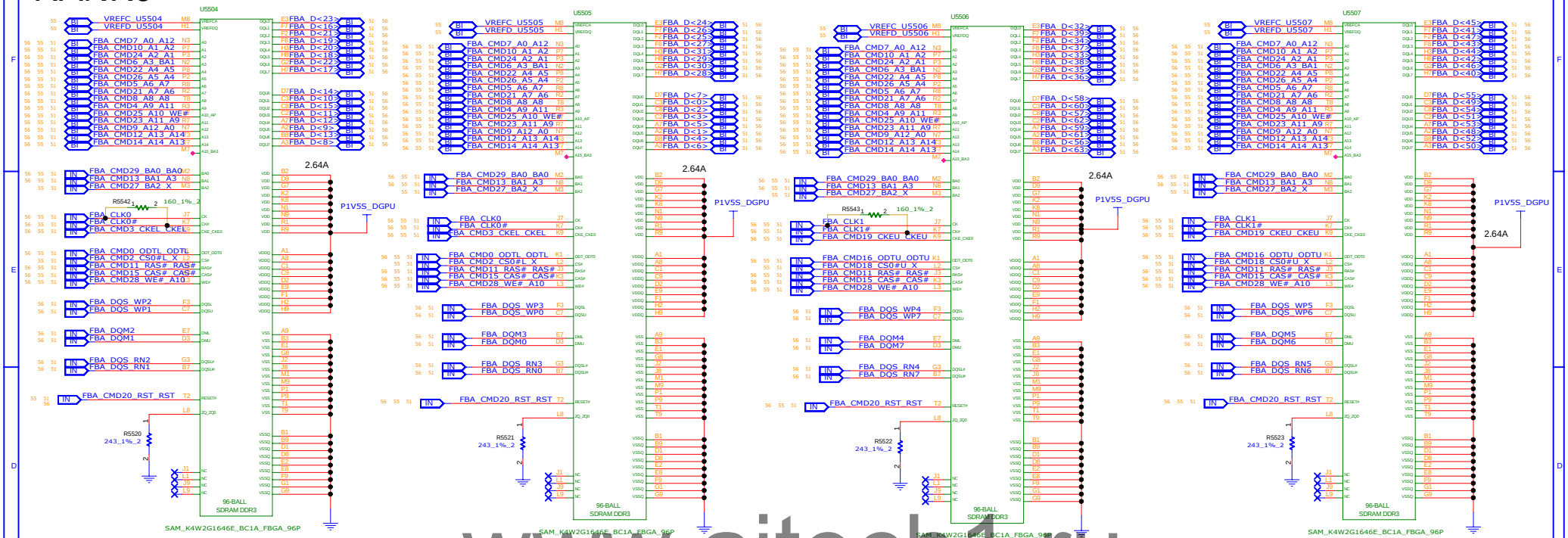
INVENTEC

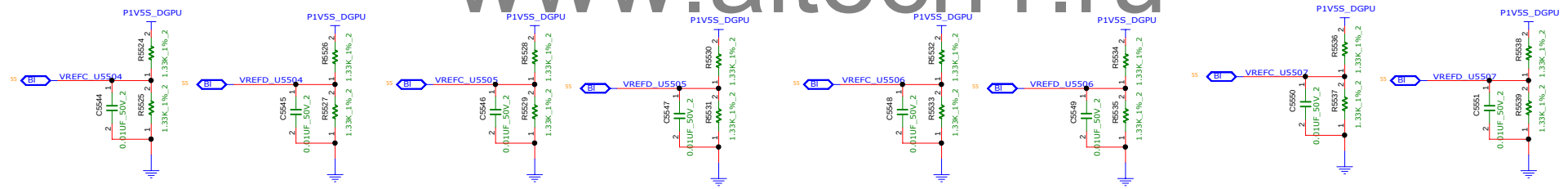
MODEL,PROJECT,FUNCTION
GPU-5

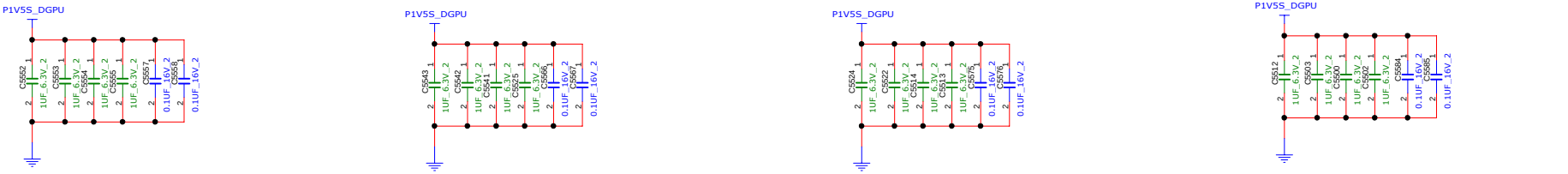
SIZE C | CODE CS | DOC NUMBER 1310A2548301 | REV A02

CHANGE by Wison_Lin DATE 18-DEC-2012 SHEET 54 of 69

RANK0







CHANNEL A MEMORY

VENDER	DENSITY	VENDER PN	IEC PN	STRAP
SAMSUNG	128MX16	K4W2G1646E-BC1A	6019B1033601	0X7
MICRON	128MX16	MT41K128M16JT-093G:K	6019B1033501	0X5

INVENTEC

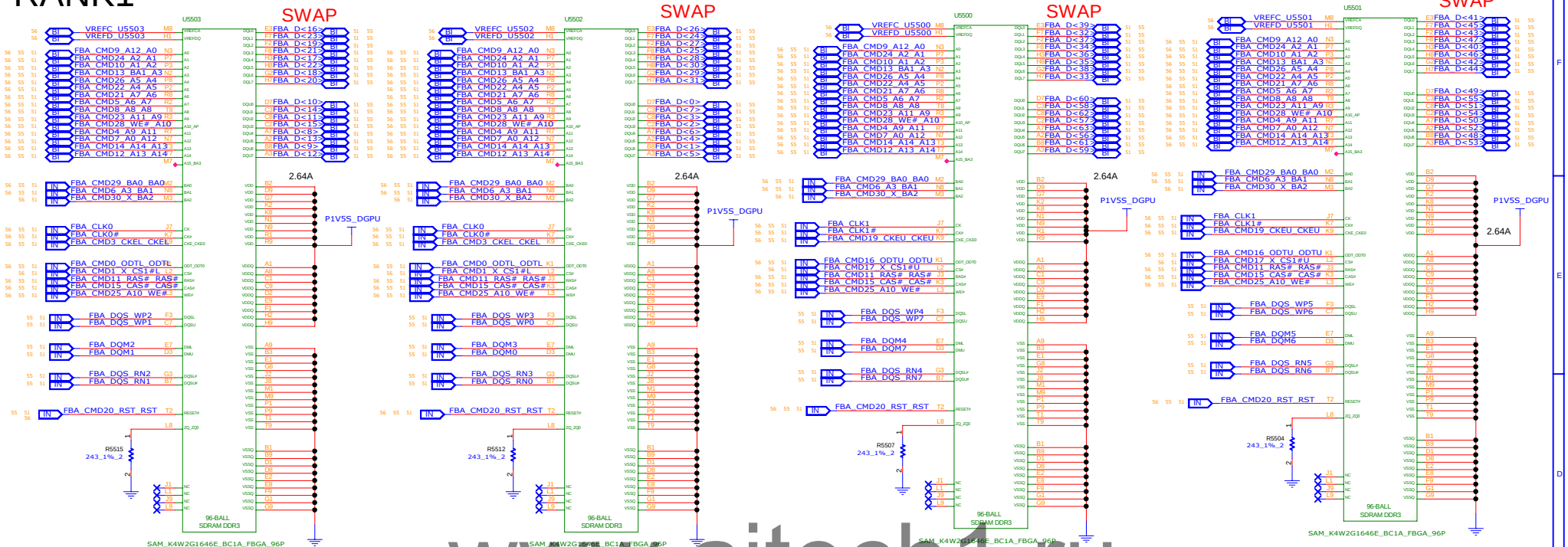
TITLE: MODEL,PROJECT,FUNCTION
VRAM DDR3

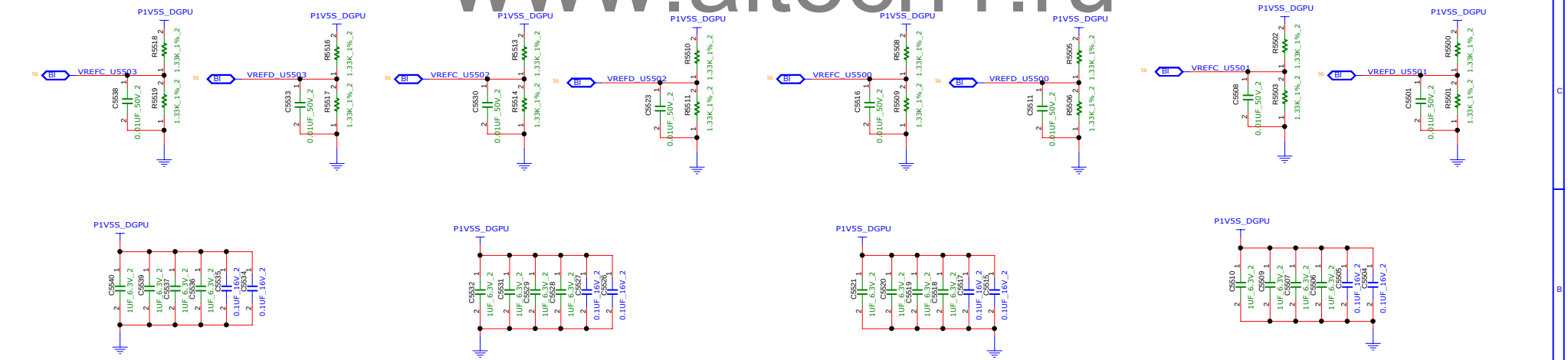
SIZE	CODE	DOC NUMBER	REV
C	CS	1310A2548301	A02

SHEET 55 of 69

CHANGE by Wison_Lin DATE 18-DEC-2012

RANK1





CHANNEL A MEMORY

VENDER	DENSITY	VENDER PN	IEC PN	STRAP
SAMSUNG	128MX16	K4W2G1646E-BC1A	6019B1033601	0X7
MICRON	128MX16	MT41K128M16JT-093G:K	6019B1033501	0X5

INVENTEC

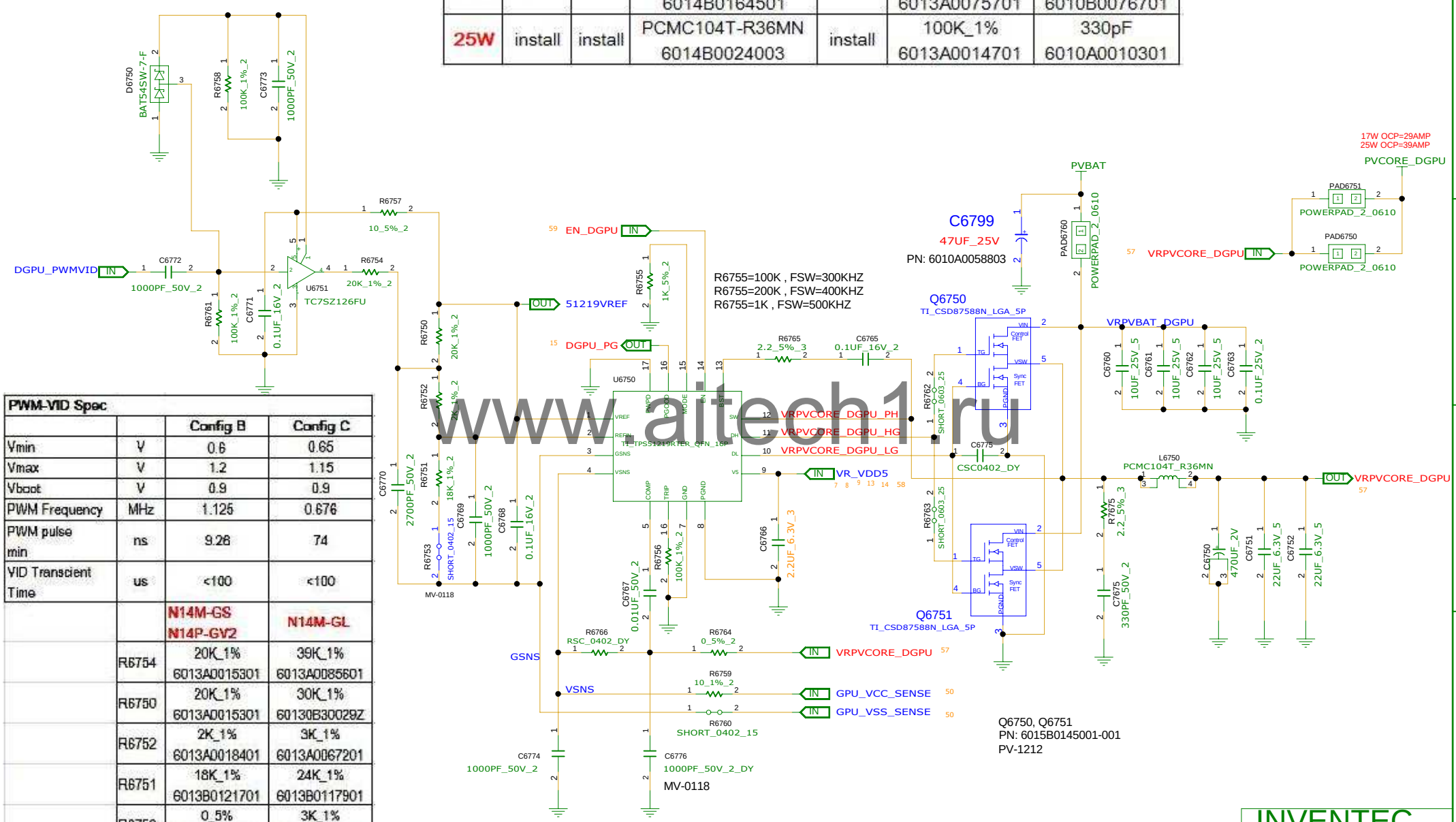
TITLE: MODEL,PROJECT,FUNCTION
VRAM DDR3

SIZE	CODE	DOC NUMBER	REV
C	CS	1310A2548301	A02

CHANGE by: Wison_Lin DATE: 18-DEC-2012

SHEET 56 of 69

	C6762	C6752	L6750	Q6751	R6756	C7675
17W	OPEN	OPEN	ETQP4LR36AFM 6014B0164501	OPEN	130K_1% 6013A0075701	220pF 6010B0076701
25W	install	install	PCMC104T-R36MN 6014B0024003	install	100K_1% 6013A0014701	330pF 6010A0010301



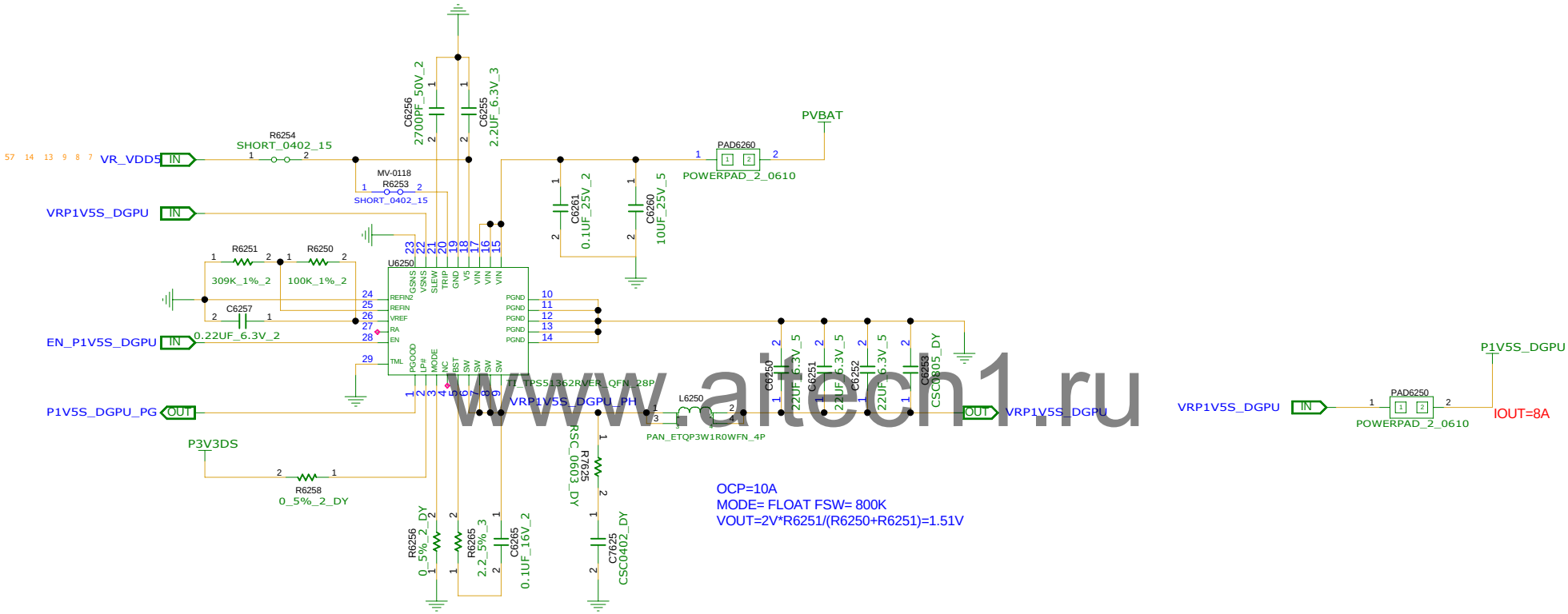
PWM-VID Spec			
		Config B	Config C
Vmin	V	0.6	0.65
Vmax	V	1.2	1.15
Vboot	V	0.9	0.9
PWM Frequency	MHz	1.125	0.676
PWM pulse min	ns	9.26	74
VID Transcient Time	us	<100	<100
		N14M-GS N14P-GV2	N14M-GL
	R6754	20K_1% 6013A0015301	39K_1% 6013A0085601
	R6750	20K_1% 6013A0015301	30K_1% 60130B30029Z
	R6752	2K_1% 6013A0018401	3K_1% 6013A0067201
	R6751	18K_1% 6013B0121701	24K_1% 6013B0117901
	R6753	0_5% 60130B0000ZT	3K_1% 6013A0067201
	C6770	2700pF 6010A0025201	1800pF 6010B0160401

INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by: Wison Lin | DATE: 18-DEC-2012 | SHEET 57 of 69



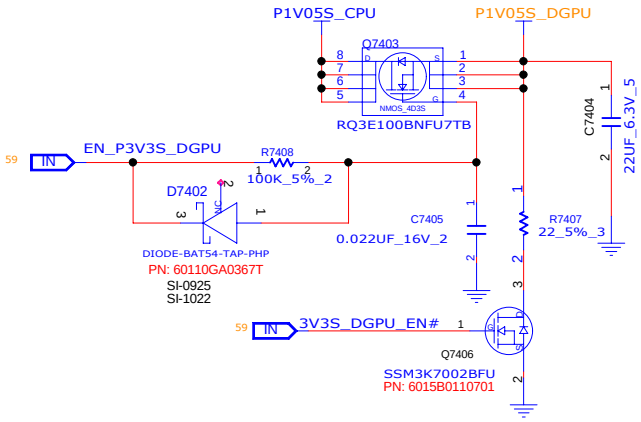
INVENTEC

TITLE
MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

SHEET 58 of 69

CHANGE by Wison Lin DATE 18-DEC-2012



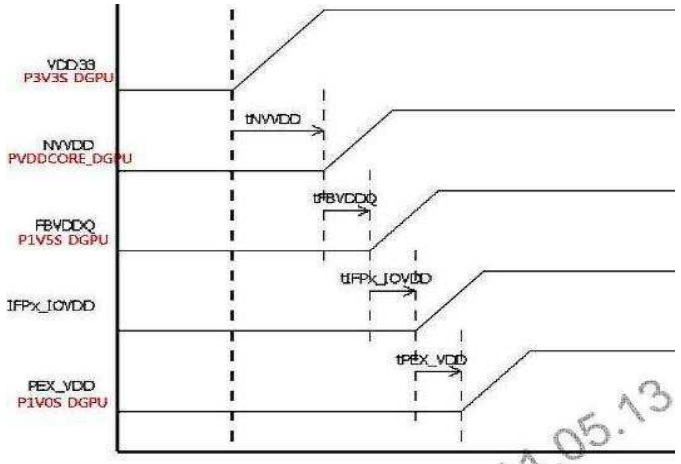


Figure 17. Recommended Power On Sequencing Order

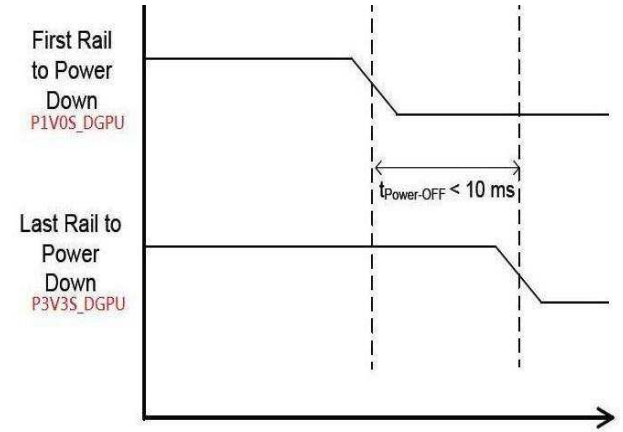
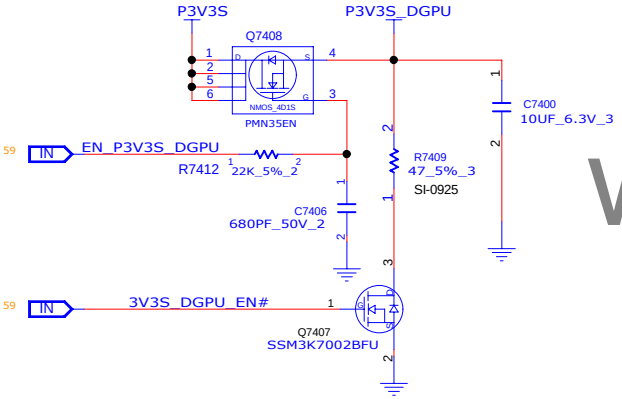
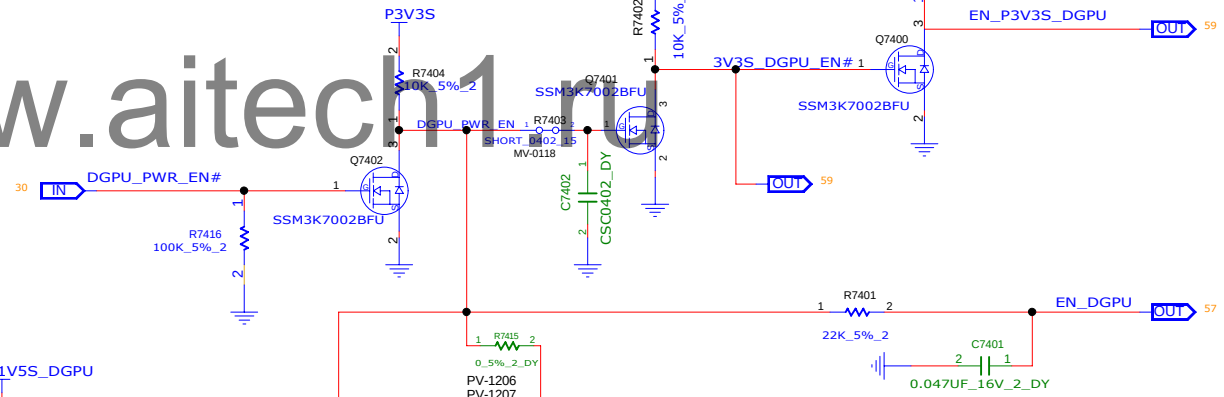
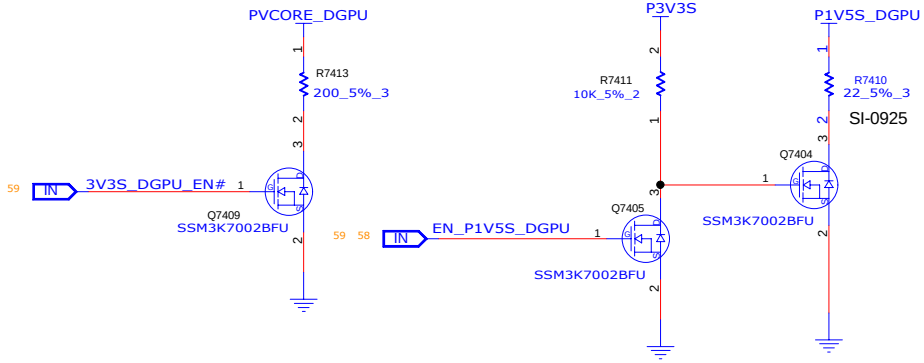
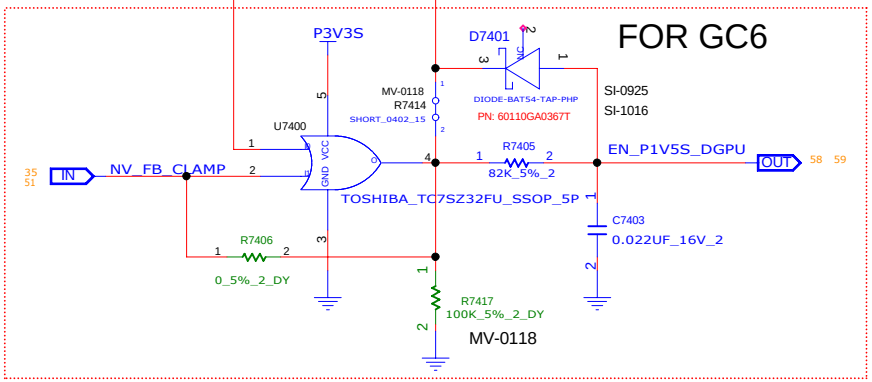


Figure 18. Recommended Power Off Sequencing Order









INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by Wison Lin DATE 18-DEC-2012 SHEET 59 of 69

AUB
LOCATION: 9000~9999
VER.03_20120814

AUB BOARD

INVENTEC

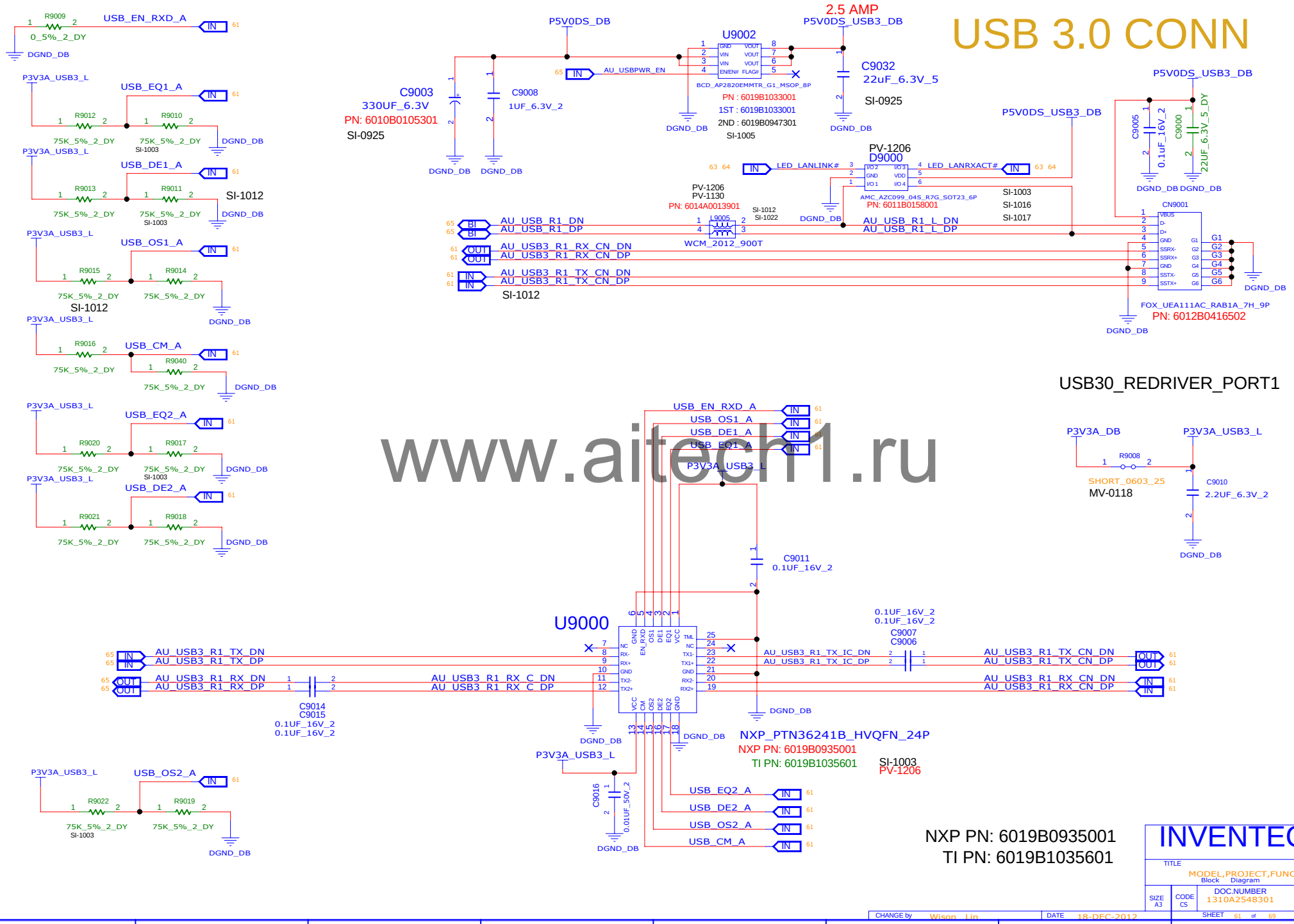
TITLE
MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

SHEET 60 of 69

CHANGE by Wison_Lin DATE 18-DEC-2012

USB 3.0 CONN

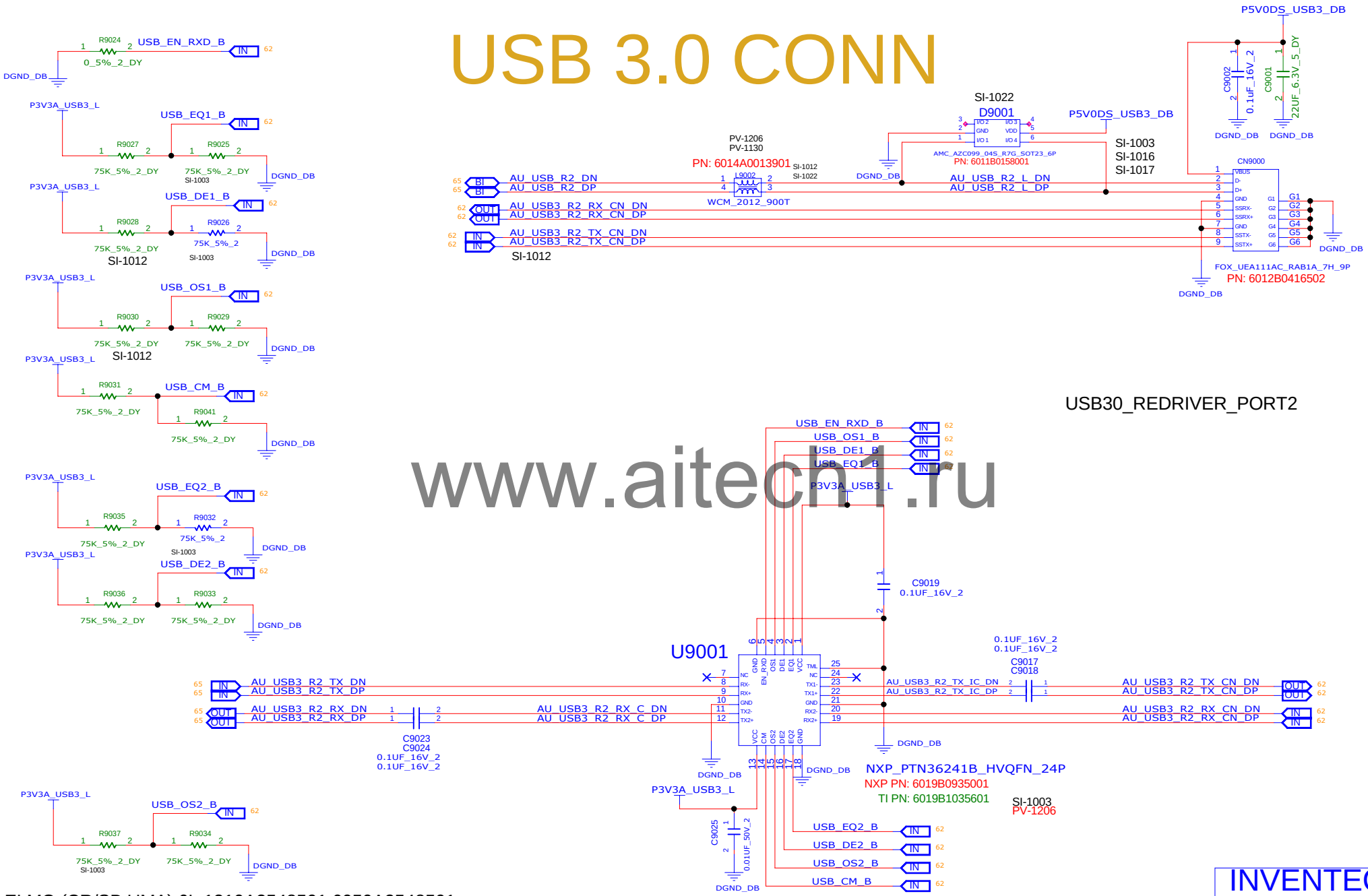


NXP PN: 6019B0935001
TI PN: 6019B1035601

INVENTEC

TITLE			
MODEL,PROJECT,FUNCTION Block Diagram			
SIZE A3	CODE CS	DOC.NUMBER 1310A2548301	REV A02
CHANGE by Wison_Lin	DATE 18-DEC-2012	SHEET 61 of 69	

USB 3.0 CONN



ELMO (CR/SB UMA) 6L 1310A2548501 6050A2548501
ELMO (CR/SB DIS) 8L 1310A2548601 6050A2548601

INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by: Wison_Lin | DATE: 18-DEC-2012 | SHEET 62 of 69

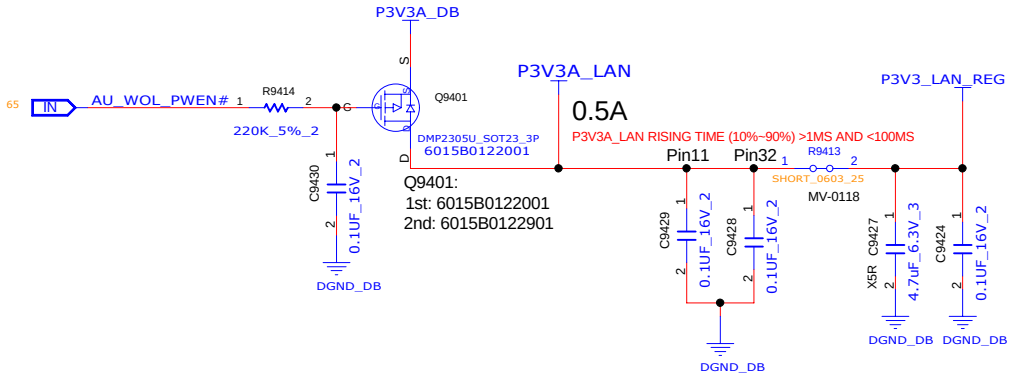
LAN (Controller)

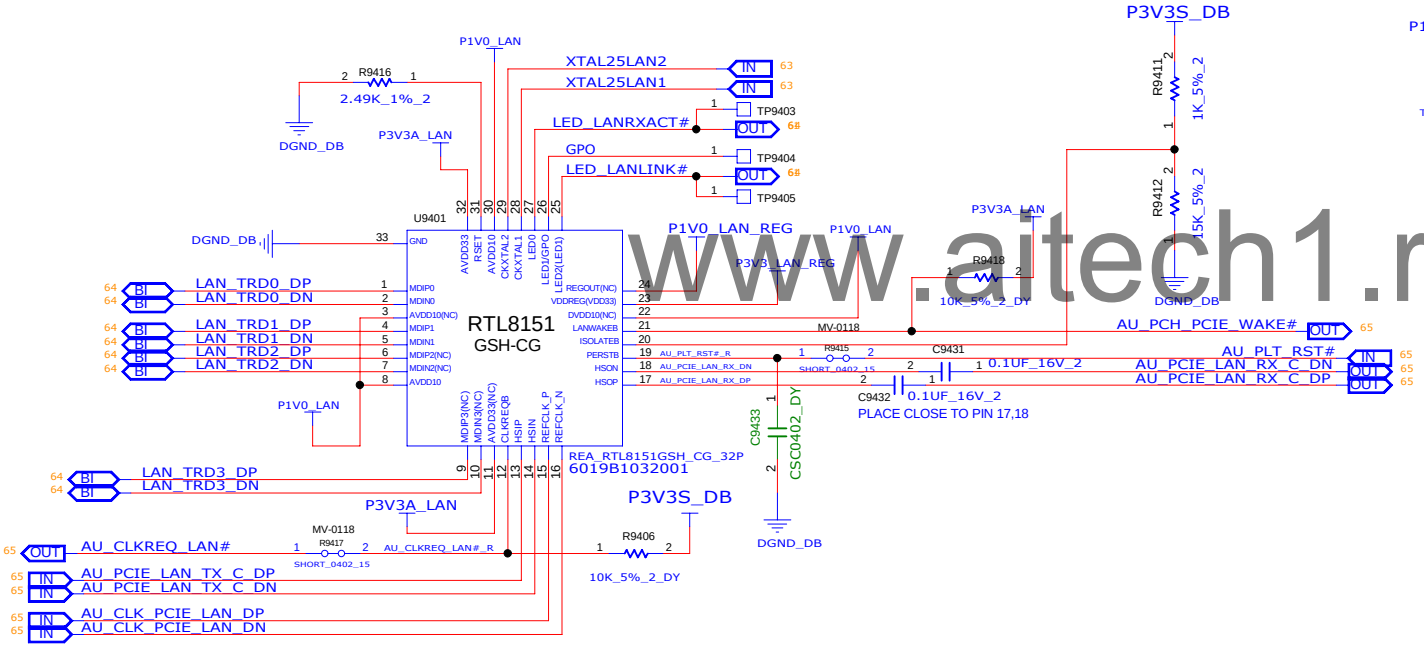
Location 9400 ~ 9499

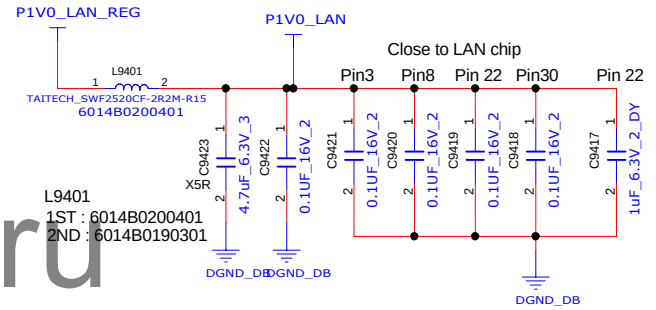
Ver.03_20120807

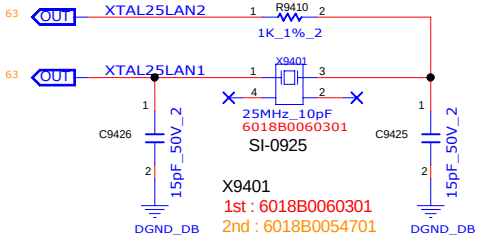
6019B1032101_RTL8161GSH-CG_10/100/1000

6019B1032001_RTL8151GSH-CG_10/100/1000









Location	Part number	Factory	Manufacturer Part No	Marking
Q9401	1st : 6015B0122001	DIODES	DMP2305U	23P
	2nd : 6015B0122901	TOSHIBA	SSM3J327R	KFG
L9401	1st : 6014B0200401	TAI-TECH	SWF2520CF-2R2M-R15	
	2nd : 6014B0190301	CYNTEC	PHI25201B-2R2MS	
X9401	1st : 6018B0060301	EPSON	FA-238G	2500M
	2nd : 6018B0054701	TXC	7V25000014	T250

INVENTEC

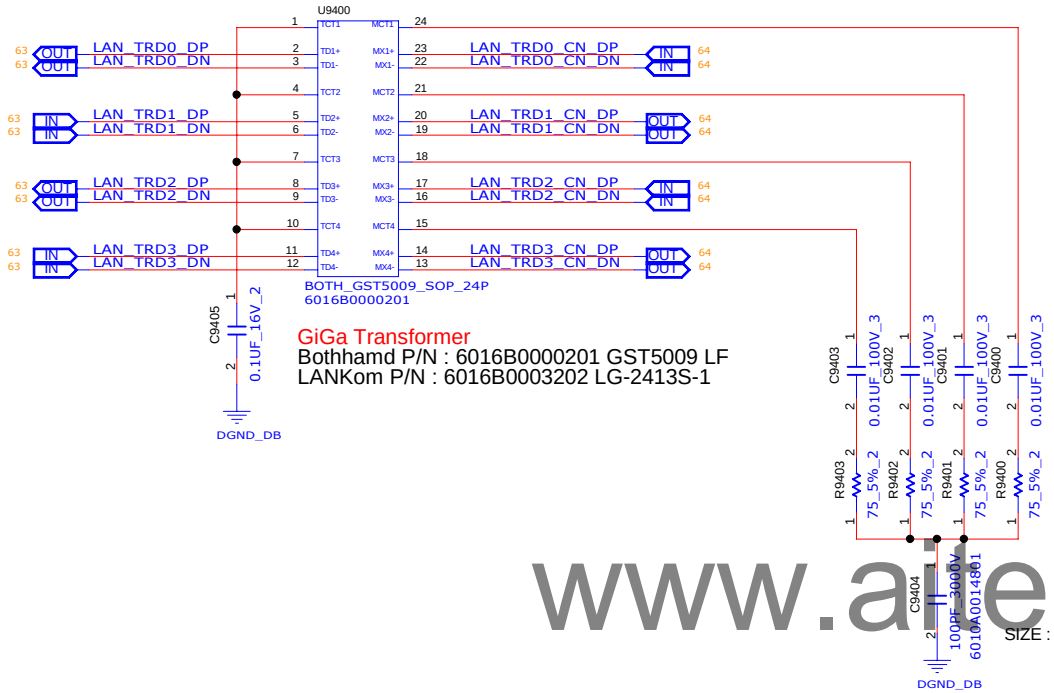
TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

SIZE A3 | CODE CS | DOC.NUMBER 1310A2548301 | REV A02

CHANGE by Wison_Lin | DATE 18-DEC-2012 | SHEET 63 of 69

LAN (Transformer & RJ45)

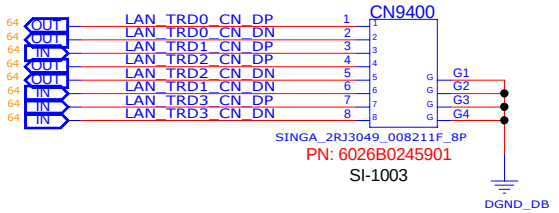
Location 9400 ~ 9499
Ver.06_20120813



GiGa Transformer
Bothhamd P/N : 6016B0000201 GST5009 LF
LANKom P/N : 6016B0003202 LG-2413S-1

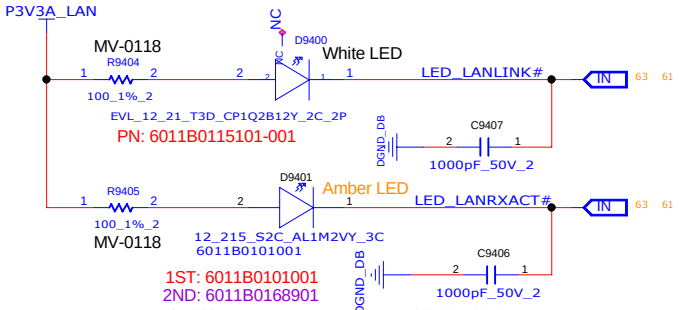
SIZE : 1808

RJ-45



PN: 6026B0245901
SI-1003

★Layout
D9400 White LED place on TOP side.
D9401 Amber LED place on Bottom side.



	C6762	C6752	L6750	Q6751	R6756	C7675
17W	OPEN	OPEN	ETQP4LR36AFM 6014B0164501	OPEN	130K_1% 6013A0075701	220pF 6010B0076701
25W	install	install	PCMC104T-R36MN 6014B0024003	install	64.9K_1% 6013A008860F	330pF 6010A0010301

Location	Part number	Factory	Manufacturer Part No	Marking
D300	1st : 6011A0026801	DIODES	D-BAT54-7	KL1
	2nd : 60110GA0367T	NXP	BAT54	L4
Q300	1st : 6015B0110701	TOSHIBA	SSM3K7002BFU	NM
Q301	2nd : 6015B0142901	DIODES	DMN65D8LW-7	MM3
U301	1st : 6019B0932401	MXIC	MX25L512EMI-10G	
512KB	2nd : 6019B0816001	ATMEL	AT25F512B-SSH-T	
U301	1st : 6019B1016101	WINBOND	W25Q32FVSSIG	
4MB	2nd : 6019B0794701	MXIC	MX25L3206EM2I-12G	
U301	1st : 6019B0955901	WINBOND	W25Q64FVSSIG	
8MB	2nd : 6019B0813101	MXIC	MX25L6406EM2I-12G	

INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

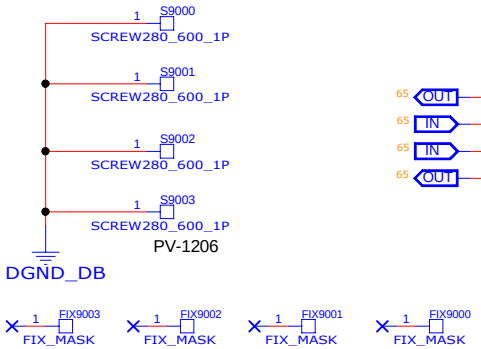
SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

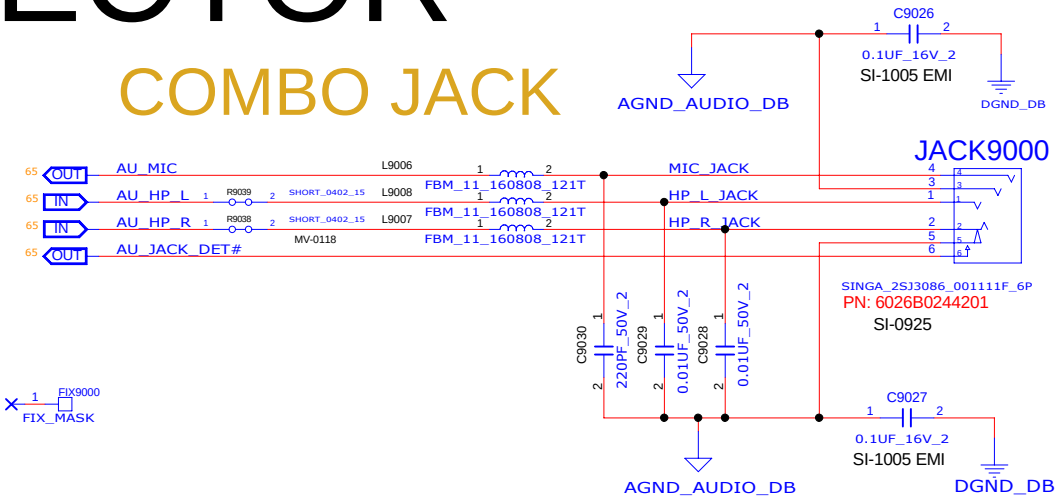
SHEET 64 of 69

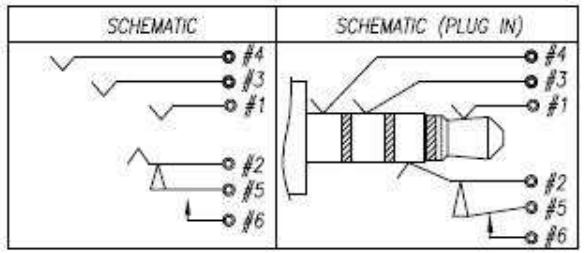
CHANGE by Wison_Lin DATE 18-DEC-2012

CONNECTOR

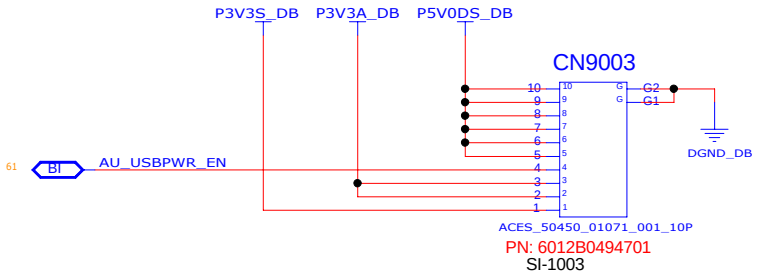
COMBO JACK

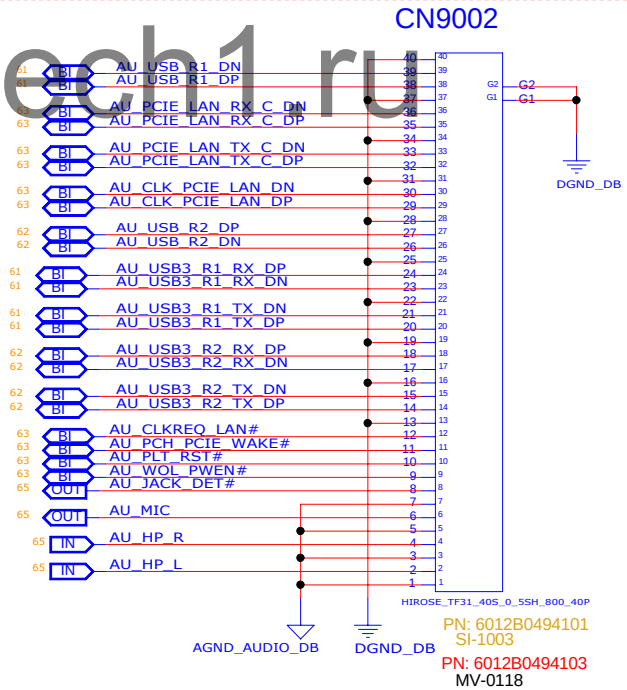






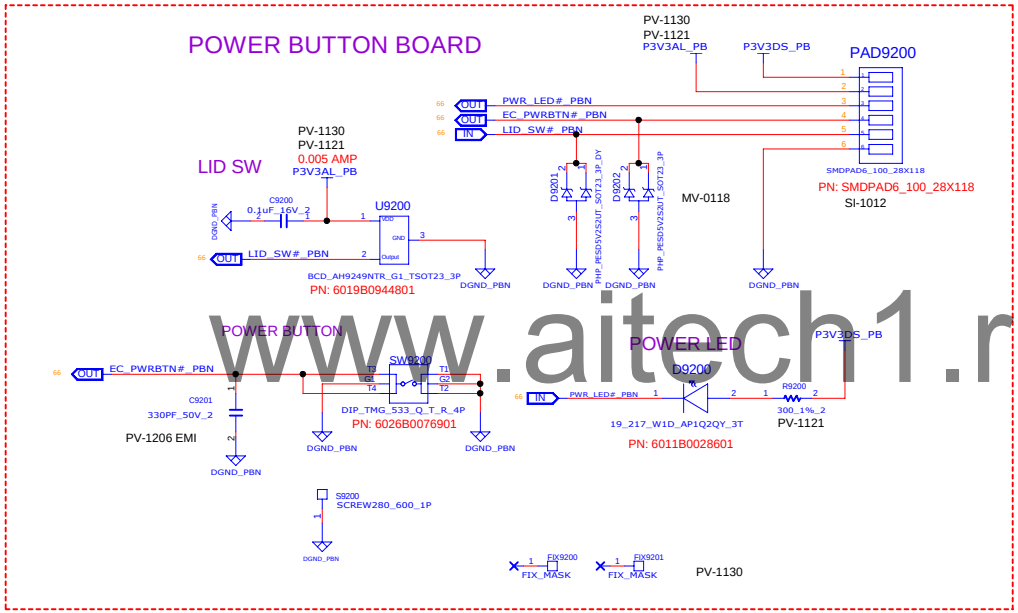
MB TO AUB CONNECTOR





INVENTEC			
TITLE: MODEL,PROJECT,FUNCTION Block Diagram			
SIZE A3	CODE CS	DOC.NUMBER 1310A2548301	REV A02
CHANGE by Wison_Lin	DATE 18-DEC-2012	SHEET 65 of 69	

POWER BUTTON BOARD



INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC NUMBER	REV
C	CS	1310A2548301	A02

CHANGE by Wisco_Lin DATE 18-DEC-2012 SHEET 66 of 69

1310A2552101 (6L)
1310A2552201 (8L)

ESD BOARD 1

MV-0118

USB BOARD (6L)	1310A2548501	6050A2548501
USB BOARD (8L)	1310A2548601	6050A2548601
POWER BOARD (6L)	1310A2548701	6050A2548701
POWER BOARD (8L)	1310A2548801	6050A2548801
EMI BOARD (6L)	1310A2552101 1310A2552102	6050A2552101
EMI BOARD (8L)	1310A2552201 1310A2552202	6050A2552201

1310A2552102 (6L)
1310A2552202 (8L)

ESD BOARD 2

MV-0118

CHIEF RIVER	DIS	NVIDIA N14P-GV2 (GEFORCE 630M)	4G	SAMSUNG K4W4G1646B-HC11	1310A2548301
CHIEF RIVER	DIS	NVIDIA N14P-GV2 (GEFORCE 630M)	2G	MICRON MT41K256M16HA-107G:E	1310A2548302
CHIEF RIVER	UMA	N/A	N/A	N/A	1310A2548201

INVENTEC

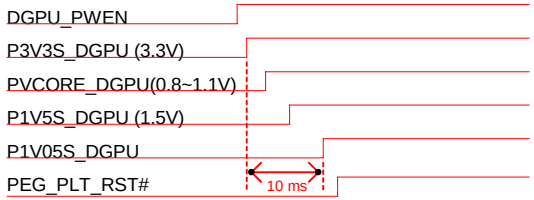
TITLE: MODEL, PROJECT, FUNCTION
Block Diagram

SIZE	CODE	DOC.NUMBER	REV
A3	CS	1310A2548301	A02

CHANGE by Wison_Lin DATE 18-DEC-2012 SHEET 67 of 69

POWE UP S5------>S0 S3

NV N14P GV2 POWER UP SEQUENCE



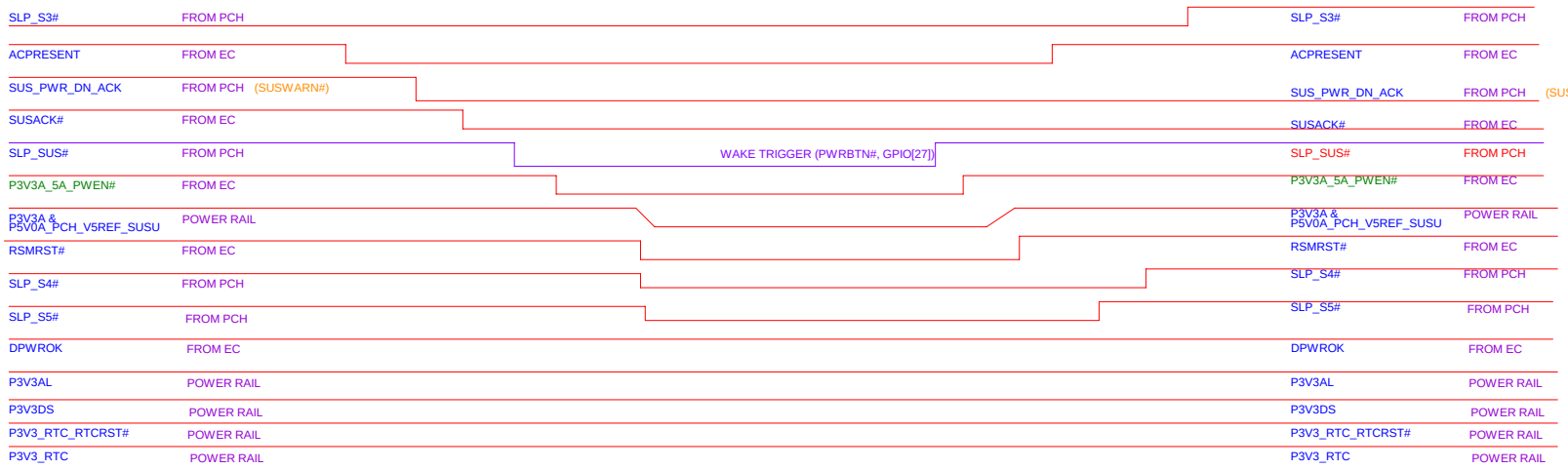
INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC NUMBER	REV
C	CS	1310A2548301	A02

CHANGE by Wison_Lin DATE 18-DEC-2012 SHEET 68 of 69

S3 TO DEEP S3



DEEP S3 TO S0

INVENTEC

TITLE: MODEL,PROJECT,FUNCTION
Block Diagram

SIZE	CODE	DOC NUMBER	REV
C	CS	1310A2548301	A02

CHANGE by Wison_Lin DATE 18-DEC-2012

SHEET 69 of 69