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HSF Property:ROHS or Halogen-Free

COMET DIS

SI1 BUILD

2012.11.30

21-OCT-2002		
DATE	CHANGE NO.	REV

INVENTEC								
DRAWER	EE	DATE	POWER	DATE	TITLE	MODEL,PROJECT,FUNCTION COMET		
DESIGN	EOI CHEN	2012/10/24	RAY CHEN	2012/10/24				
CHECK	EOI CHEN	2012/10/24	RAY CHEN	2012/10/24				
RESPONSIBLE	EOI CHEN	2012/10/24	RAY CHEN	2012/10/24				
SIZE= A3		VER. X01			SIZE	CODE	DOC NUMBER	REV
FILE NAME: COMET DIS					C	CS	1310XXXXX-0-0	X01
PIN 8090A2690B101 XXXX					SHEET			
					of 77			

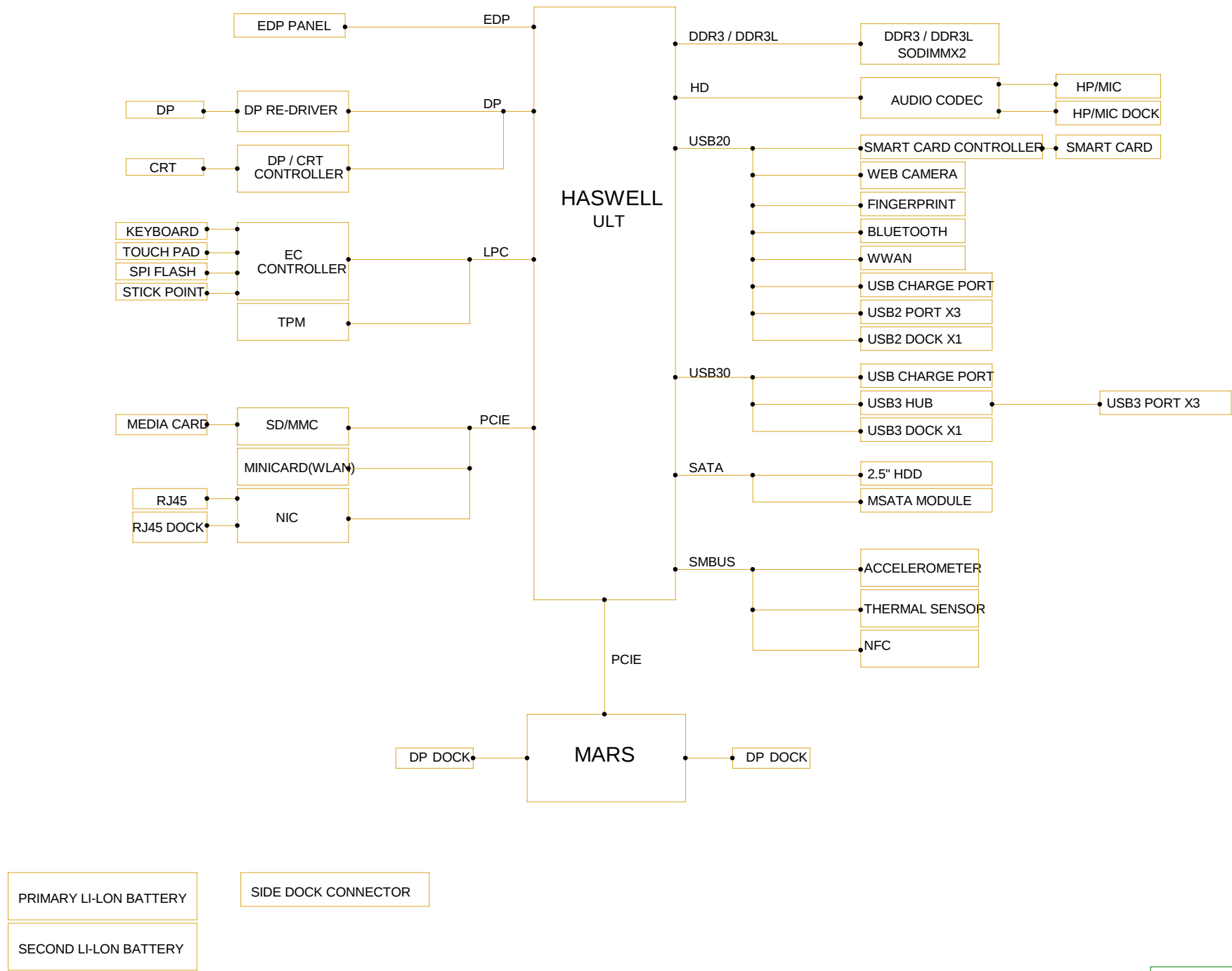


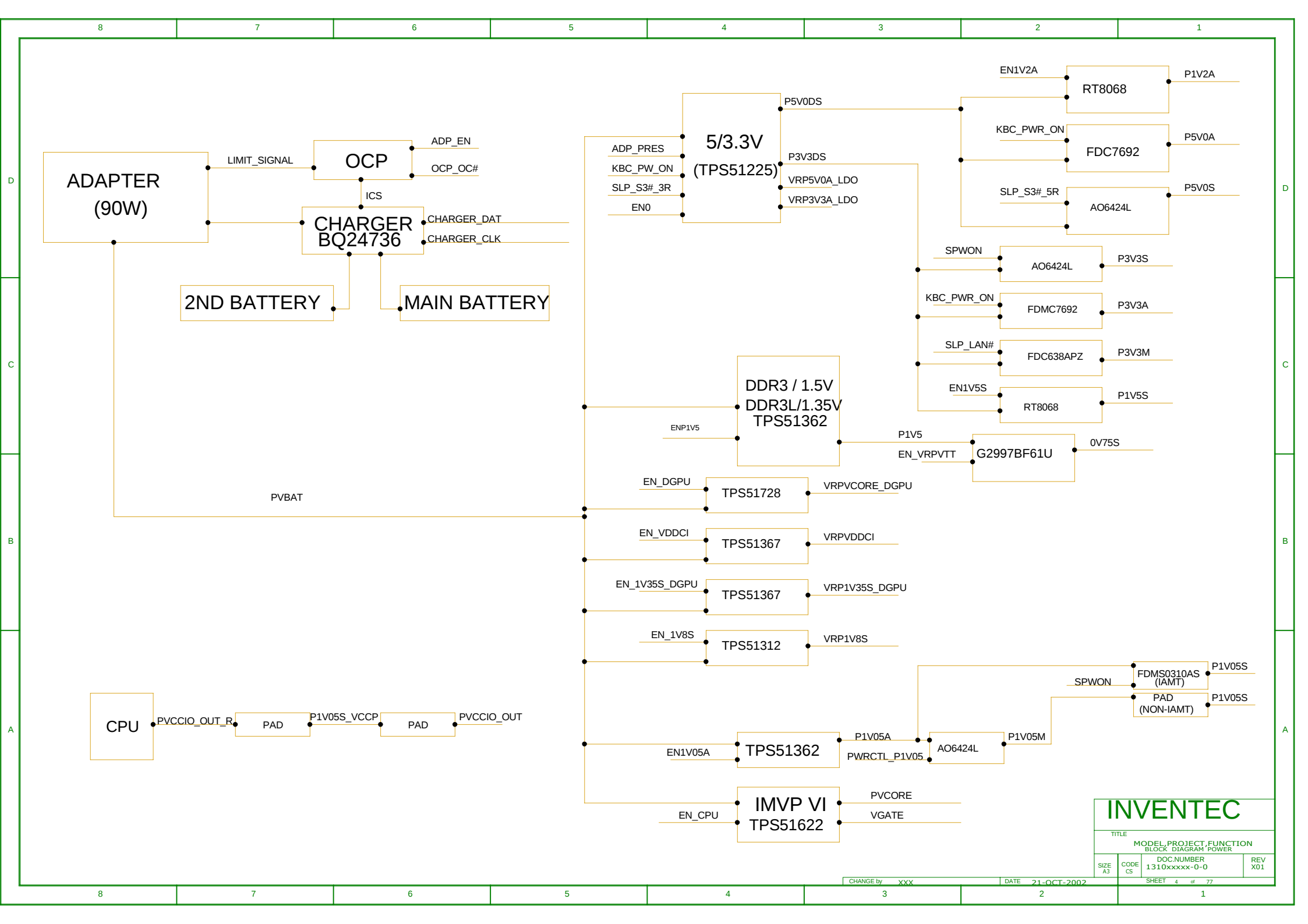
TABLE OF CONTENTS

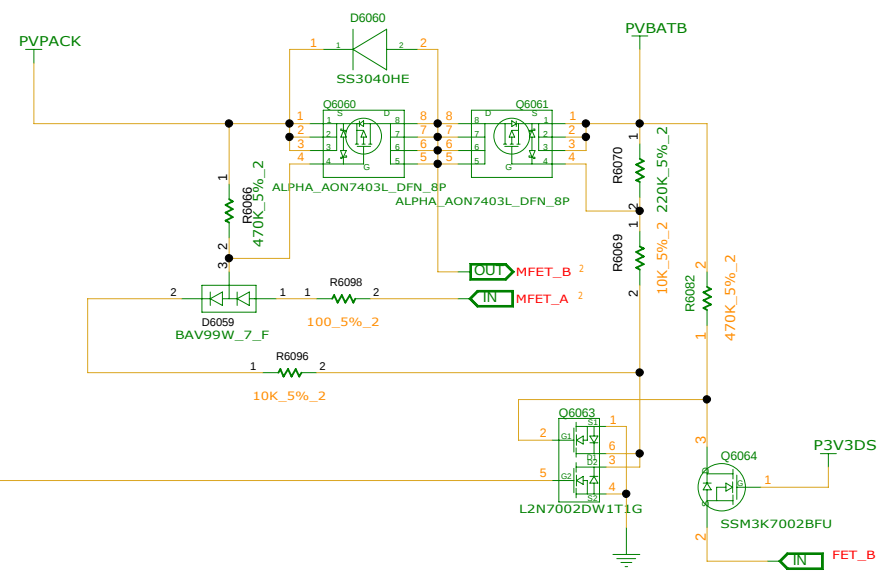
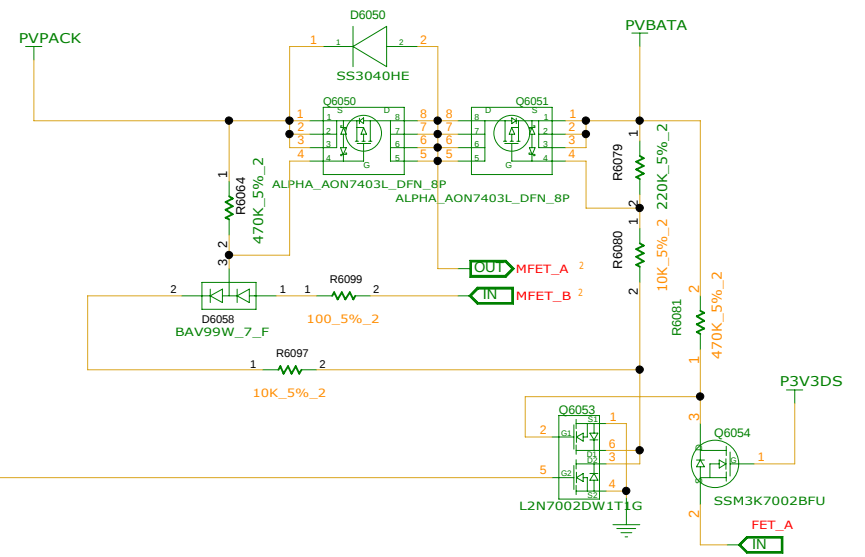
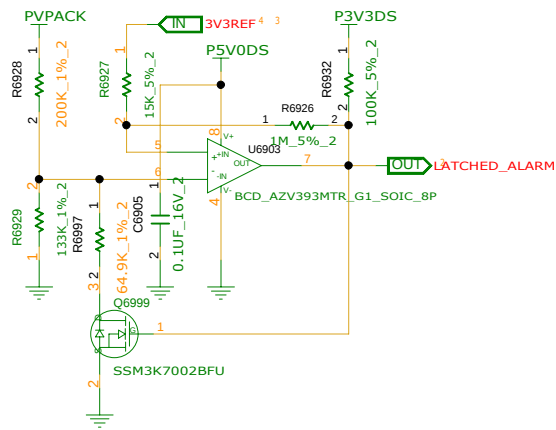
01.PROJECT NAME	26.XDP & ME CONN.	51.KBC, SPI
02.BLOCK DIAGRAM	27.HASWELL_1 (MISC,JTAG)	52.KEYBOARD
03.TABLE OF CONTENTS	28.HASWELL_2 (LPC,SPI,SMBUS,CLINK,PM)	53.TPM
04.POWER BLOCK DIAGRAM	29.HASWELL_3 (GPIO)	54.LAN
05.SYSTEM POWER(CHARGER)	30.HASWELL_4 (DP,EDP)	55.WLAN/BT SLOT
06.SYSTEM POWER(BATT SELECTOR)	31.HASWELL_5 (DDR)	56.WWAN SLOT, SIM SLOT
07.SYSTEM POWER(OCF)	32.HASWELL_6 (PCIE,USB)	57.DOCKING
08.SYSTEM POWER(P3V3A&P5V0A)	33.HASWELL_7 (RTC,AUDIO,SATA,JTAG)	58.B TO B CONN, POINT STICK CONN
09.P3V3A&P5V0A_CHG PORT	34.HASWELL_8 (CLK)	59.AUDIO CODEC
10.SYSTEM POWER(P1V5)	35.HASWELL_9 (POWER)	60.AUDIO JACK, MIC AMP.
11.SYSTEM POWER(P1V05_M)	36.HASWELL_10 (POWER)	61.CARD READER
12.SYSTEM POWER(P1V05S)	37.HASWELL_11 (GND)	62.BUTTON, LED
13.USB HUB POWER (P1V2A)	38.SYSTEM MEMORY (DIMM0)	63.SMART CARD DAUGHTER BOARD
14.SYSTEM POWER(PVCORE&PVAXG-1)	39.SYSTEM MEMORY (DIMM1)	64.CRT DB WTB CONN
15.SYSTEM POWER(PVCORE&PVAXG-2)	40.EMPTY	65.MIC DB
16.POWER SEQUENCE (SLEEP)	41.EMPTY	66.SCREW
17.DC JACK & BATTERT CONN.	42.DP TO VGA CONVERTER	67.EMPTY
18.HP_OCP	43.DISPLAY PORT	68.MARS-1
19.PVCORE_DGPU	44.LCM & WEBCAM CONN	69.MARS-2
20.PVDDCI	45.SATA HDD, MSATA	70.MARS-3
21.P1V35S_DGPU	46.USB HUB	71.MARS-4
22.P1V8S	47.USB3 PORTS	72.MARS-5
23.PVPCIE	48.USB & CRT DB	73.MARS-6
24.POWER (SEQUENCE)	49.FINGERPRINT READER, NFC	74.MARS-7
25.FAN & THERMAL	50.ACCELEMETER	75.MARS-8
		76.VRAM-1
		77.VRAM-2

INVENTEC			
TITLE MODEL,PROJECT,FUNCTION TABLE OF CONTENTS			
SIZE A3	CODE CS	DOC.NUMBER 1310xxxxx-0-0	REV X01

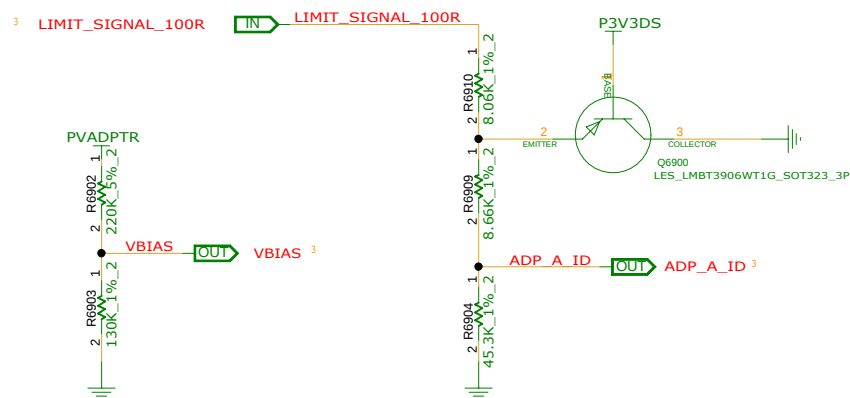
CHANGE by XXX DATE 21-OCT-2002

SHEET 3 of 77

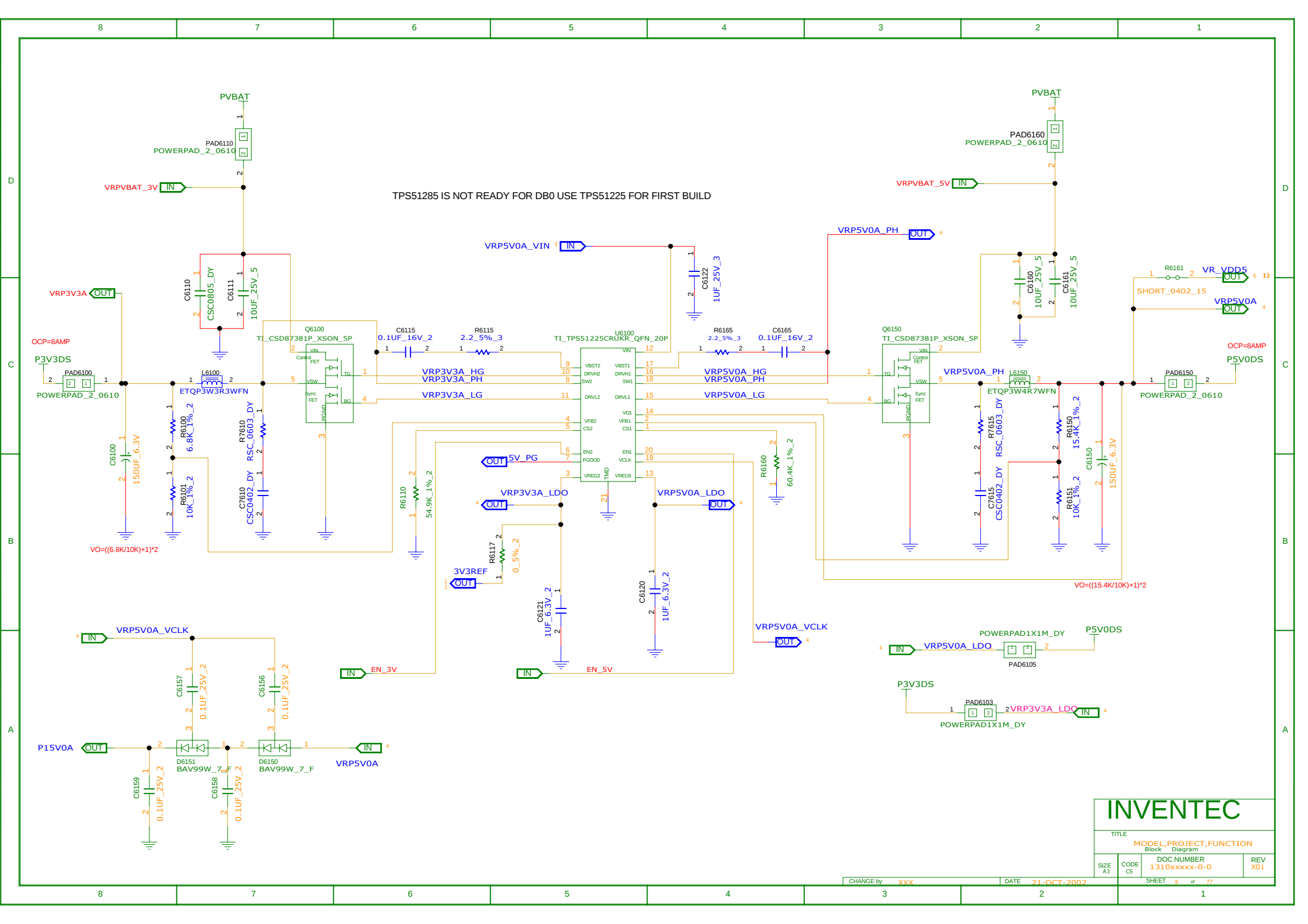




INVENTEC			
TITLE			
MODEL,PROJECT,FUNCTION			
Block Diagram			
SIZE	CODE	DOC NUMBER	REV
A3	CS	1310xxxxx-0-0	X01
CHANGE by XXX			
DATE 21-OCT-2002			
SHEET 6 of 77			



SHEET 7 of 77

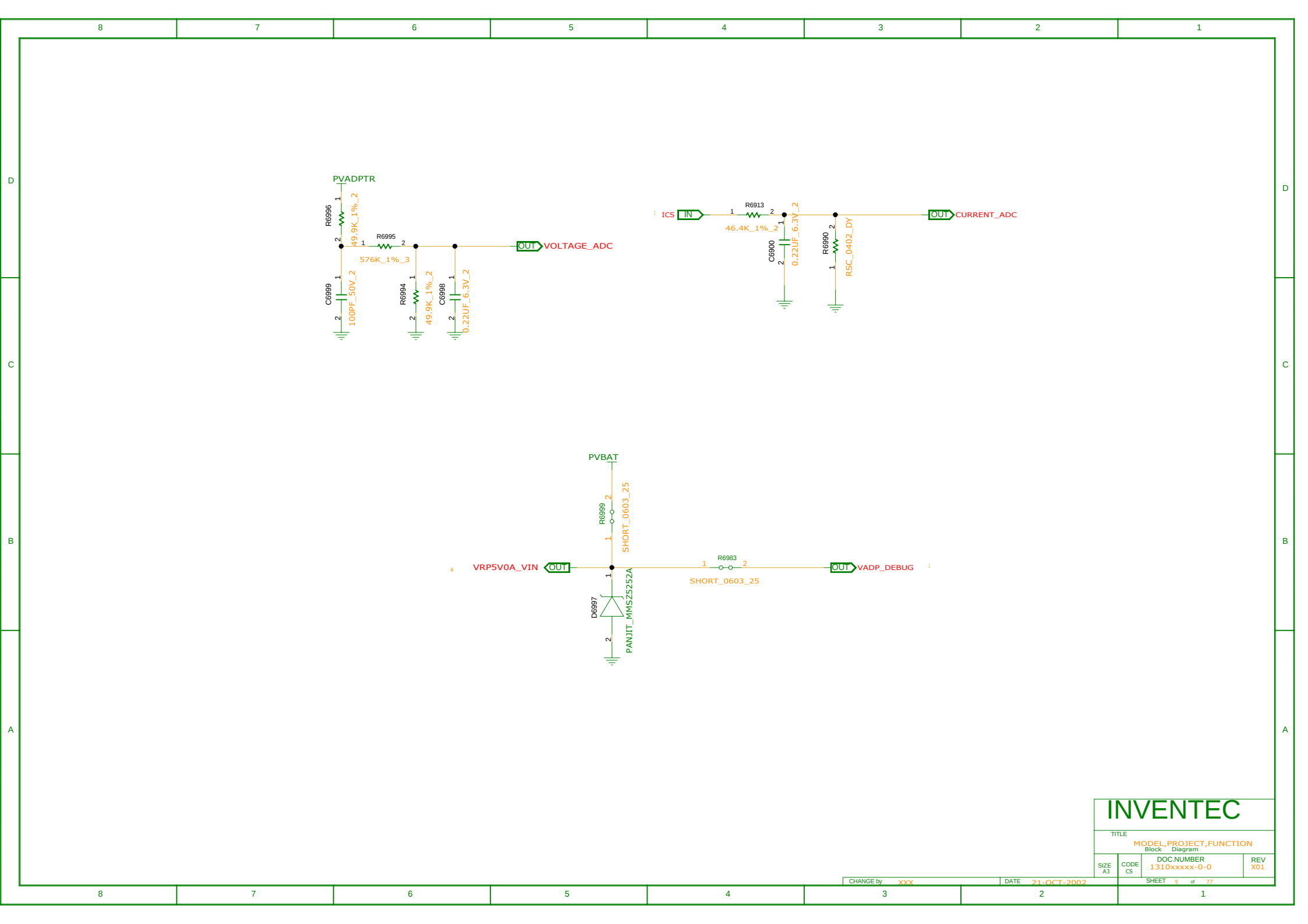


TPS51285 IS NOT READY FOR DB0 USE TPS51225 FOR FIRST BUILD

INVENTEC

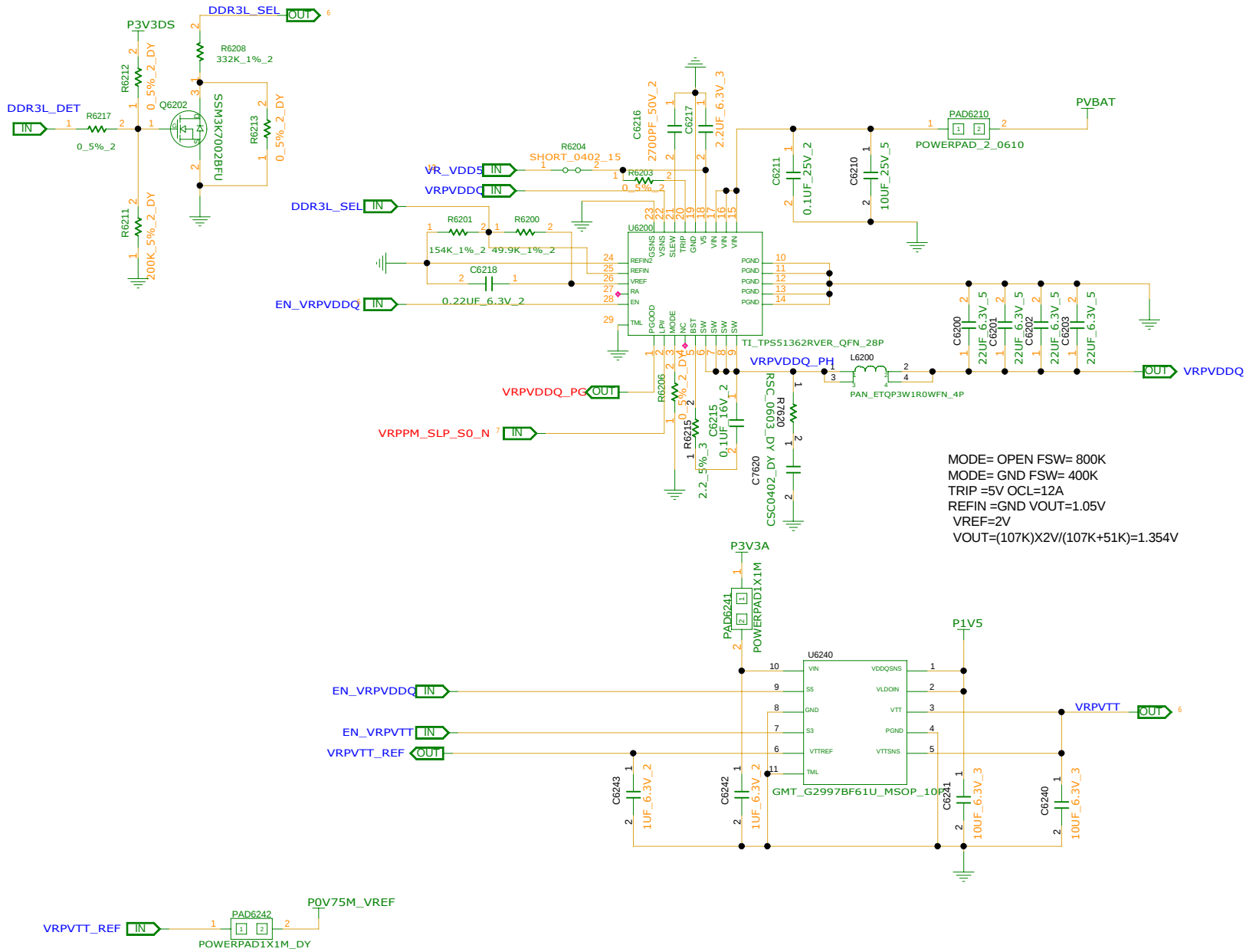
TITLE			
MODEL,PROJECT,FUNCTION			
Block Diagram			
DOC NUMBER		REV	
1310xxxxx-0-0		X01	
SIZE	CODE	SHEET	
A3	CS	8 of 77	

CHANGE by XXX DATE 21-OCT-2002

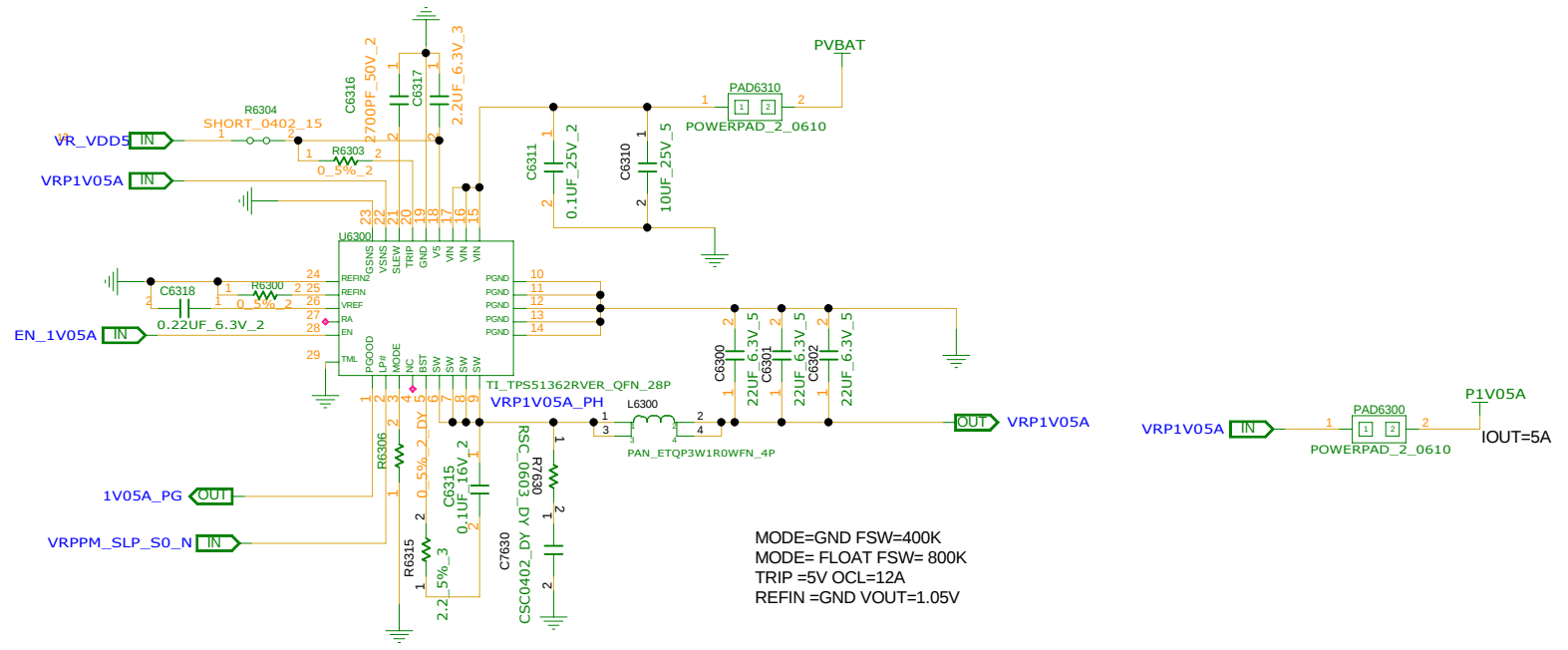


INVENTEC

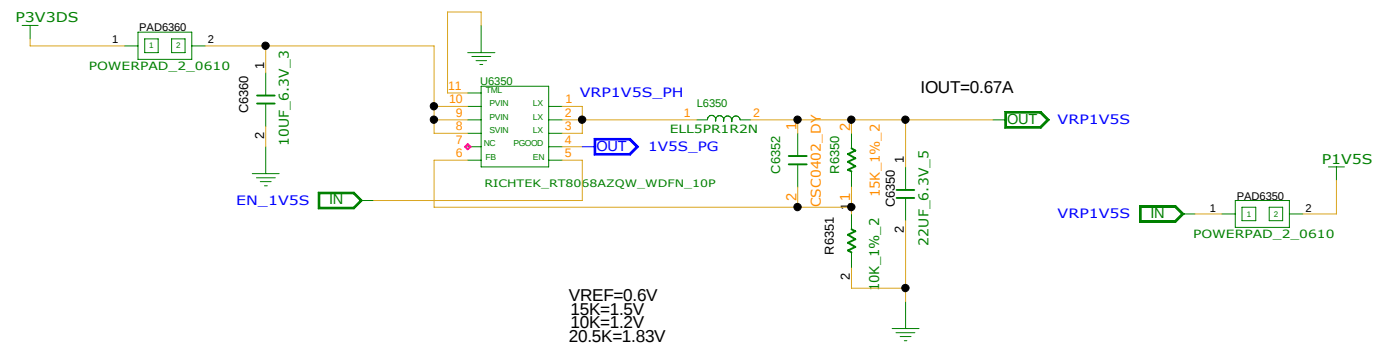
TITLE			
MODEL,PROJECT,FUNCTION			
Block Diagram			
SIZE	CODE	DOC NUMBER	REV
A3	CS	1310xxxx-0-0	X01



INVENTEC			
TITLE			
MODEL,PROJECT,FUNCTION			
Block Diagram			
SIZE	CODE	DOC NUMBER	REV
A3	CS	1310xxxxx-0-0	X01
CHANGE by XXX			
DATE 21-OCT-2002			
SHEET 10 of 77			



INVENTEC			
TITLE MODEL,PROJECT,FUNCTION Block Diagram			
SIZE A3	CODE CS	DOC NUMBER 1310xxxxx-0-0	REV X01
SHEET 11 of 77			

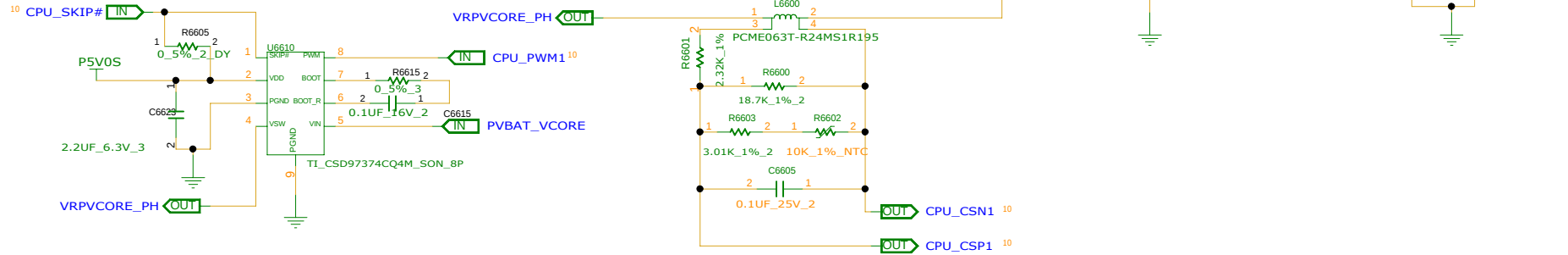


INVENTEC

TITLE
MODEL,PROJECT,FUNCTION
Block Diagram

SIZE A3 CODE CS DOC NUMBER 1310xxxxx-0-0 REV X01

CHANGE by XXX DATE 21-OCT-2002 SHEET 12 of 77



INVENTEC

TITLE
MODEL,PROJECT,FUNCTION
Block Diagram

SIZE A3 CODE CS DOC NUMBER 1310xxxxx-0-0 REV X01

	PAD2990	Q7151	Q7150	Q7152	R7150	R7151	R7154
NON-IAMT	INSTALL	UN-INSTALL	UN-INSTALL	UN-INSTALL	UN-INSTALL	UN-INSTALL	UN-INSTALL
IAMT	UN-INSTALL	INSTALL	INSTALL	INSTALL	INSTALL	INSTALL	INSTALL



INVENTEC

TITLE			
MODEL,PROJECT,FUNCTION Block Diagram			
SIZE A3	CODE CS	DOC.NUMBER 1310xxxxx-0-0	REV X01

D

D

C

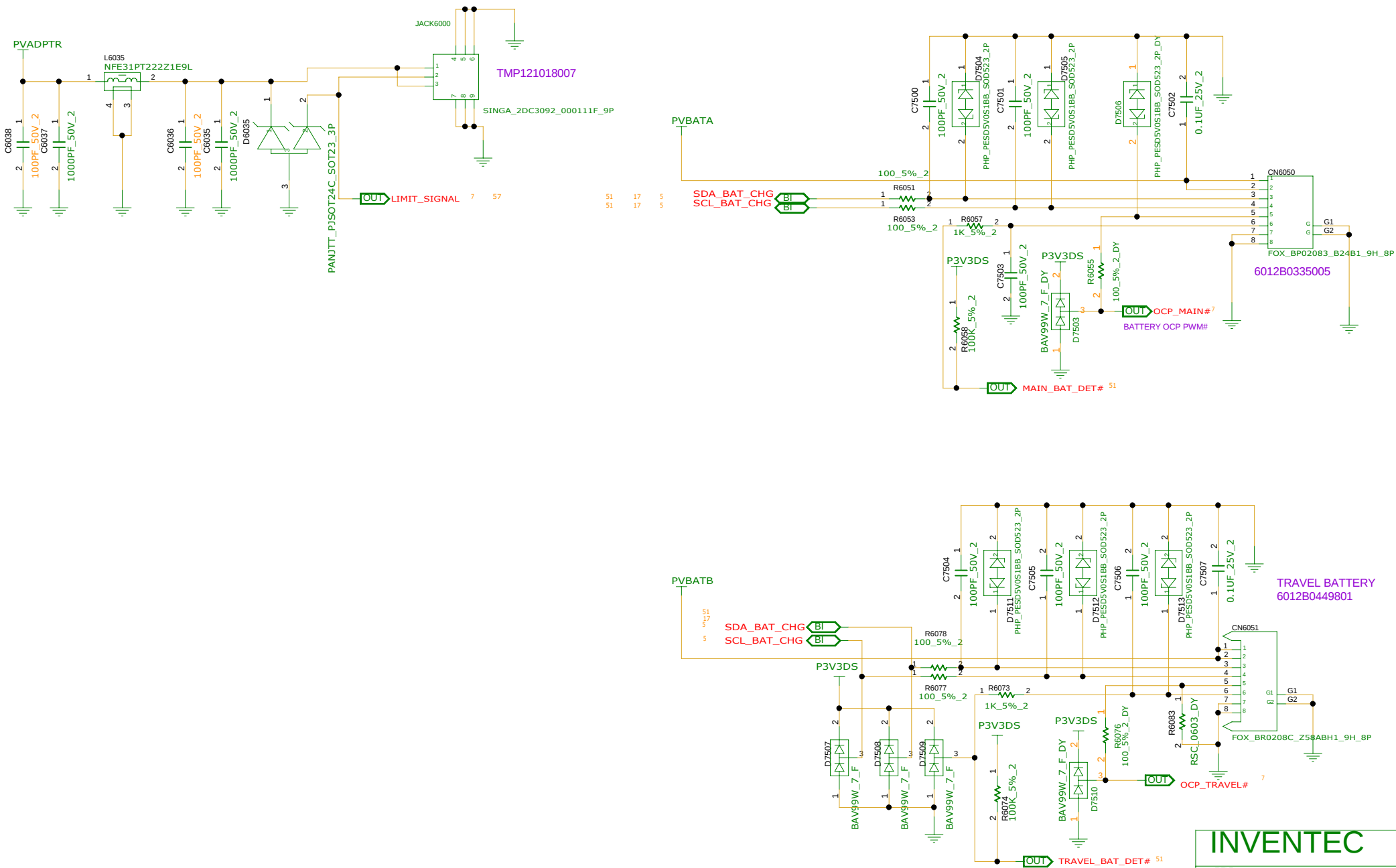
C

B

B

A

A

**INVENTEC**

TITLE

MODEL,PROJECT,FUNCTION

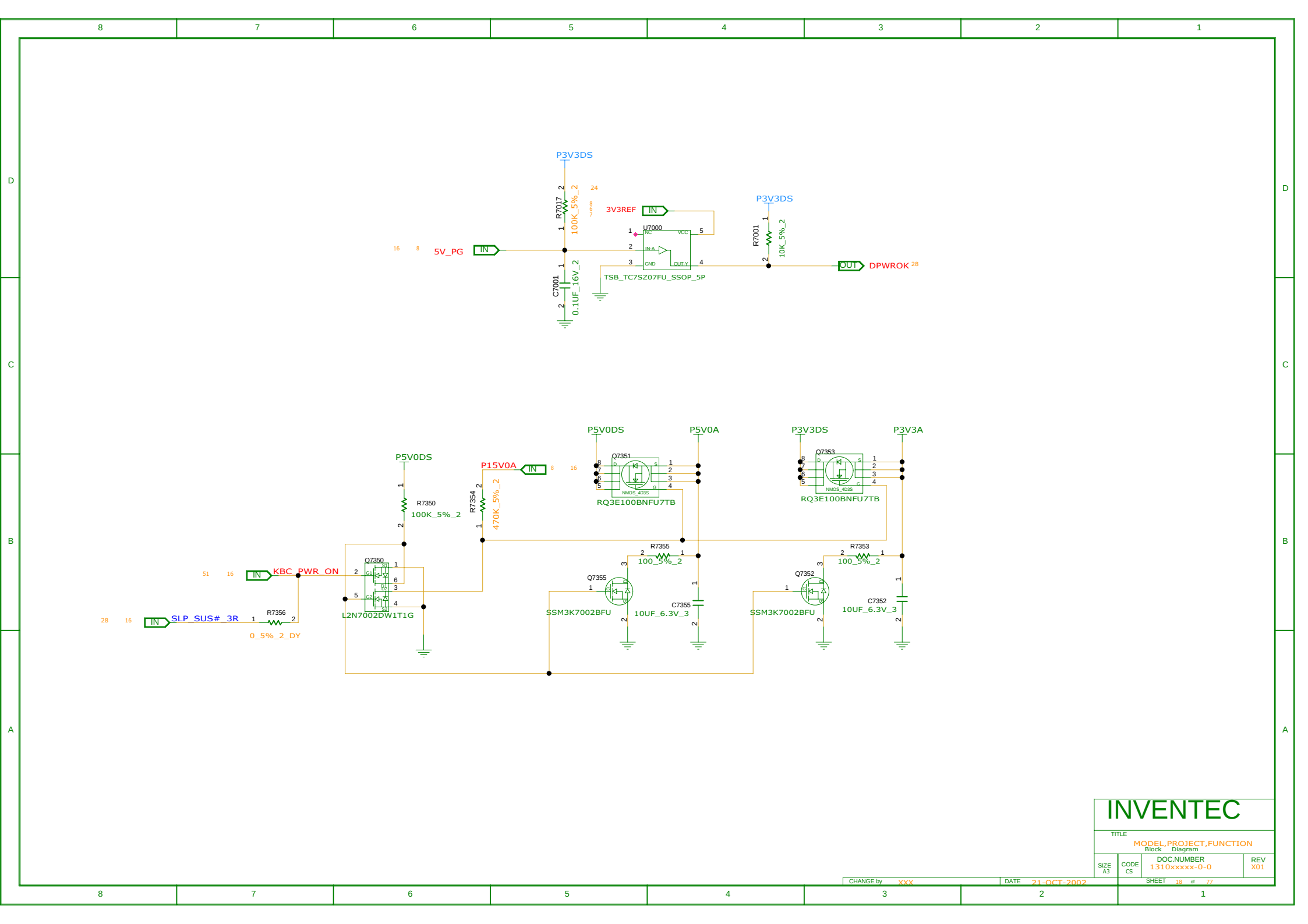
Block Diagram

SIZE
A3CODE
CSDOC NUMBER
1310xxxxx-0-0REV
X01

CHANGE by XXX

DATE 21-OCT-2002

SHEET 17 of 77

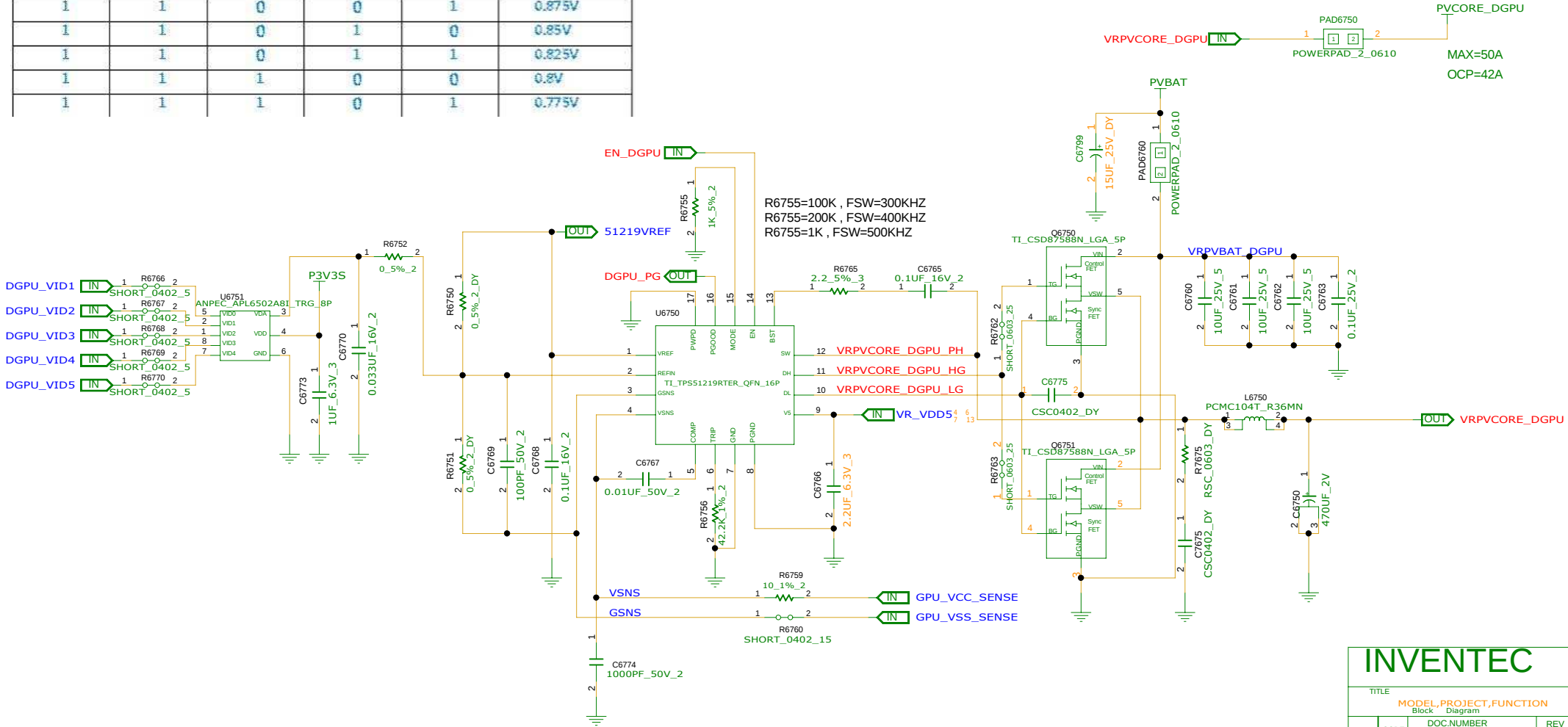


INVENTEC

TITLE			
MODEL,PROJECT,FUNCTION			
Block Diagram			
SIZE	CODE	DOC NUMBER	REV
A3	CS	1310xxxxx-0-0	X01

GPU_VID5 GPIO_10	GPU_VID4 GPIO_14	GPU_VID3 GPIO_15	GPU_VID2 GPIO_16	GPU_VID1 GPIO_20	Core Voltage Level
0	1	1	1	1	1.125V
1	0	0	0	0	1.1V
1	0	0	0	1	1.075V
1	0	0	1	0	1.05V
1	0	0	1	1	1.025V
1	0	1	0	0	1.0V
1	0	1	0	1	0.975V
1	0	1	1	0	0.95V
1	0	1	1	1	0.925V
1	1	0	0	0	0.9V
1	1	0	0	1	0.875V
1	1	0	1	0	0.85V
1	1	0	1	1	0.825V
1	1	1	0	0	0.8V
1	1	1	0	1	0.775V

	C6762	C6752	L6750	Q6751	R6756
17W	OPEN	OPEN	ETQP4LR36AFM 6014B0164501	OPEN	80.6K_1% 6013A0072901
25W	install	install	PCMC104T-R36MN 6014B0024003	install	42.2K_1% 6013A0017701



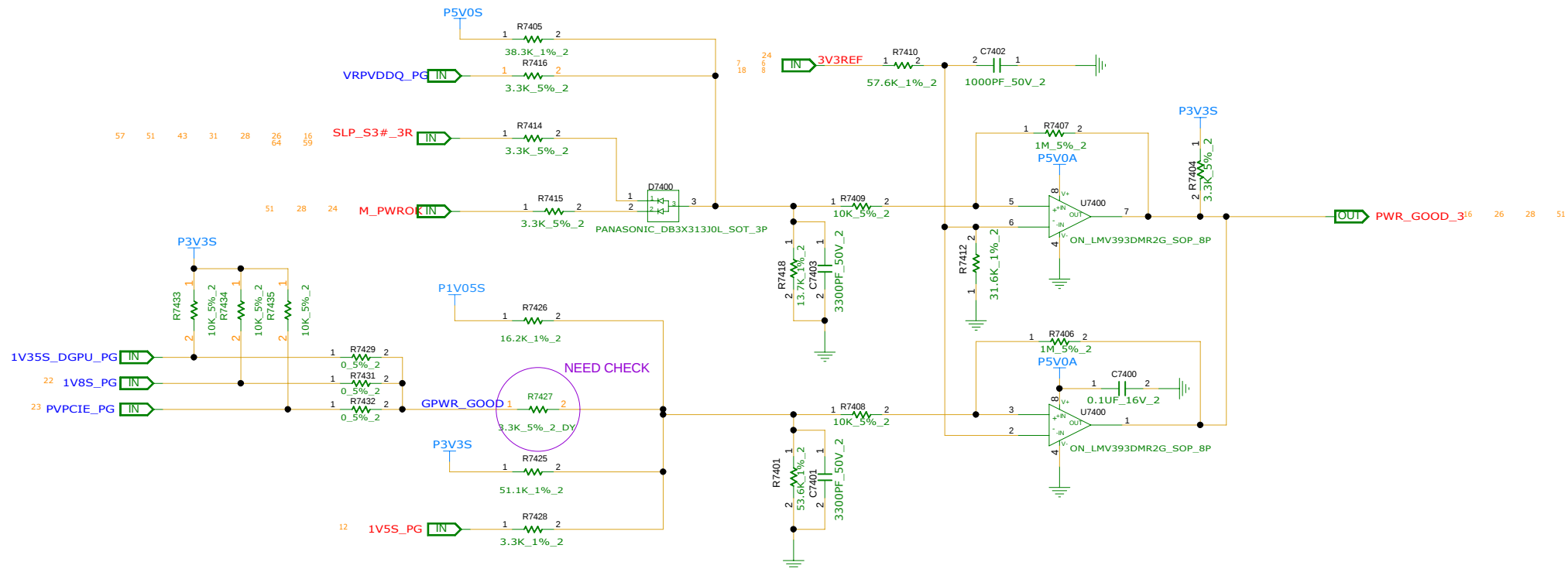
	8	7	6	5	4	3	2	1
D								
C								
B								
A								
	8	7	6	5	4	3	2	1

EMPTY

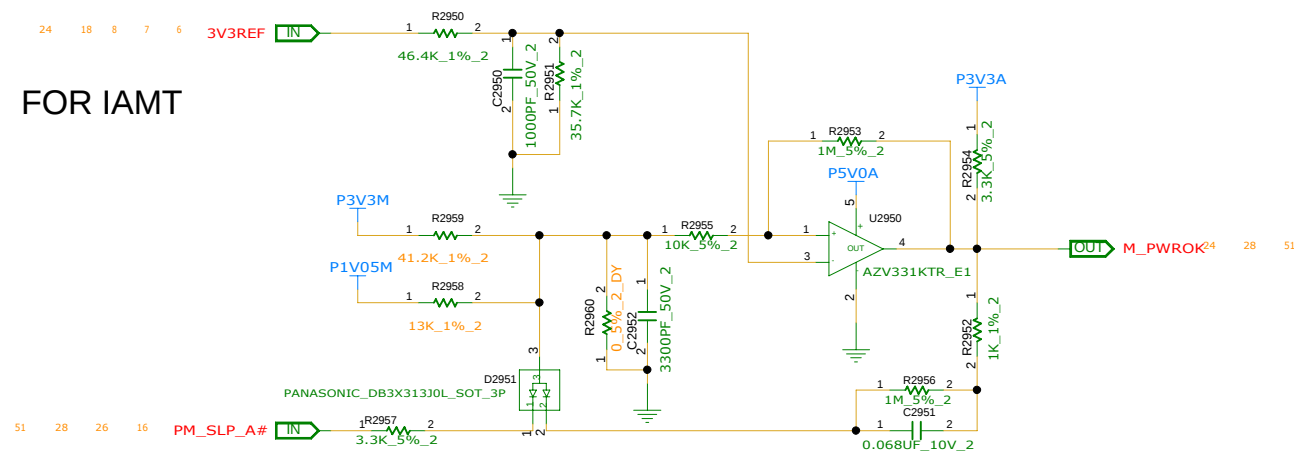
INVENTEC

TITLE			
MODEL,PROJECT,FUNCTION Block Diagram			
SIZE A3	CODE CS	DOC.NUMBER 1310xxxxx-0-0	REV X01
SHEET 20 of 77			

REFERENCE NUMER : 7400~7450



FOR IAMT

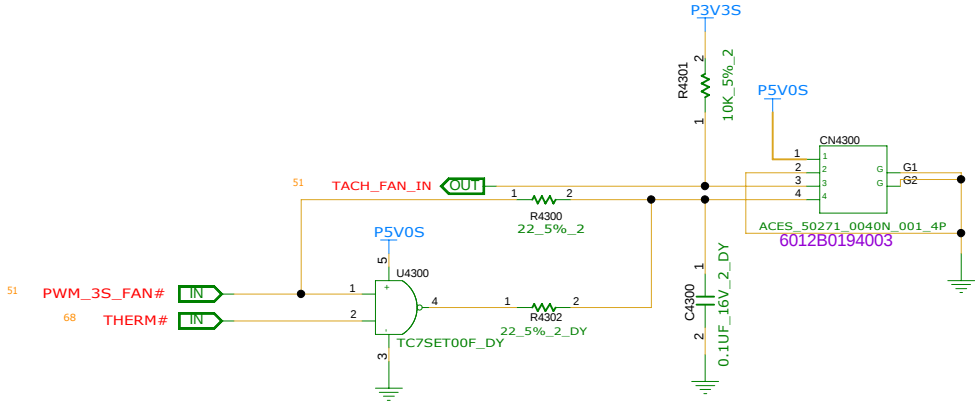


REFERENCE NUMER : 2950~2999

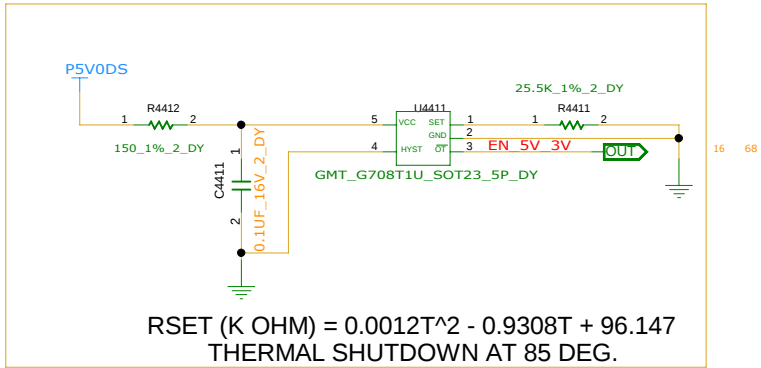
INVENTEC

TITLE			
MODEL PROJECT FUNCTION POWER(SEQUENCE)			
SIZE A3	CODE CS	DOC NUMBER 1310xxxxx-0-0	REV X01

REFERENCE NUMBER:4400~4349



AMBIENT TEMP SENSE
WILL BE NOT USED IN 2013?



REFERENCE NUMBER:4411~4449

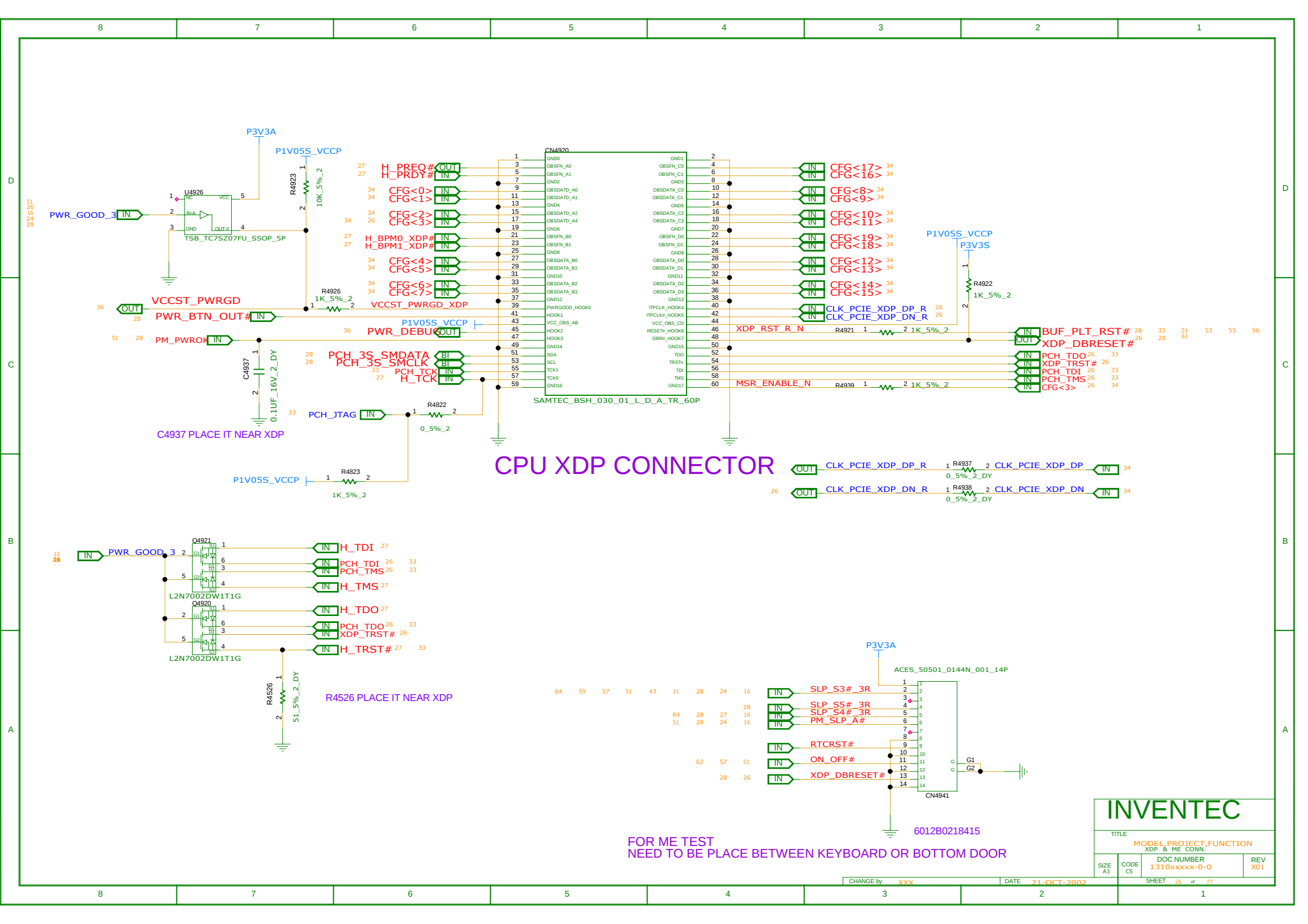
INVENTEC

TITLE
MODEL PROJECT,FUNCTION
FAN & THERMAL

SIZE CODE DOC NUMBER REV
A3 CS 1310xxxx-0-0 X01

CHANGE by XXX DATE 21-OCT-2002

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CPU XDP CONNECTOR

FOR ME TEST
NEED TO BE PLACE BETWEEN KEYBOARD OR BOTTOM DOOR

REFERENCE:4500~4949

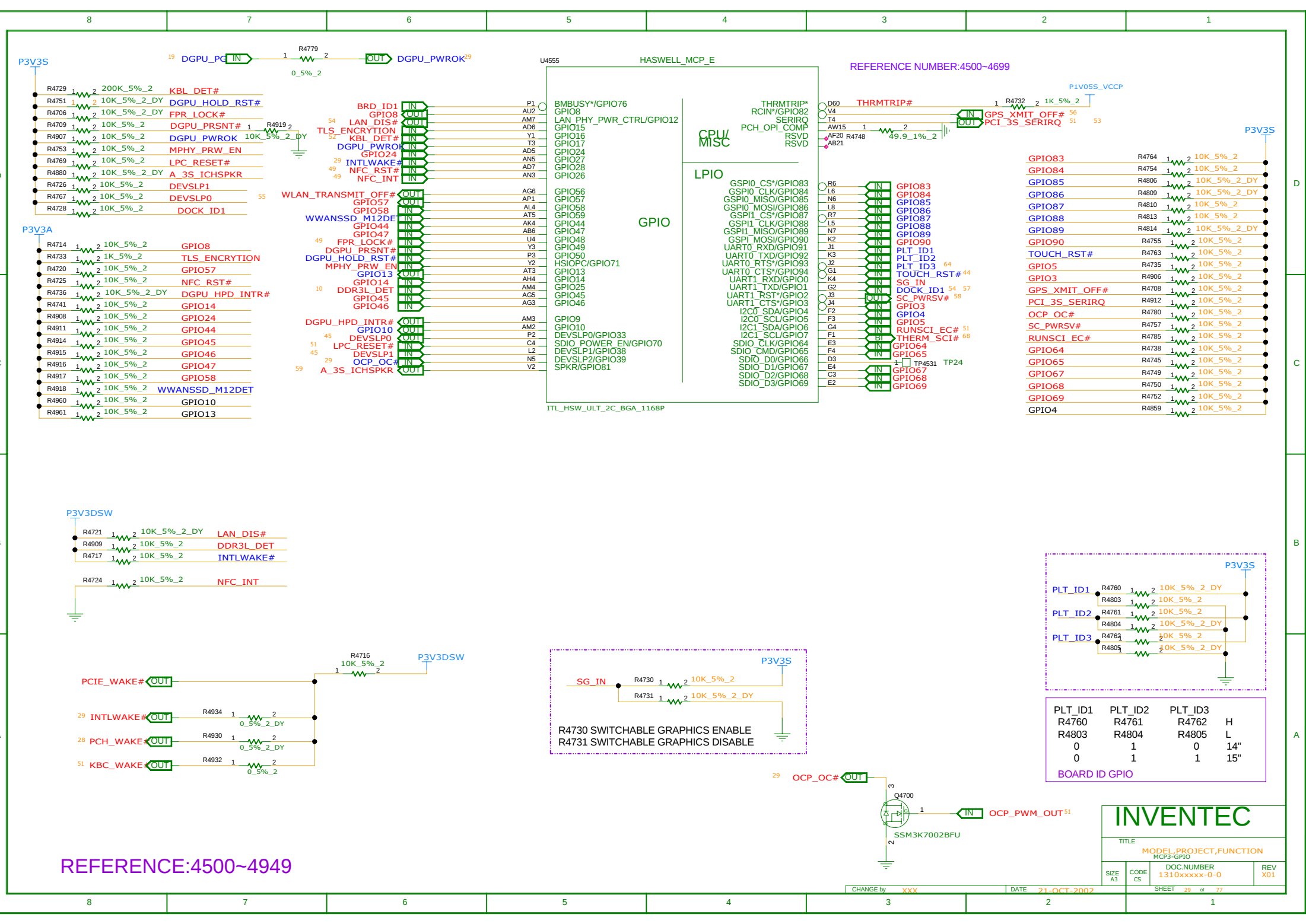
	IAMT	NON-IAMT
R4718	INSTALL	UNINSTALL
R4723	INSTALL	UNINSTALL
R4722	UNINSTALL	INSTALL

INVENTEC

TITLE			
MODEL PROJECT FUNCTION			
MCP2-SPI,SMBUS,SYSTEM		SEQUENCE	
SIZE	CODE	DOC NUMBER	REV
A3	CS	1310xxxxx-0-0	X01

CHANGE by XXX DATE 21-OCT-2002

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REFERENCE:4500~4949

INVENTEC

TITLE

MODEL PROJECT,FUNCTION

MCP3-GPIO

SIZE A3

CODE CS

DOC NUMBER

1310xxxxx-0-0

REV

X01

P3V3S

PLT_ID1

PLT_ID2

PLT_ID3

R4760

R4803

R4761

R4804

R4762

R4805

H

L

14"

15"

BOARD ID GPIO

SG IN

R4730

R4731

P3V3S

R4730 SWITCHABLE GRAPHICS ENABLE

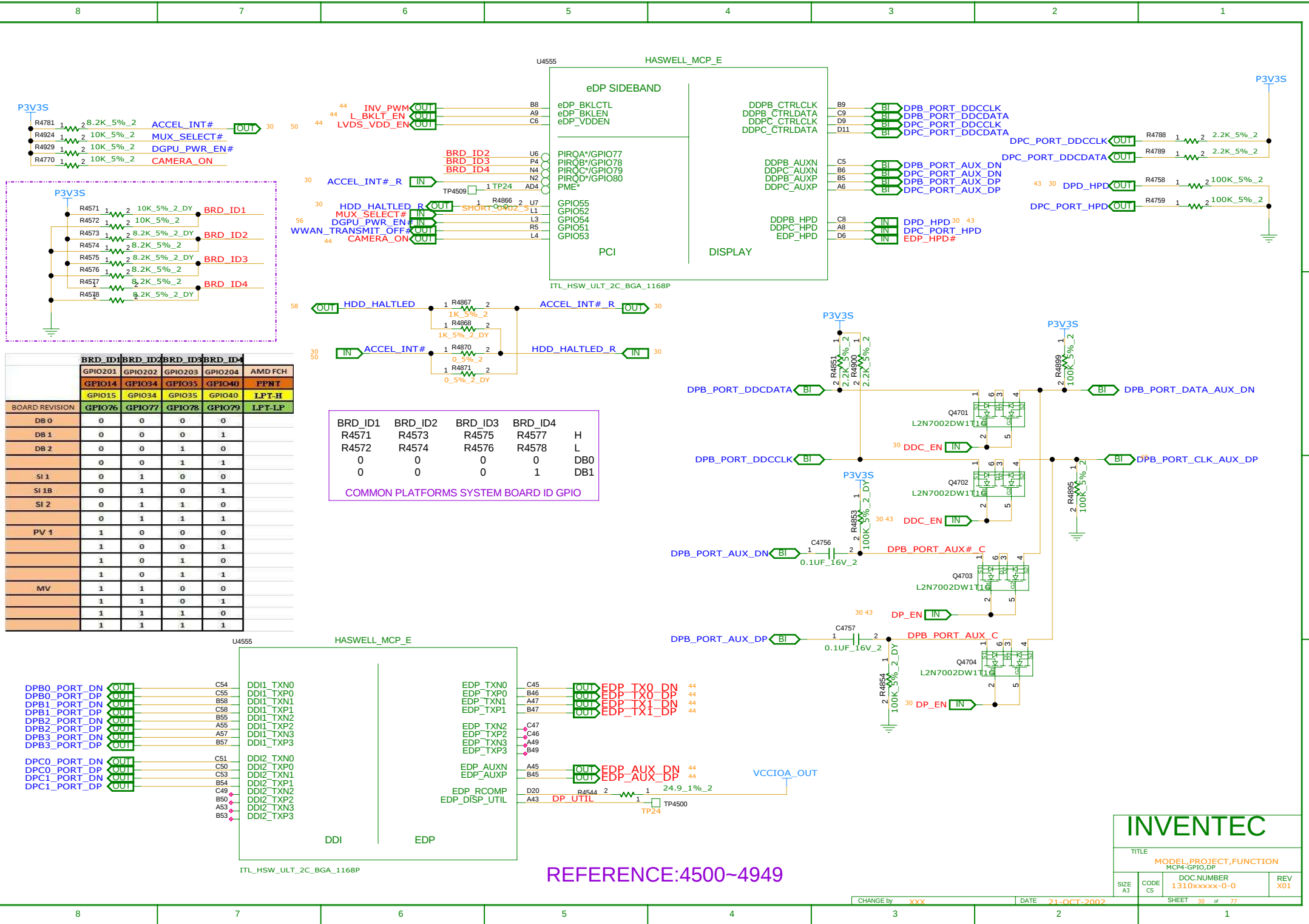
R4731 SWITCHABLE GRAPHICS DISABLE

OCP_OC#

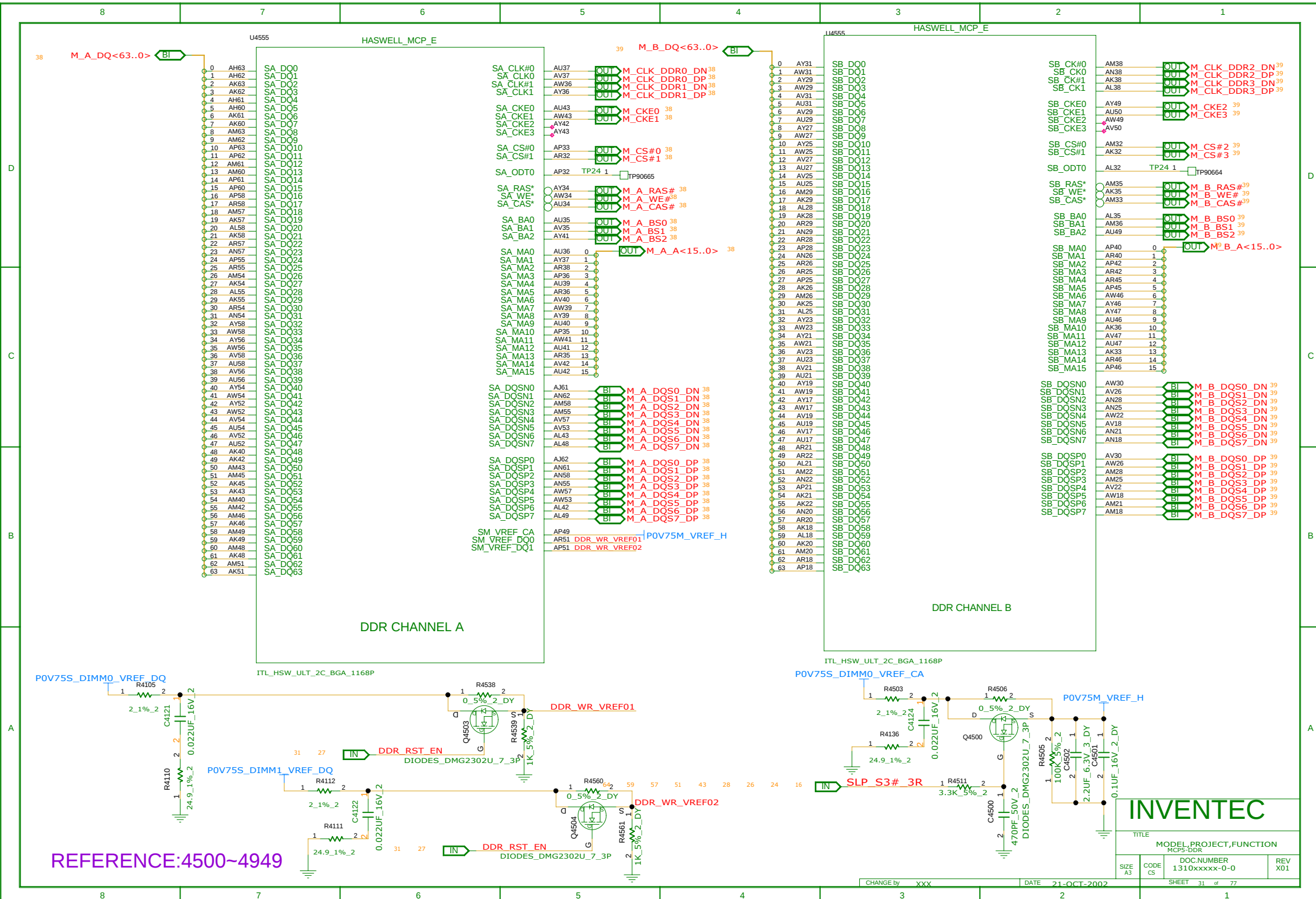
OCP_PWM_OUT

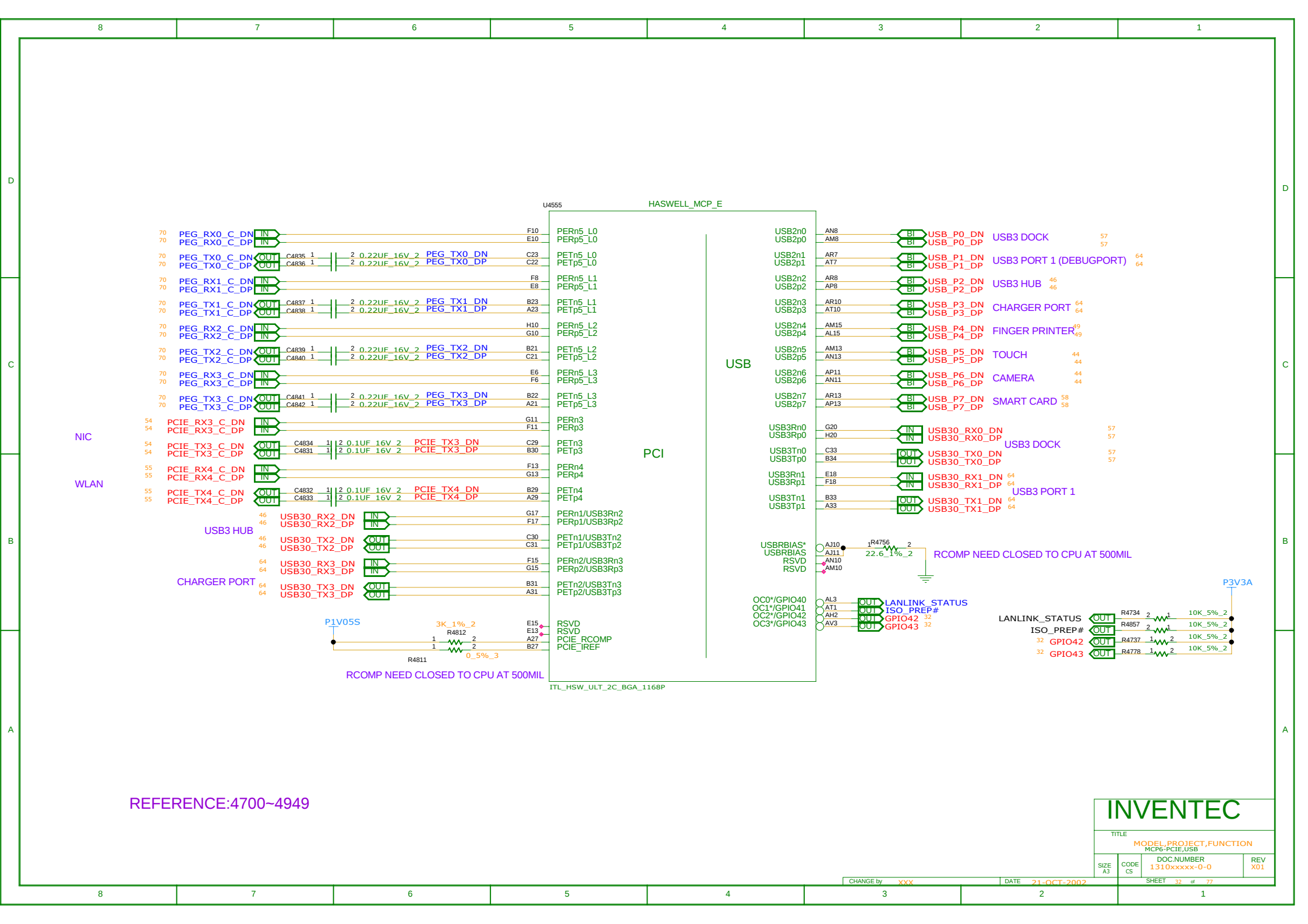
Q4700

SSM3K7002BFU



REFERENCE:4500~4949





REFERENCE:4700~4949

INVENTEC

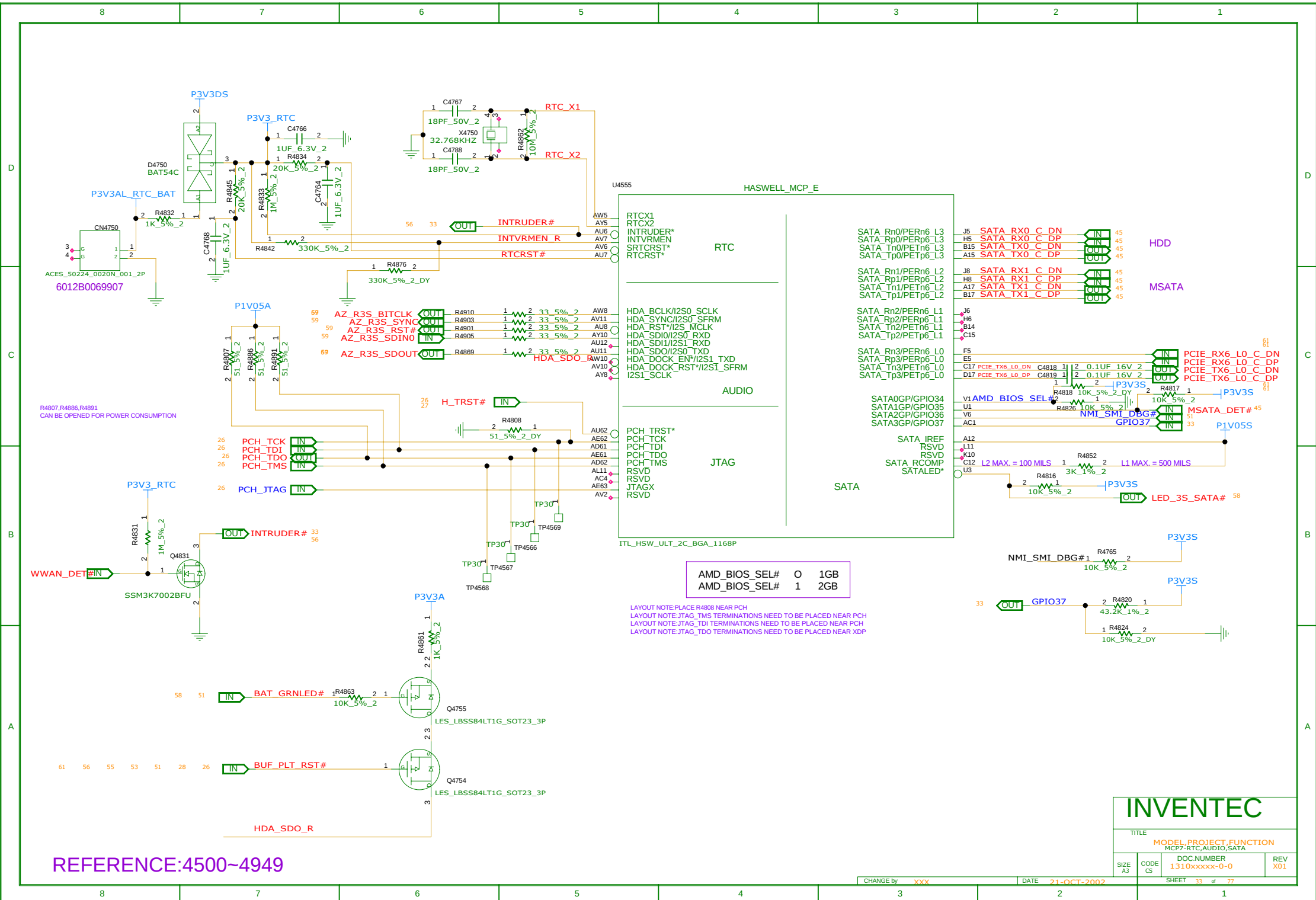
TITLE MODEL PROJECT FUNCTION

DOC NUMBER 1310xxxxx-0-0

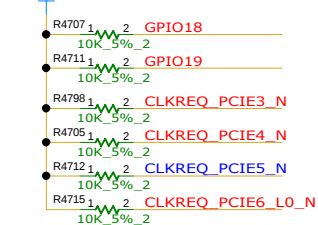
REV X01

CHANGE by XXX DATE 21-OCT-2002

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P3V3S

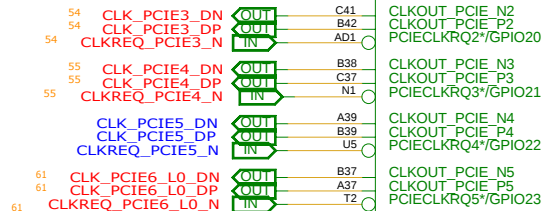


NIC

WLAN

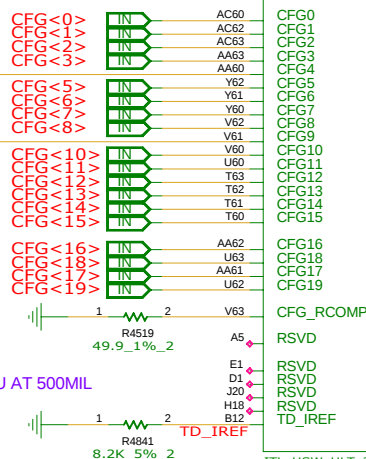
MARS

SD/MMC



ITL_HSW_ULTR_2C_BGA_1168P

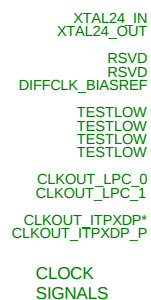
HASWELL_MCP_E



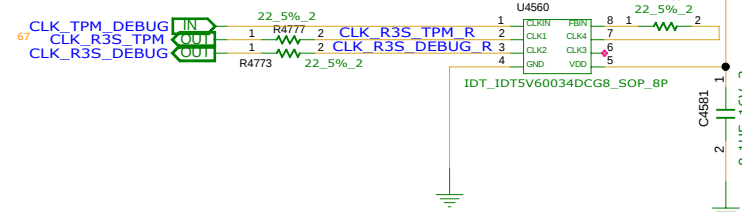
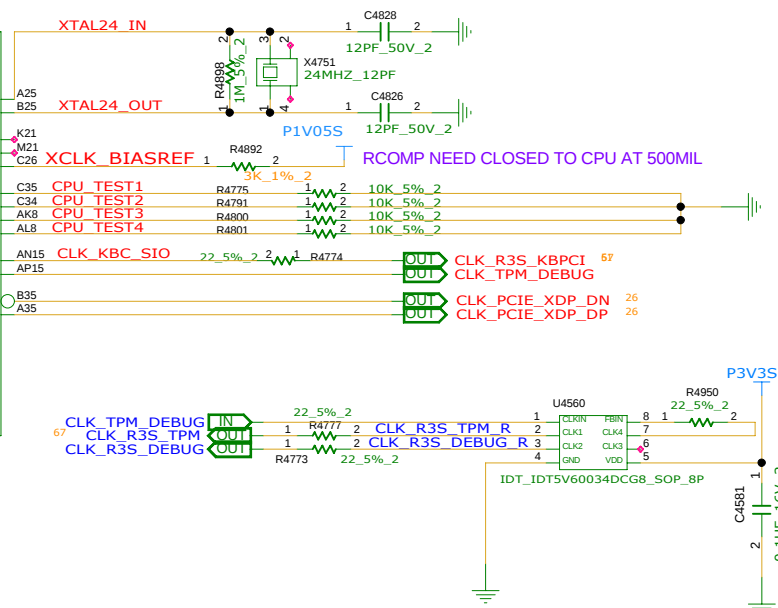
RCOMP NEED CLOSED TO CPU AT 500MIL

ITL_HSW_ULTR_2C_BGA_1168P

RESERVED



CLOCK SIGNALS



IDT_IDT5V60034DCG8_SOP_8P

INVENTEC

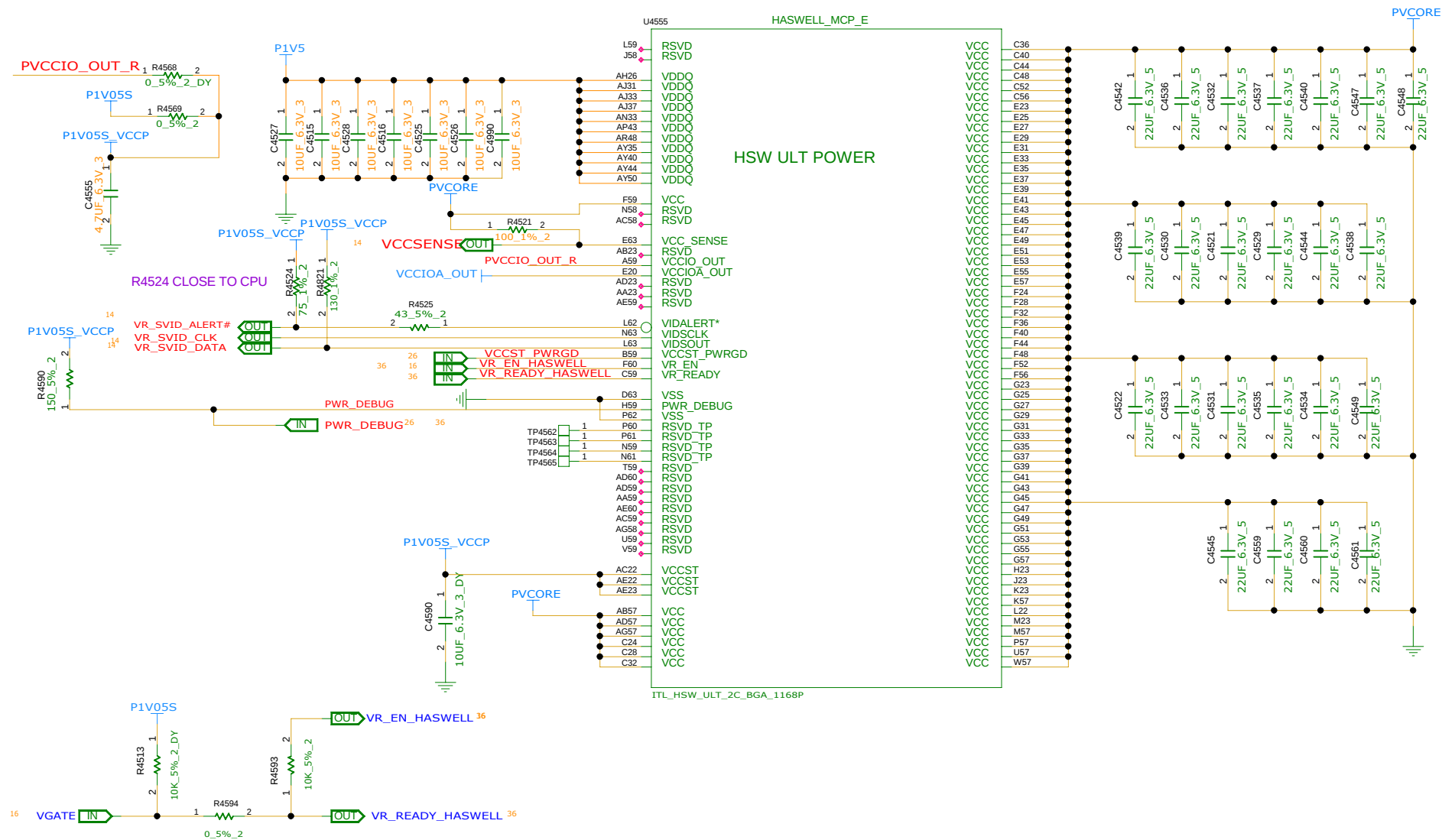
TITLE
MODEL PROJECT FUNCTION
MCP8-CLOCK, RESERVEDSIZE CODE DOC NUMBER REV
A3 CS 1310XXXX-0-0 X01

CHANGE by XXX DATE 21-OCT-2002

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REFERENCE:4500~4949

ROUTE VCCSENSE WITH 27.4OHM IMPEDANCE



INVENTEC

TITLE
MODEL PROJECT,FUNCTION
MCP10-POWER

SIZE	CODE	DOC NUMBER	REV
A3	CS	1310xxxxx-0-0	X01

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CHANGE by XXX DATE 21-OCT-2002

REFERENCE:4500~4949

D

C

B

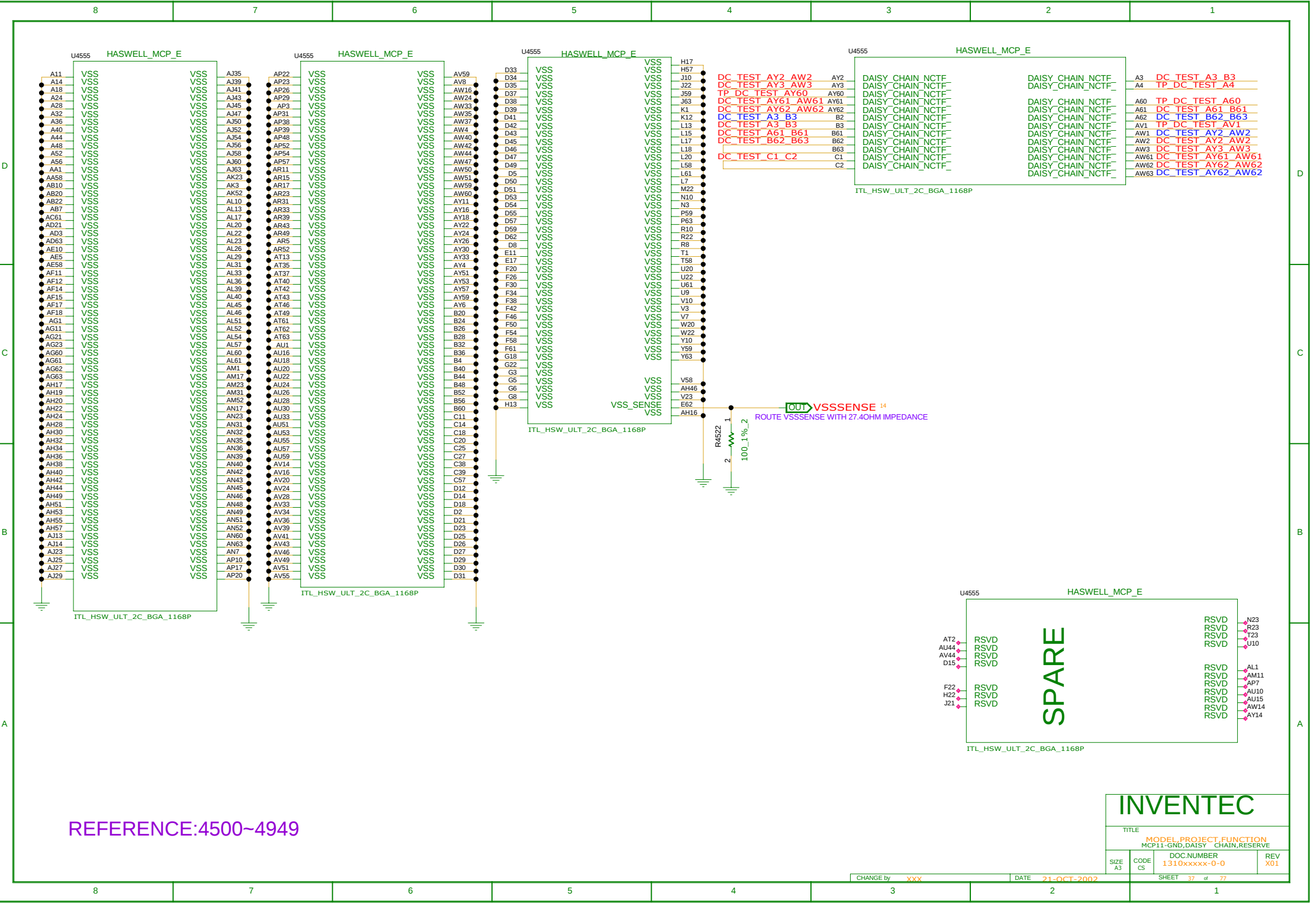
A

D

C

B

A



REFERENCE:4500~4949

INVENTEC

TITLE

MODEL PROJECT FUNCTION

MCP11-GND,DAISY_CHAIN,RESERVE

SIZE A3

CODE CS

DOC NUMBER

1310xxxxx-0-0

REV

X01

CHANGE by

XXX

DATE

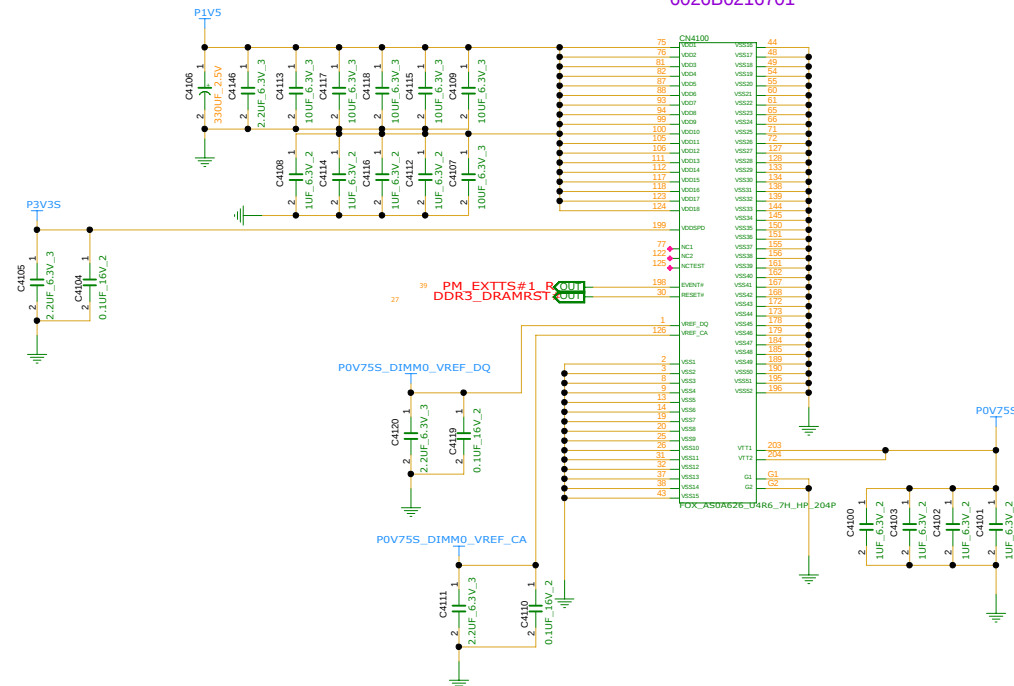
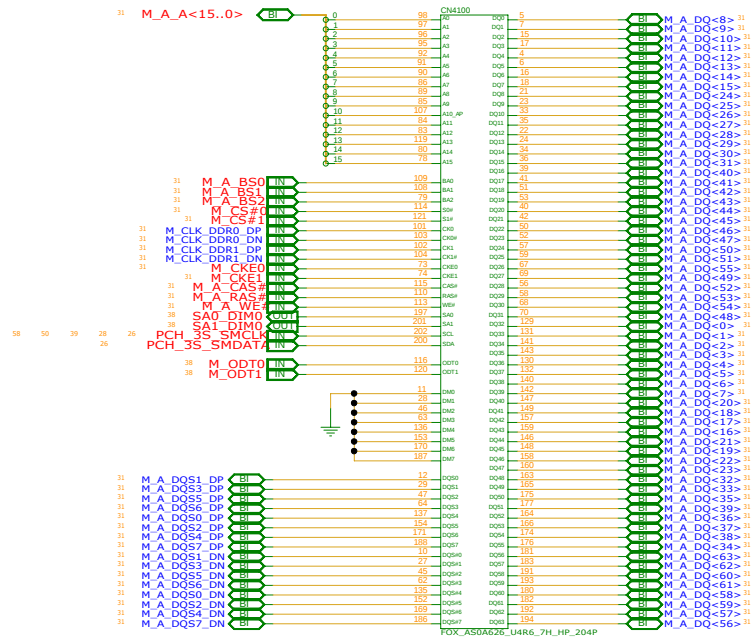
21-OCT-2002

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of

77



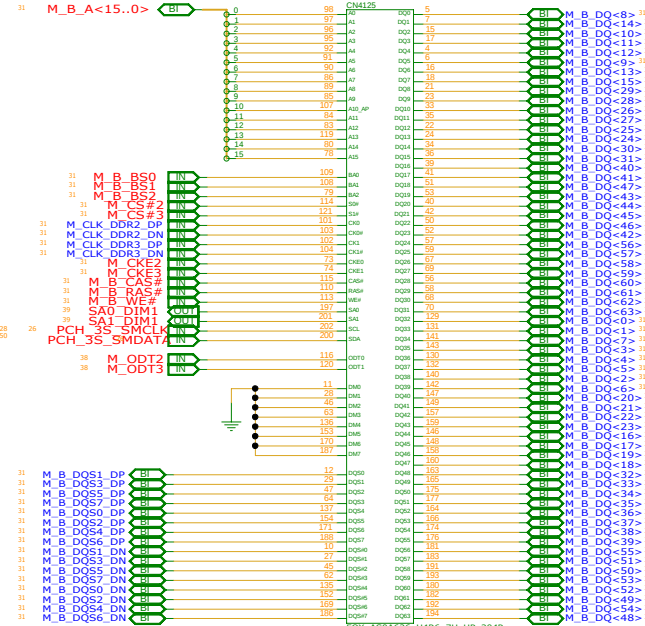
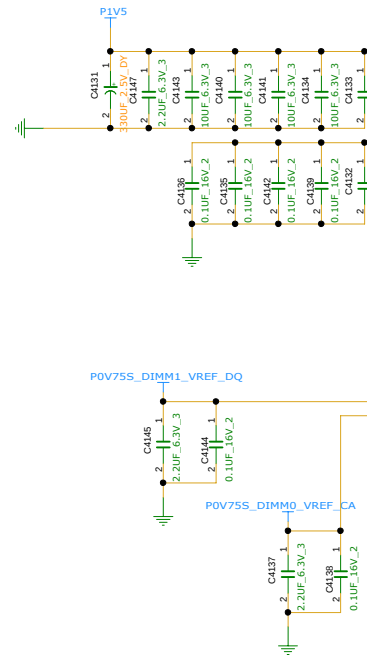
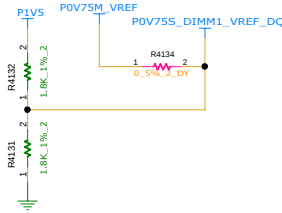
IF SA0_DIM0=1 , SA1_DIM0=0
SO-DIMMA SPD ADDRESS IS 0XA2
SO-DIMMA TS ADDRESS IS 0X32

INVENTEC

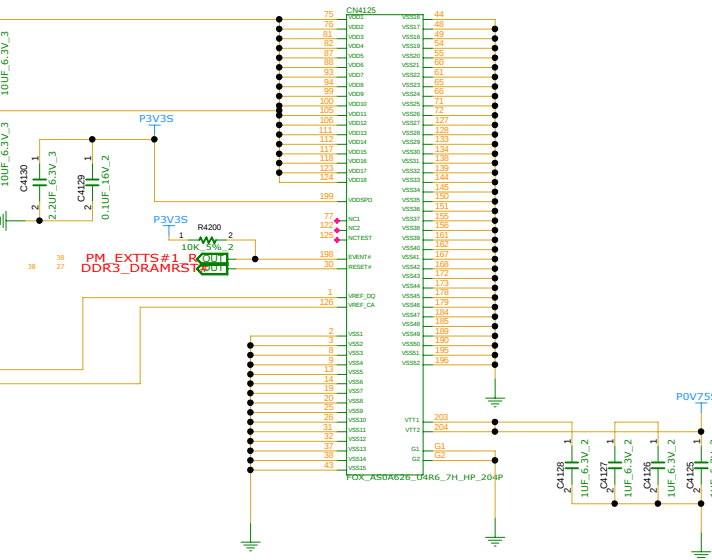
TITLE			
MODEL,PROJECT,FUNCTION DDR3_SO-DIMMO			
SIZE C	CODE CS	DOC NUMBER 1310xxxxx-0-0	REV X01
SHEET 38 of 77			

NOTE:
SO-DIMM SPD ADDRESS IS 0X44
SO-DIMM TS ADDRESS IS 0X34

REFERENCE NUMBER:4100~4299



6026B0216701



INVENTEC

TITLE			
MODEL,PROJECT,FUNCTION			
DDR3_SO-DIMM0			
SIZE	CODE	DOC NUMBER	REV
C	CS	1310000000-0-0	201
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CHANGE BY: xxx DATE: 21-OCT-2002

RESERVED

INVENTEC

TITLE

MODEL PROJECT FUNCTION
DPB DEMUX1 TO DP

SIZE
A3

CODE
CS

DOC NUMBER
1310xxxxx-0-0

REV
X01

CHANGE by XXX

DATE 21-OCT-2002

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RESERVED

INVENTEC

TITLE			
MODEL PROJECT FUNCTION DPC DEMUX2 TO VGA			
SIZE A3	CODE CS	DOC NUMBER 1310xxxxx-0-0	REV X01
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PIN 2	3393 R3062 C3069 C3070	3355 R3061
PIN 5	R3065	R3063 C3077
PIN 8		C3061 C3062
PIN 11	C3073	
PIN 14	R3064 C3074	R3080
PIN 15		R3078
PIN 16		R3067
PIN 17		R3079
PIN 27	L3066 C3087	
PIN 35	C3068	R3081
PIN 36	R3077	
PIN 37	R3074	R3076
PIN 38	10K_DY	R3075 C3090 C3091
PIN 39		L3068 C3092
PIN 40		R3092

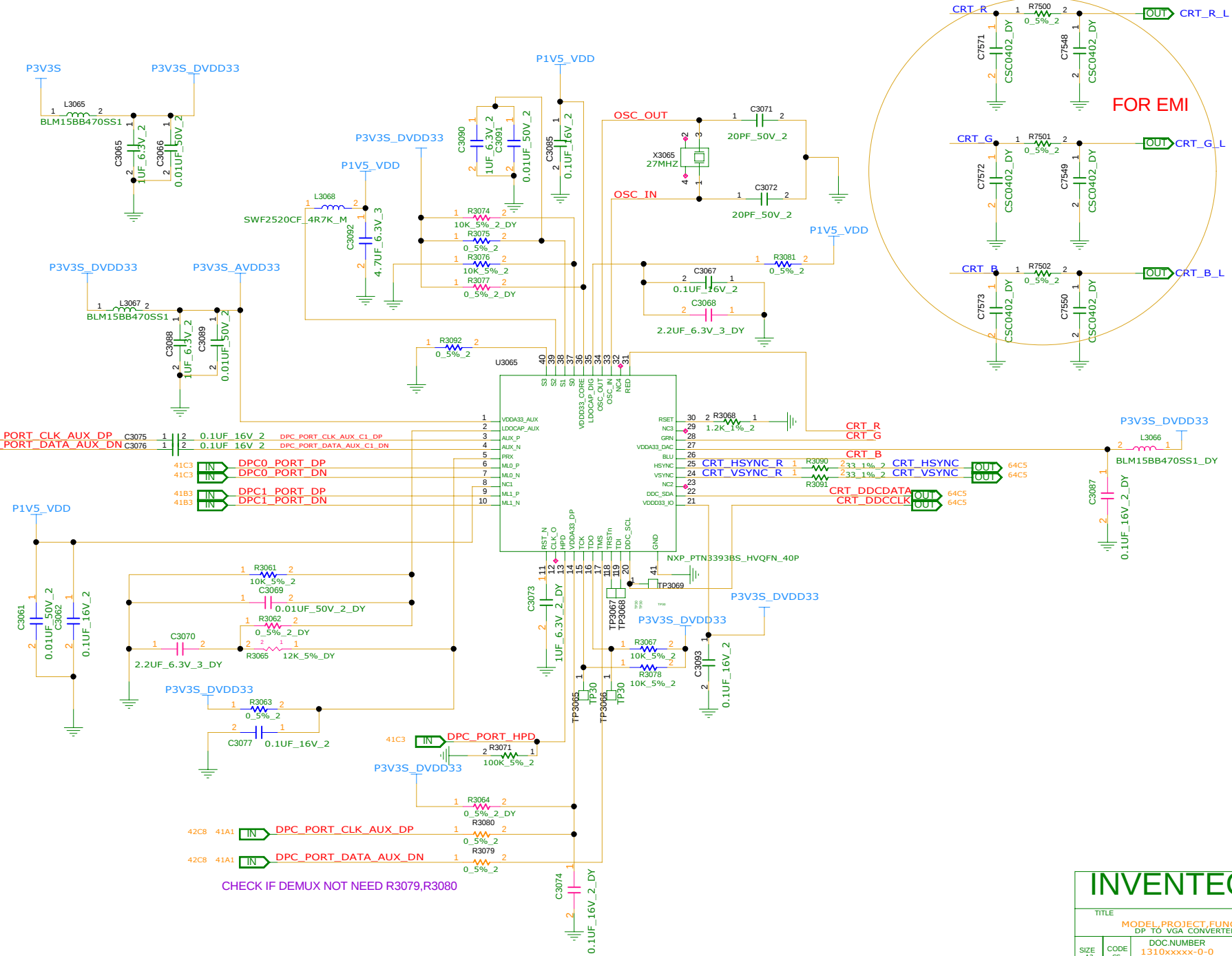
42A6 41A1 DPC_PORT_CLK_AUX_DP C3075 1 2 0.1UF_16V_2 DPC_PORT_CLK_AUX_C1_DP
42A6 41A1 DPC_PORT_DATA_AUX_DN C3076 1 2 0.1UF_16V_2 DPC_PORT_DATA_AUX_C1_DN

41C3 DPC0_PORT_DP
41C3 DPC0_PORT_DN
41B3 DPC1_PORT_DP
41B3 DPC1_PORT_DN

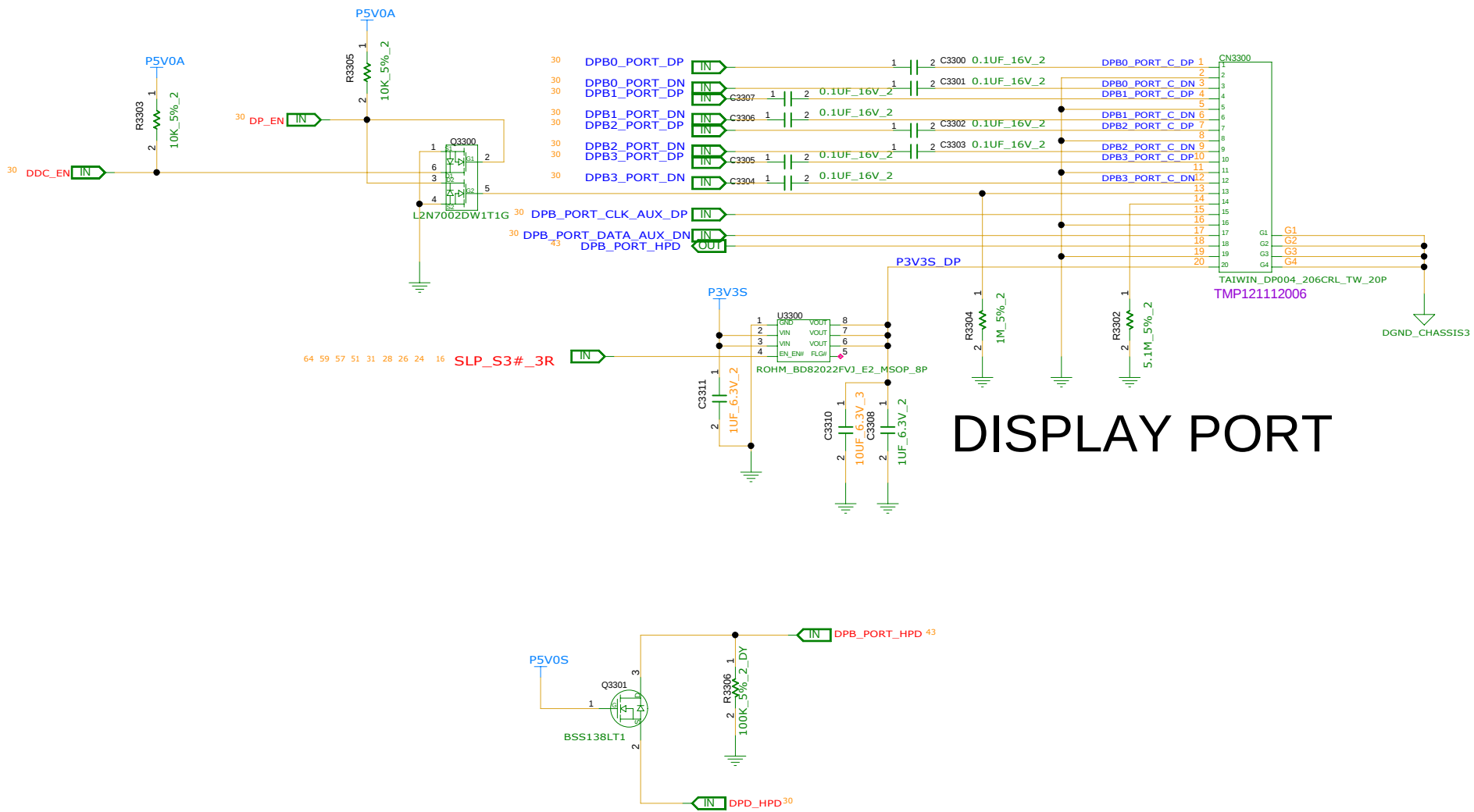
41C3 DPC_PORT_HPD
41C3 DPC_PORT_HPD

42C8 41A1 DPC_PORT_CLK_AUX_DP
42C8 41A1 DPC_PORT_DATA_AUX_DN

CHECK IF DEMUX NOT NEED R3079,R3080



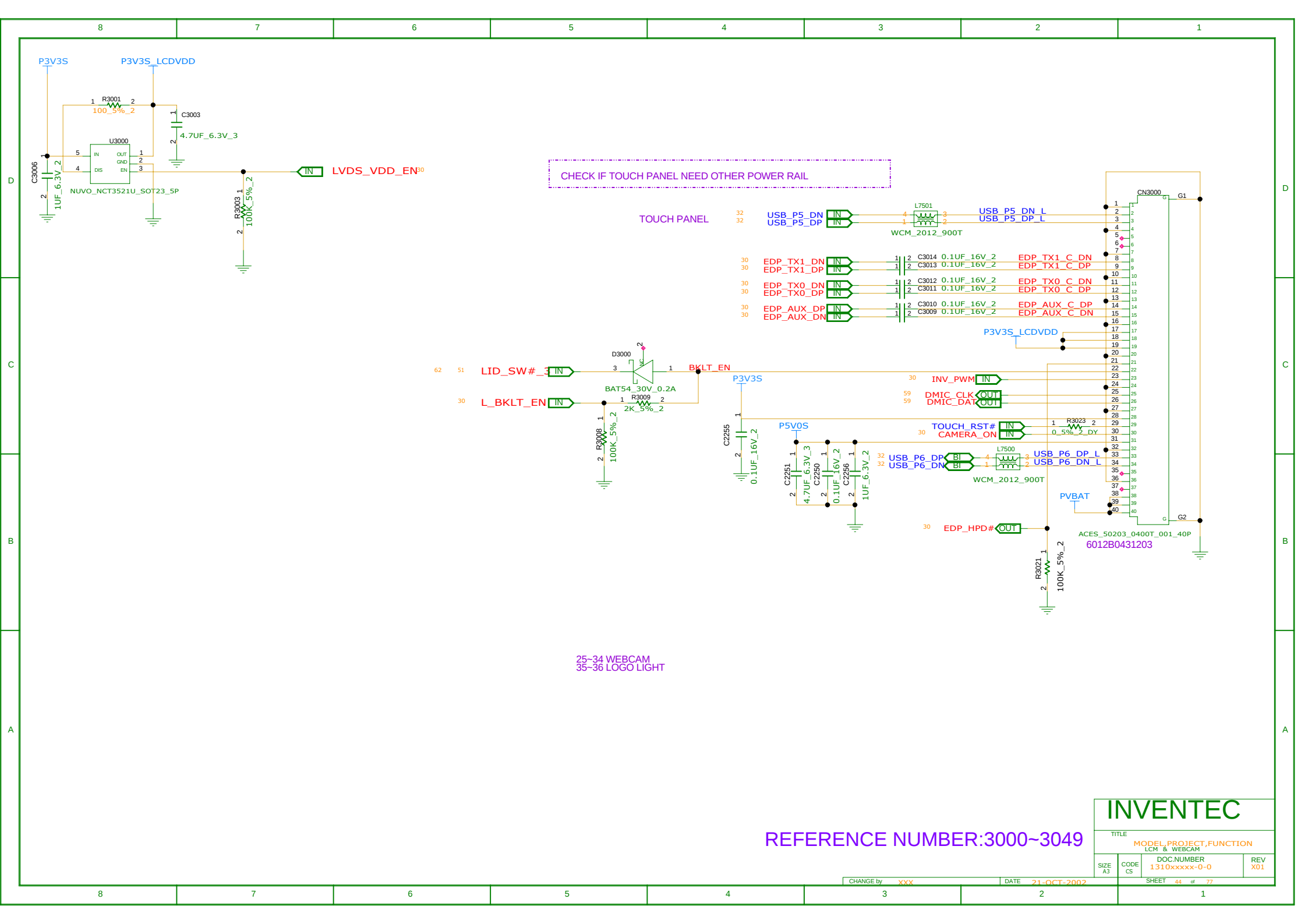
INVENTEC			
TITLE MODEL PROJECT/FUNCTION DP-TO-VGA CONVERTER			
SIZE A3	CODE CS	DOC NUMBER 1310xxxxx-0-0	REV X01
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DISPLAY PORT

REFERENCE NUMBER:3300~3399

INVENTEC			
TITLE			
MODEL PROJECT,FUNCTION			
CRT & DP			
SIZE	CODE	DOC NUMBER	REV
A3	CS	1310xxxx-0-0	X01
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CHECK IF TOUCH PANEL NEED OTHER POWER RAIL

25-34 WEBCAM
35-36 LOGO LIGHT

REFERENCE NUMBER:3000~3049

INVENTEC			
TITLE			
MODEL PROJECT,FUNCTION			
LCM & WEBCAM			
DOC NUMBER			
1310xxxxx-0-0			
REV			
X01			
SIZE	CODE	SHEET	
A3	CS	44 of 77	

REFERENCE NUMBER:1700~1749

REFERENCE NUMBER:1950~1999

M TYPE
6026B0240301
NGFF SSD

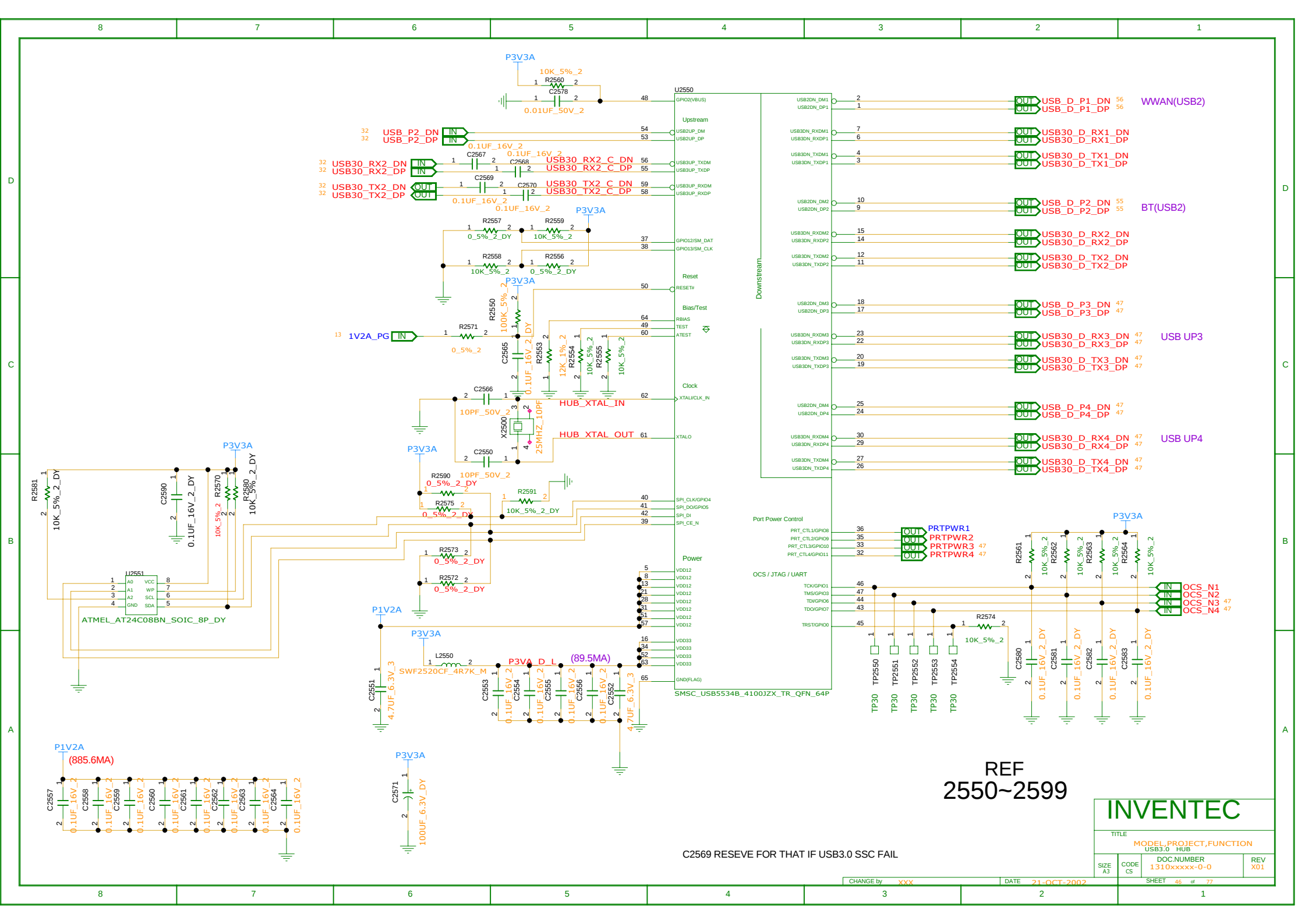
SATA HDD CONNECTOR

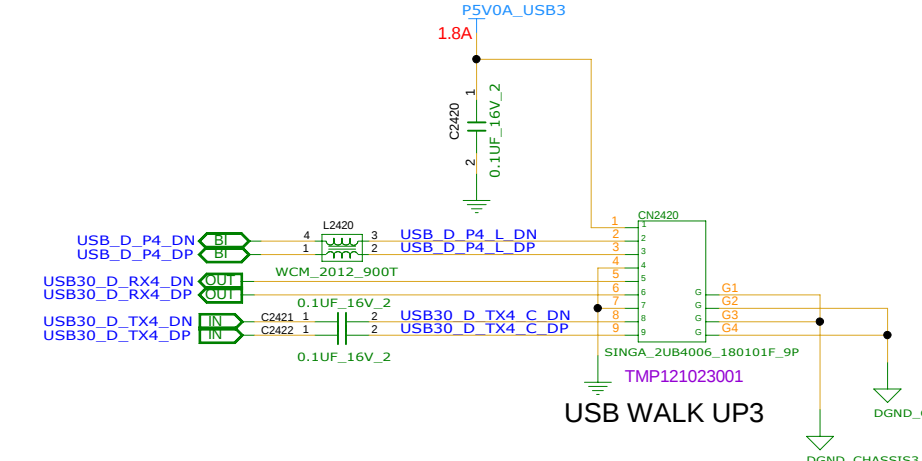
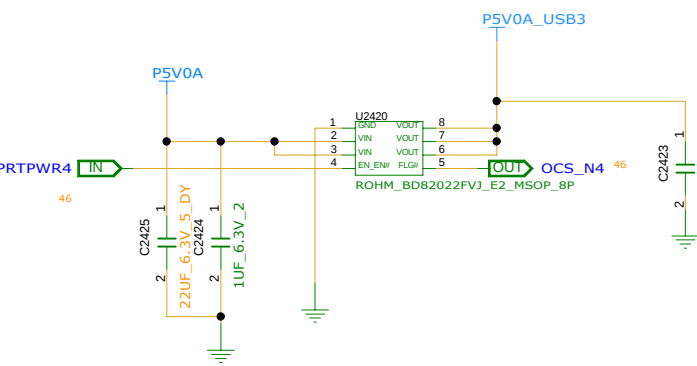
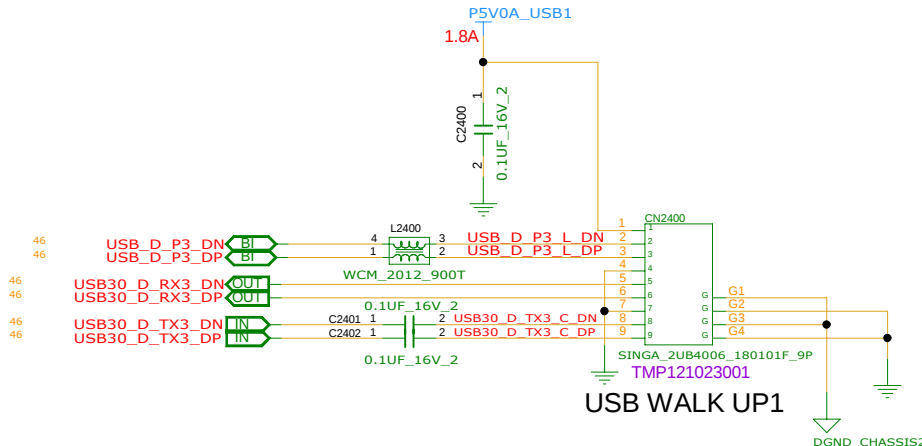
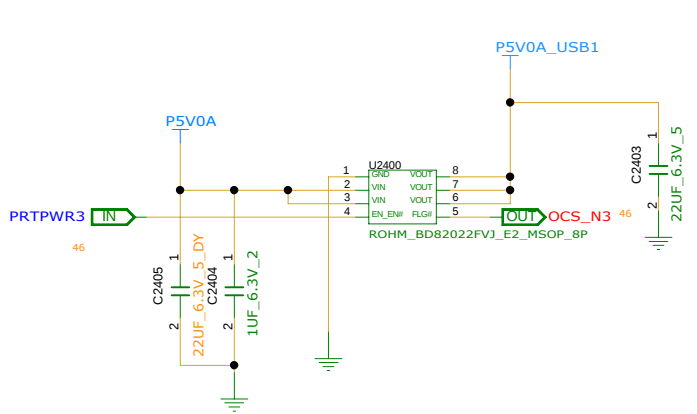
INVENTEC

TITLE
MODEL,PROJECT,FUNCTION
SATA, HDD & M-SATA CONN.

SIZE CODE DOC NUMBER REV
A3 CS 1310xxxx-0-0 X01

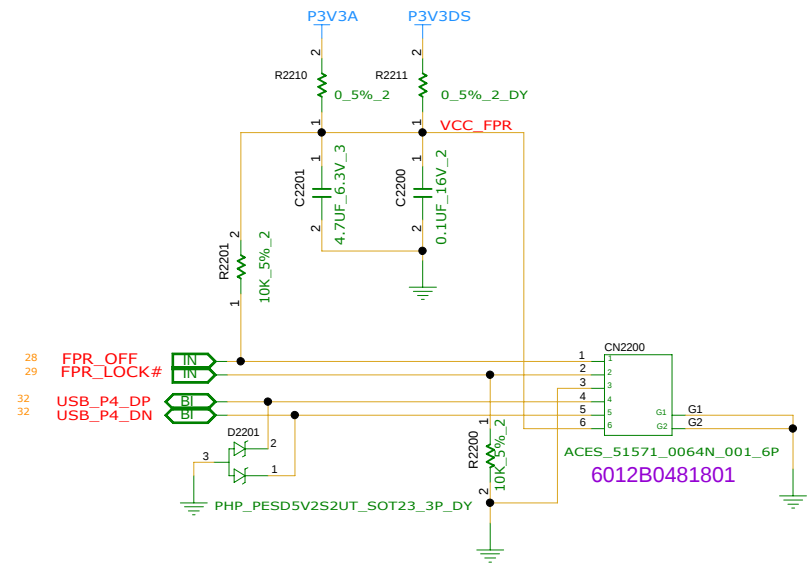
CHANGE by XXX DATE 21-OCT-2002 SHEET 45 of 77



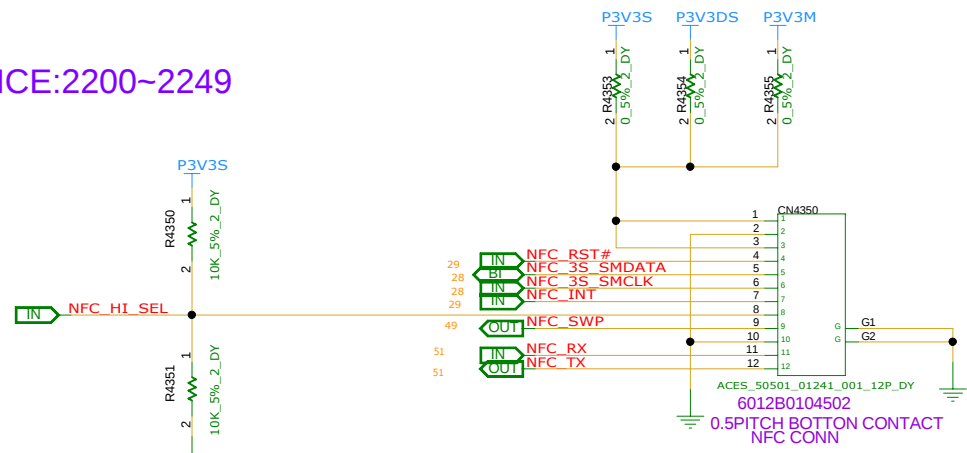


REFERENCE NUMBER:2400~2499

INVENTEC			
TITLE			
MODEL PROJECT FUNCTION			
USB & USB CHARGER			
DOC NUMBER			
1310xxxxx-0-0			
SIZE	CODE	REV	
A3	CS	X01	
CHANGE by		DATE	SHEET
XXX		21-OCT-2002	47 of 77

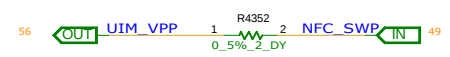


FINGER PRINT CONN



0.5PITCH BOTTOM CONTACT
NFC CONN

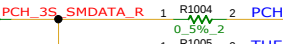
NFC_HI_SEL R4350 R4351
HIGH (UART) INSTALL
LOW (I2C) INSTALL



REFERENCE:2200~2249

REFERENCE:4350~4399

INVENTEC			
TITLE			
MODEL PROJECT FUNCTION FINGER PRINTER & NFC			
SIZE A3	CODE CS	DOC NUMBER 1310xxxxx-0-0	REV X01
SHEET 49 of 77			



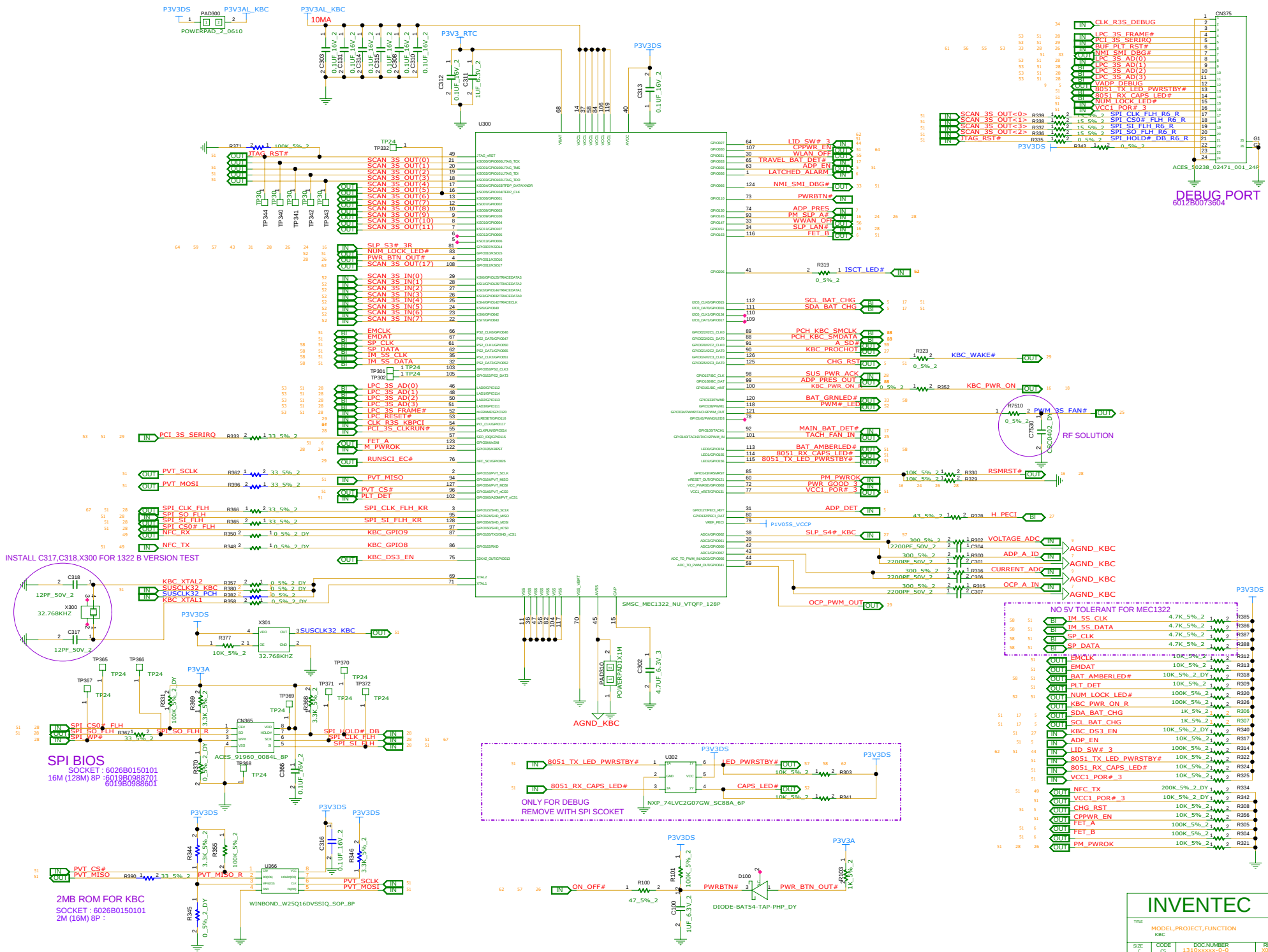
INVENTEC

TITLE	MODEL,PROJECT,FUNCTION
ACCELERATOR	

SIZE A3	CODE CS	DOC. NUMBER 1310xxxxx-0-0	REV X01
SHEET 50 of 77			

CHANGE by	XXX	DATE	21-OCT-2002
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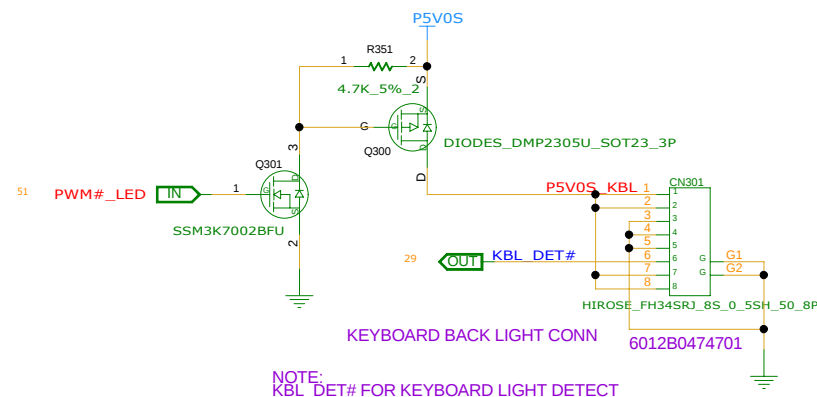
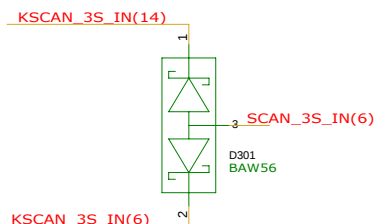
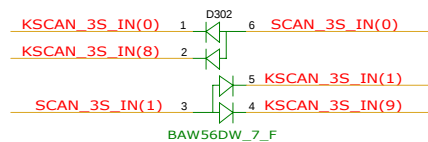
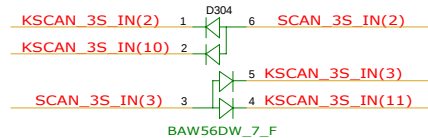
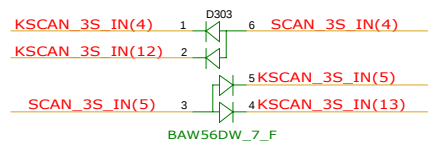
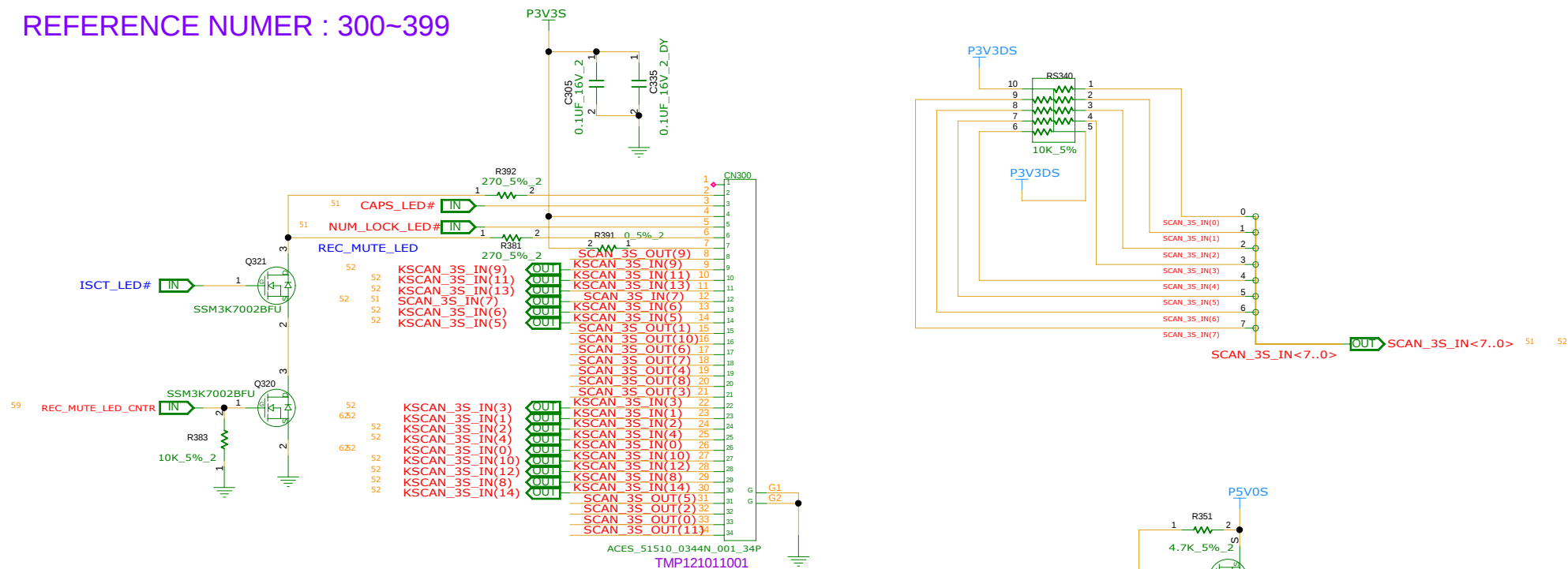
SHEET 50 of 77



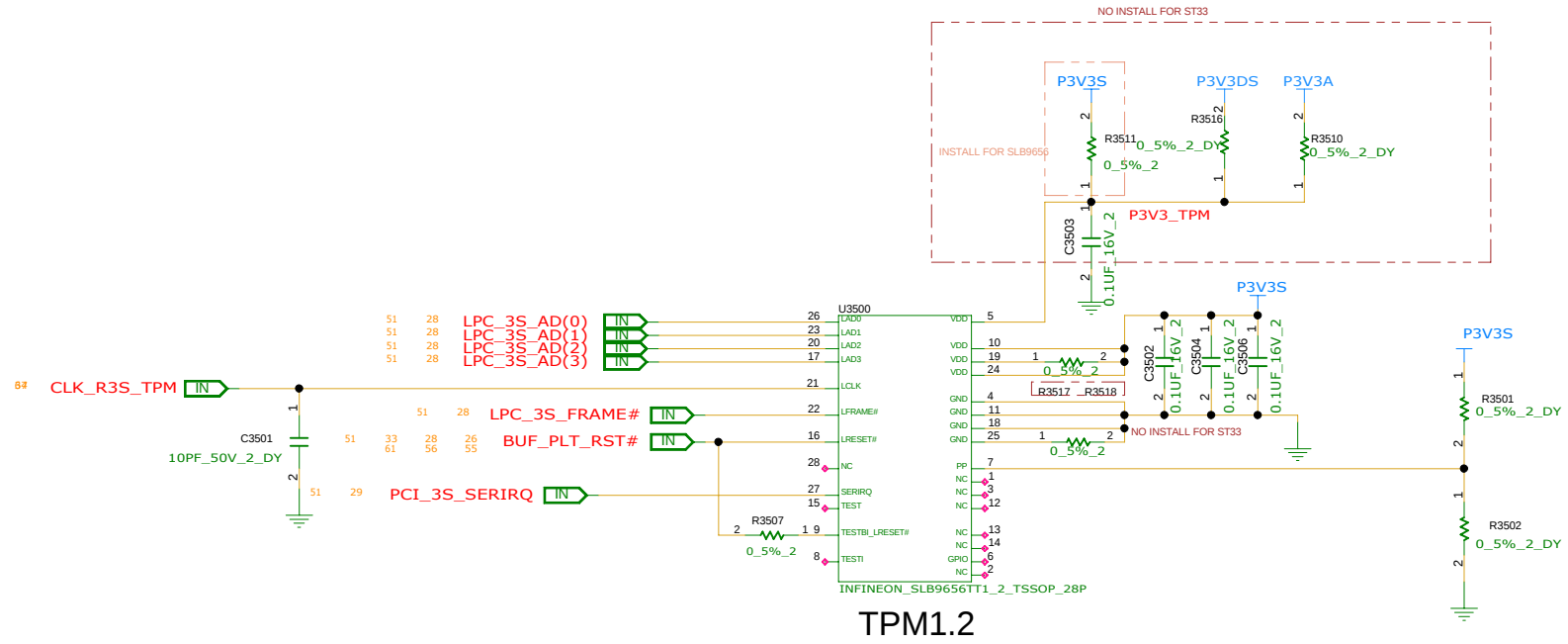
INVENTEC

TITLE	MODEL,PROJECT,FUNCTION
KBC	
SIZE	CODE
1310	DOCNUMBER
REV	REV
201	201

REFERENCE NUMBER : 300~399



INVENTEC			
TITLE			
MODEL PROJECT,FUNCTION			
KEYBOARD			
SIZE	CODE	DOC NUMBER	REV
A3	CS	1310xxxx-0-0	X01
SHEET 52 of 77			

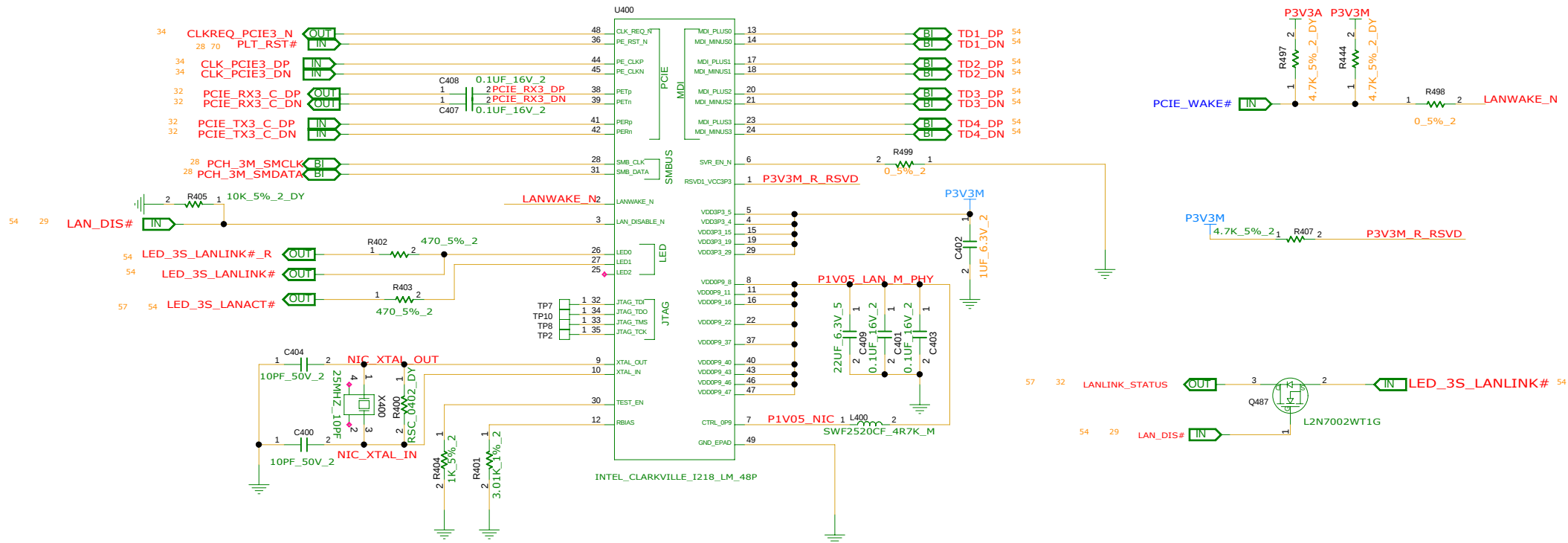


TPM1.2

SLB9656TT1.2		ST33
C3503	INSTALL	OPEN
R3507	INSTALL	OPEN
R3511	INSTALL	OPEN
R3517	INSTALL	OPEN
R3518	INSTALL	OPEN

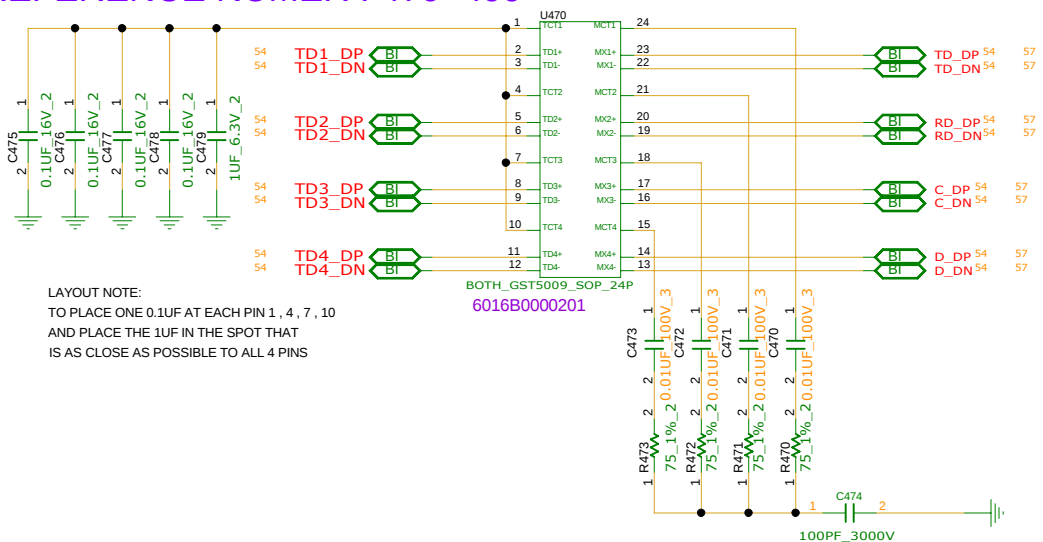
REFERENCE NUMER : 3500~3549

INVENTEC			
TITLE MODEL,PROJECT,FUNCTION TPM			
SIZE A3	CODE CS	DOC.NUMBER 1310xxxxx-0-0	REV X01
CHANGE by XXX DATE 21-OCT-2002 SHEET 53 of 77			

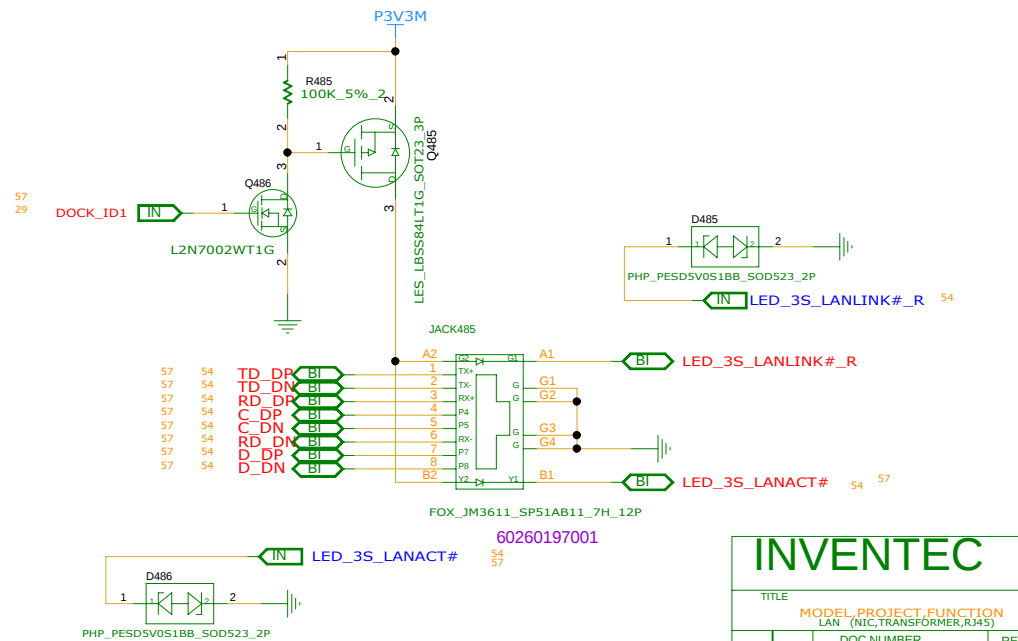


REFERENCE NUMBER : 400~469

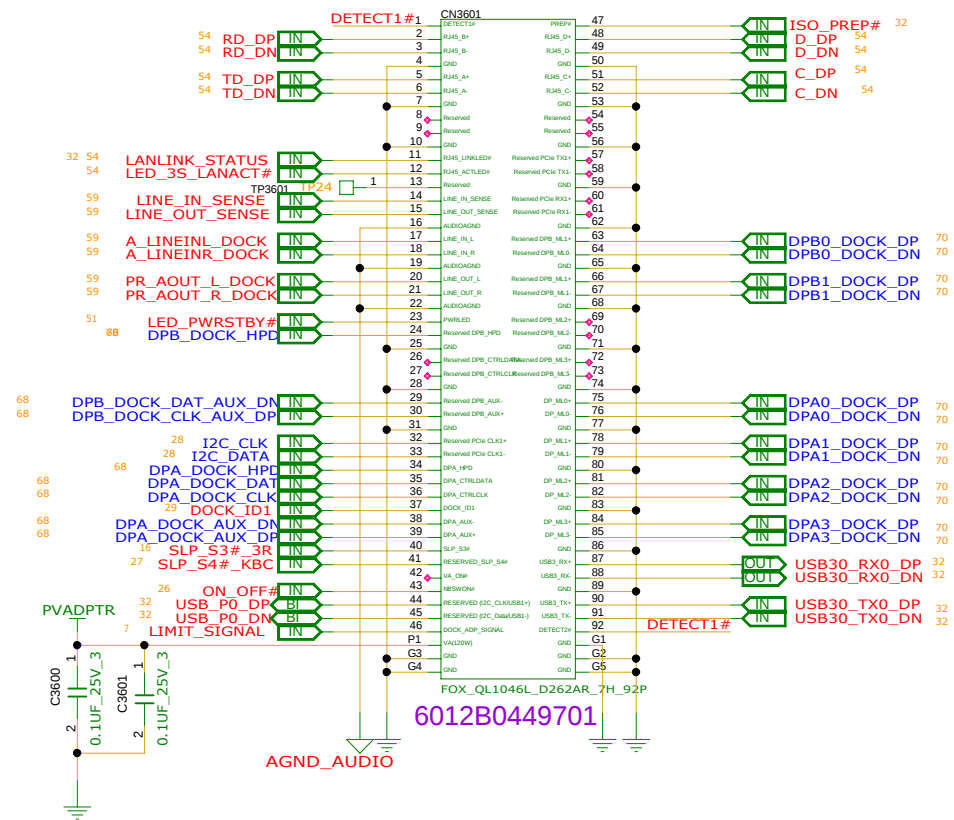
REFERENCE NUMBER : 470~499



LAYOUT NOTE:
TO PLACE ONE 0.1UF AT EACH PIN 1 , 4 , 7 , 10
AND PLACE THE 1UF IN THE SPOT THAT
IS AS CLOSE AS POSSIBLE TO ALL 4 PINS



INVENTEC			
TITLE			
MODEL,PROJECT,FUNCTION LAN (NIC,TRANSFORMER,RJ45)			
SIZE A3	CODE CS	DOC NUMBER 1310xxxxx-0-0	REV X01
SHEET 54 of 77			

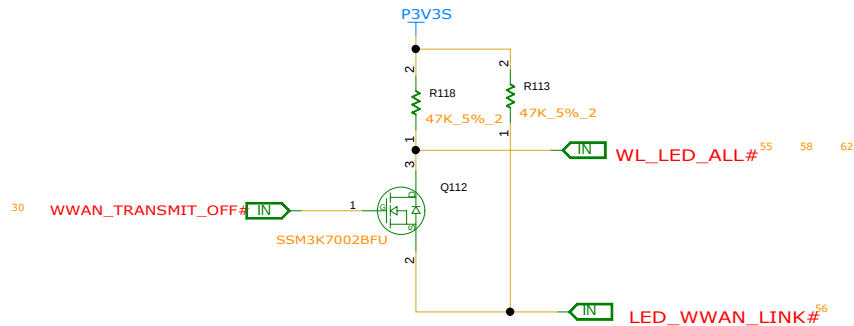


INVENTEC

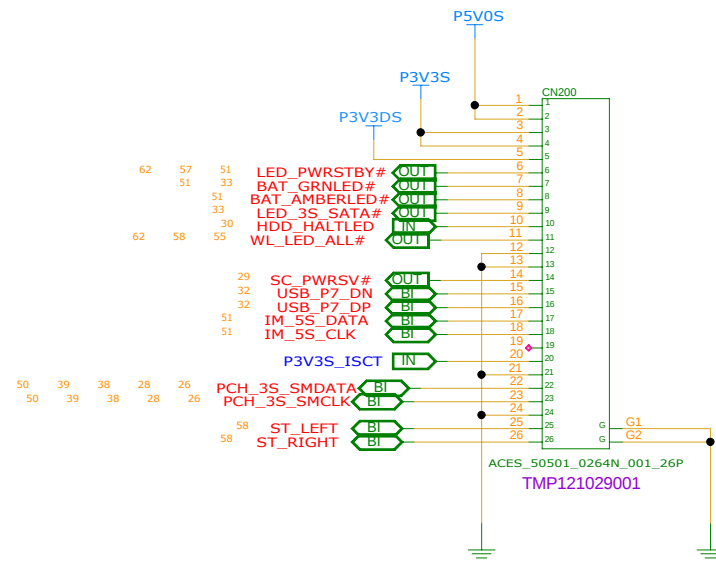
TITLE
MODEL PROJECT,FUNCTION
DOCKING CONN.

SIZE A3	CODE CS	DOC NUMBER 1310xxxxx-0-0	REV X01
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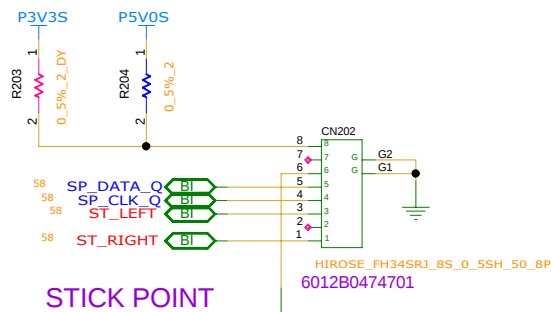
CHANGE by XXX DATE 21-OCT-2002 SHEET 57 of 77



WLAN_WWAN_BLUETOOTH_LED

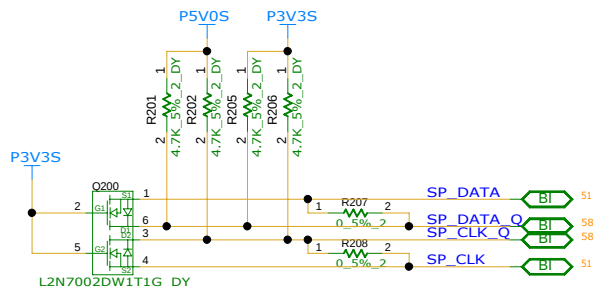


SMART CARD AND TOUCHPAD D/B W TO B CONN



STICK POINT

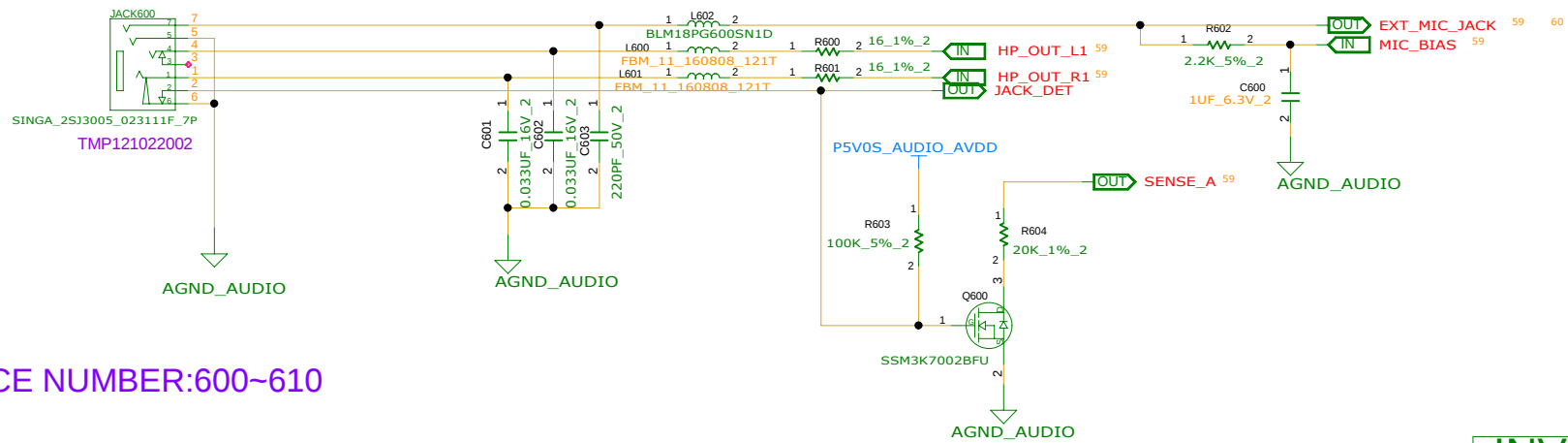
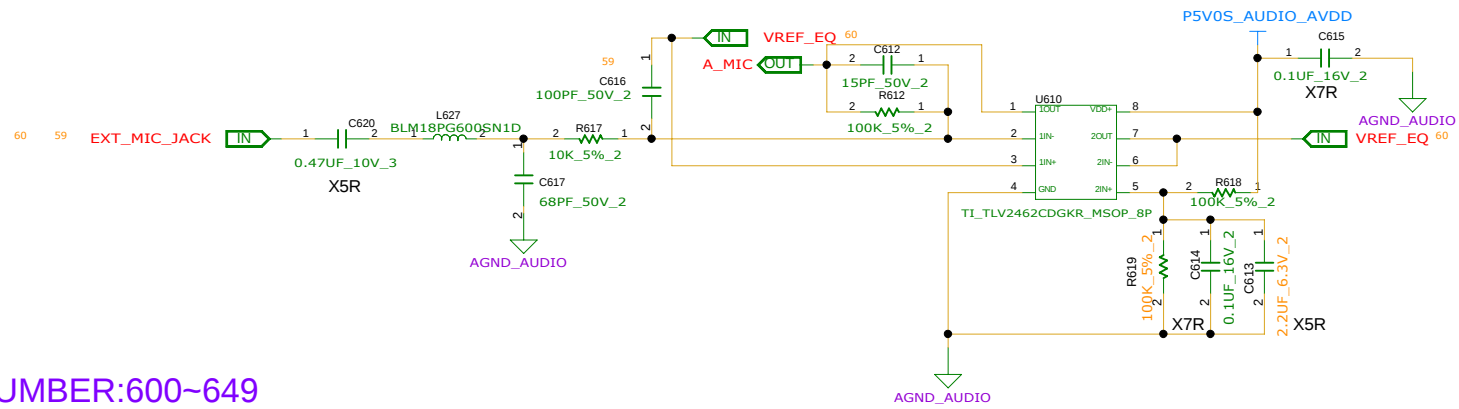
	5V	3.3V
R201	INSTALL	UNINSTALL
R202	INSTALL	UNINSTALL
R203	UNINSTALL	INSTALL
R204	INSTALL	UNINSTALL



STICK POINT OPTION

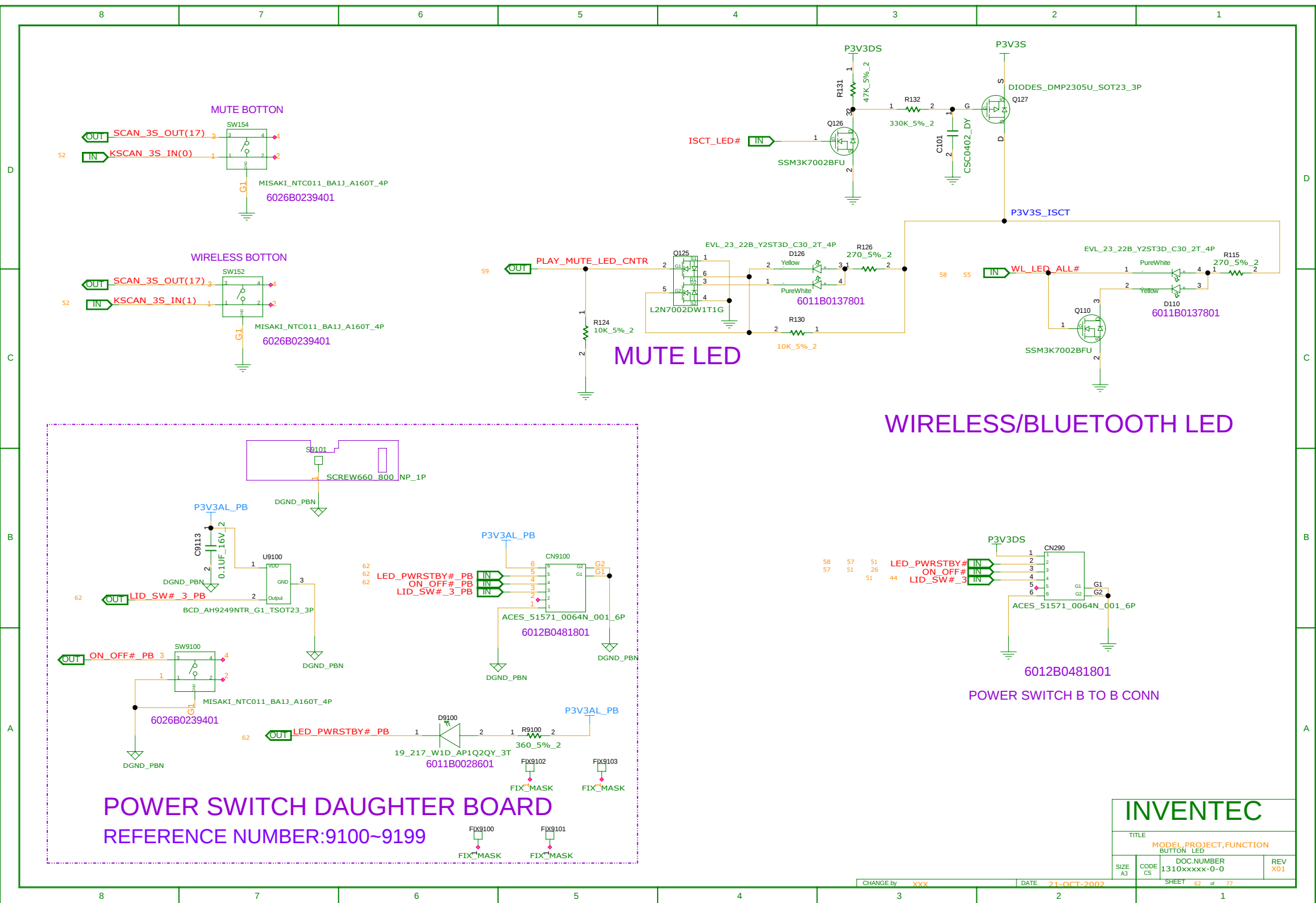
REFERENCE NUMBER:100~199

INVENTEC			
TITLE			
MODEL PROJECT FUNCTION			
STICK POINT & B2B CNTR			
SIZE	CODE	DOC NUMBER	REV
A3	CS	1310xxxx-0-0	X01
SHEET 58 of 77			



INVENTEC

TITLE			
MODEL,PROJECT,FUNCTION EXT. MIC AMP. & AUDIO JACK			
SIZE A3	CODE CS	DOC NUMBER 1310xxxxx-0-0	REV X01
SHEET 60 of 77			



MUTE BUTTON

WIRELESS BUTTON

MUTE LED

WIRELESS/BLUETOOTH LED

POWER SWITCH DAUGHTER BOARD
REFERENCE NUMBER:9100~9199

6012B0481801
POWER SWITCH B TO B CONN

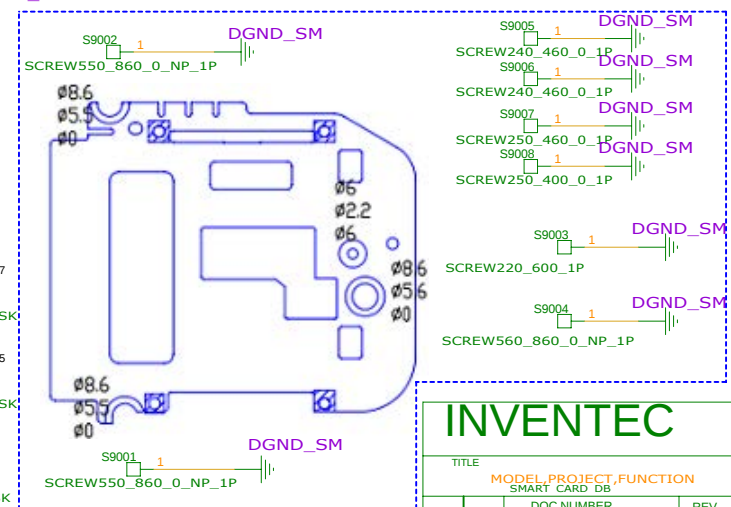
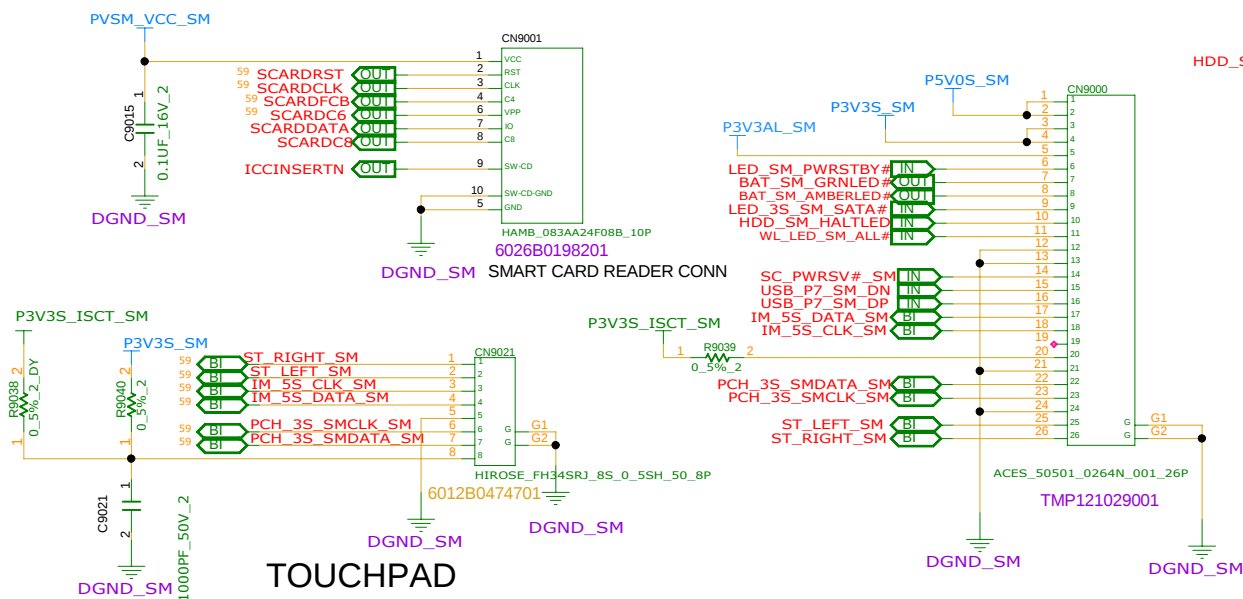
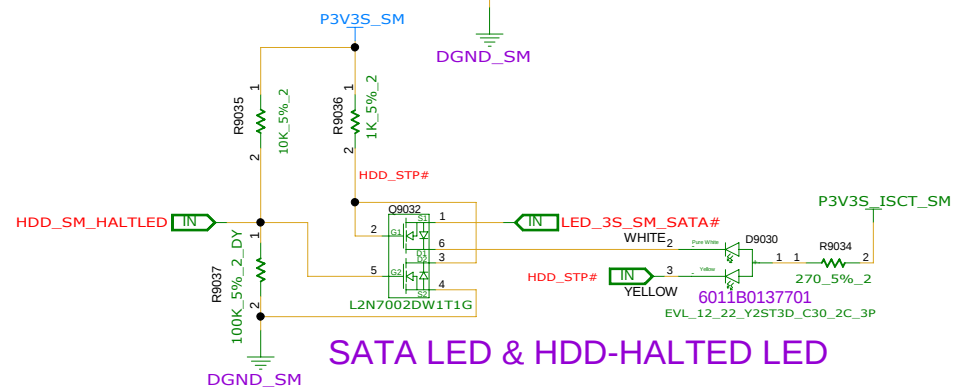
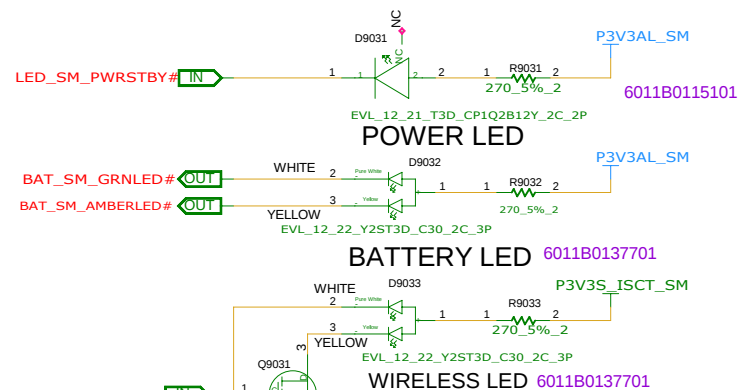
INVENTEC

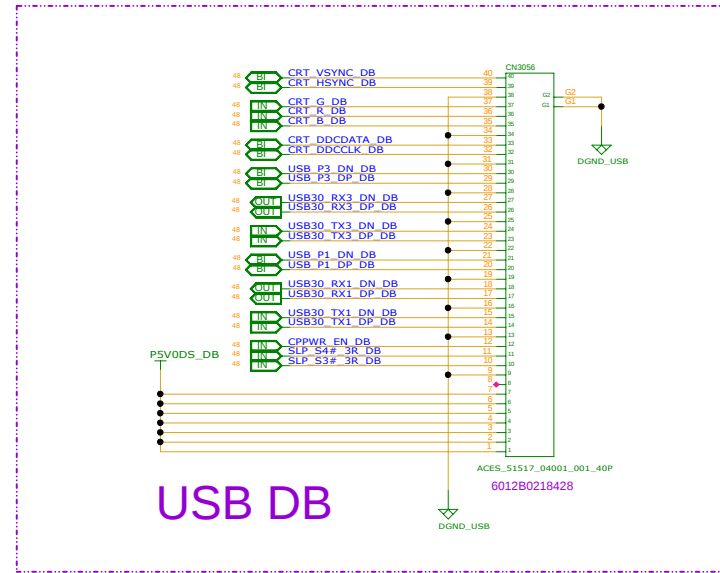
TITLE MODEL PROJECT,FUNCTION
BUTTON LED

SIZE CODE DOC.NUMBER
A3 CS 1310xxxxx-0-0

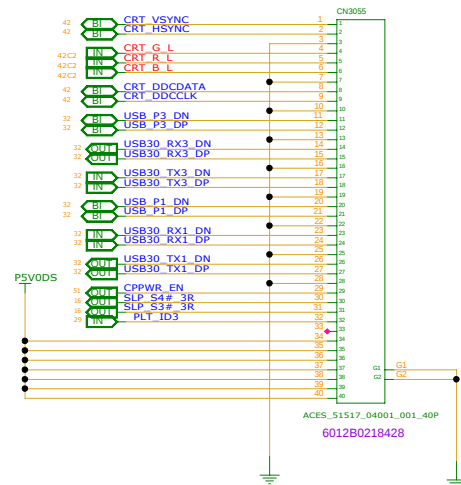
SHEET 62 of 77
REV X01

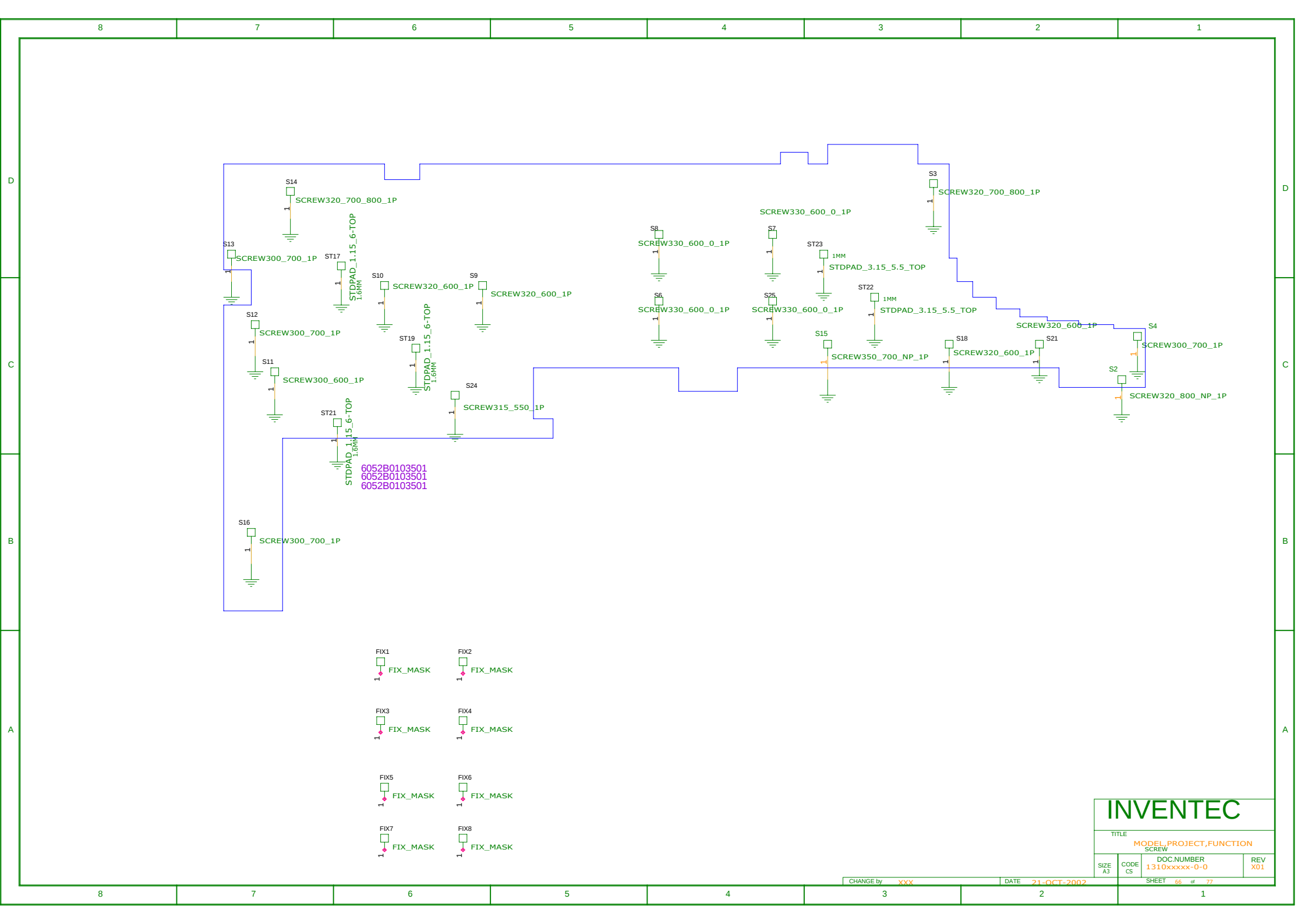
CHANGE by XXX DATE 21-OCT-2002





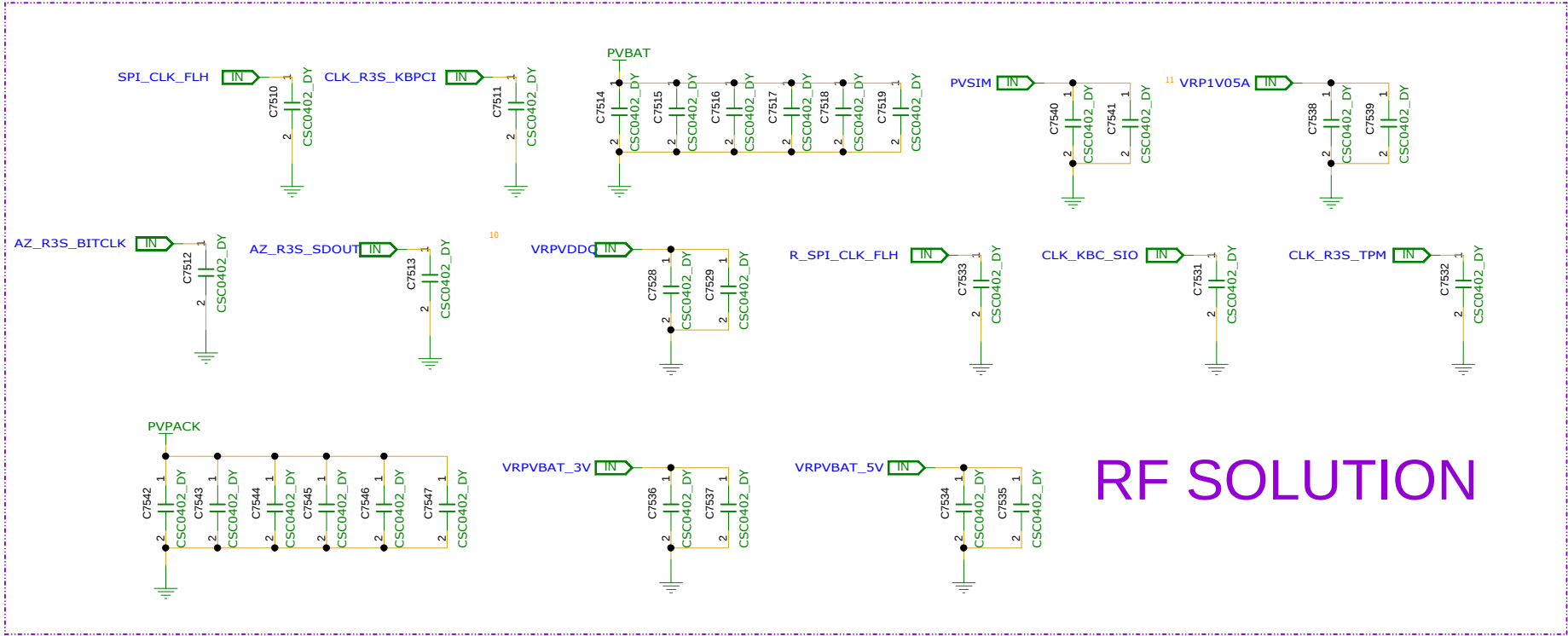
USB DB



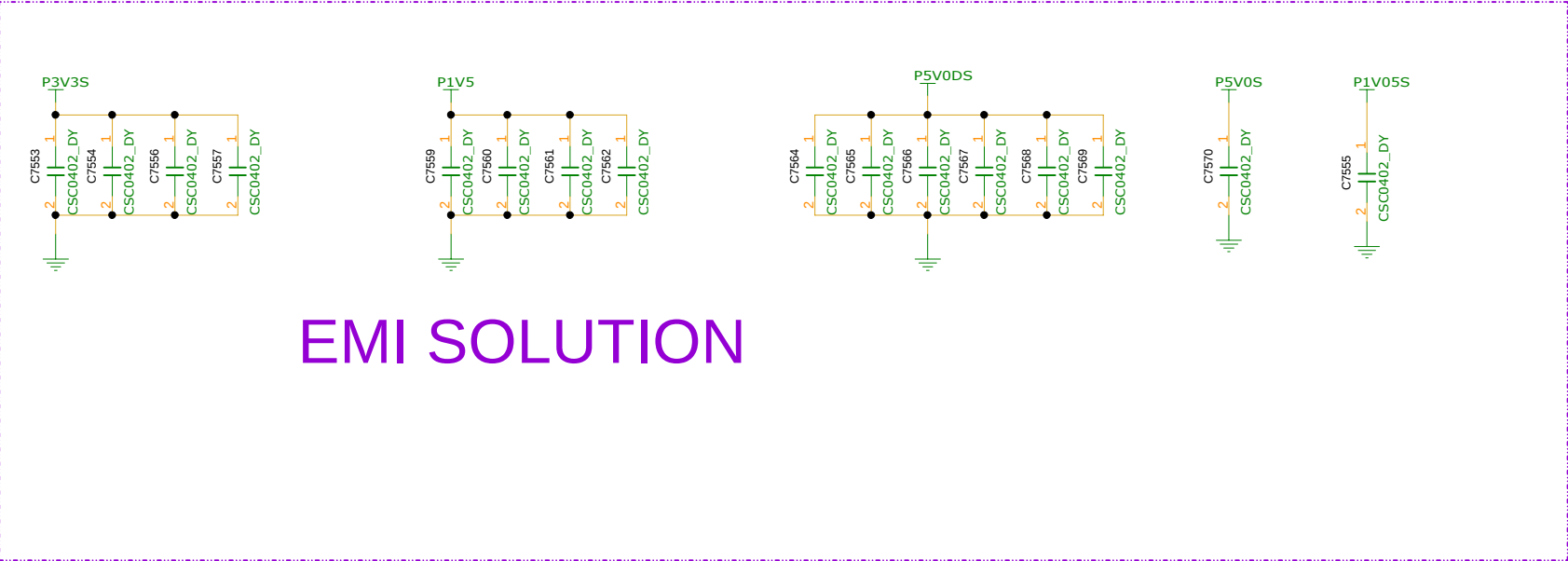


6052B0103501
6052B0103501
6052B0103501

INVENTEC			
TITLE			
MODEL PROJECT,FUNCTION SCREW			
SIZE	CODE	DOC NUMBER	REV
A3	CS	1310xxxxx-0-0	X01
SHEET 66 of 77			



RF SOLUTION



EMI SOLUTION

INVENTEC

TITLE
MODEL PROJECT FUNCTION
EMI & RF SOLUTION

SIZE A3	CODE CS	DOC NUMBER 1310xxxxx-0-0	REV X01
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SHEET 67 of 77

CHANGE by XXX DATE 21-OCT-2002

LPT-LP GPIO 34	MARS MLPS Bit: PS_3 [3:1]			R _{pu} (Ω)	R _{pd} (Ω)	Vendor & PN	Die Ver.	
0	0	0	0	NC	4750	Samsung - K4G20325FD-FC04	D	GDDR5 - 64Mx32/128Mx16, 1.5V/1.35V, 5.0Gbps/4Gbps
	0	0	1	8450	2000	Hynix - H5GQ2H24AFR-T2C	A (Gemma)	GDDR5 - 64Mx32/128Mx16, 1.5V/1.35V, 5.0Gbps/4Gbps
1	1	1	0	3400	10000	*Samsung - K4G41325FC-HC04	C	*GDDR5 - 128Mx32/256Mx16, 1.5V/1.35V, 5.0Gbps/4Gbps
	1	1	1	4759	NC	*Hynix - H5GC4H24MFR-T0C	Huma	*GDDR5 - 128Mx32/256Mx16, 1.5V/1.35V, 5.0Gbps/4Gbps
VBIOS selection : 0 : VBIOS 1, 64Mx32 for 1GB sku 1 : VBIOS 2, 128Mx32 for 2GB sku	Vram configuration 00: 64Mx32 (2Gb) 11: 128Mx32 (4Gb)		Vendor ID 0: Samsung 1: Hynix	Resistor Divider Lookup Table		Vram information * 2GB sku, TBD		

MLPS Implementation

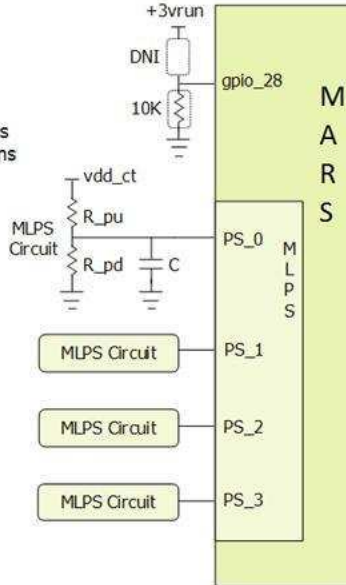
- Connect GPIO_28 to 10K pulldown to enable MLPS
- If any of PS_0/1/2/3 is not used, leave "no connect"
- R_{pu}, R_{pd} and C must be properly populated per tables below
- Place MLPS circuit components as close to the ASIC as possible
- Total DC resistance of trace between PS pin and C should be less than 2 ohms
- Total DC resistance of trace between C and ground should be less than 2 ohms
- Trace capacitance should be less than 100pF. Resistors should be of +/-1% tolerance

Capacitor Lookup Table

C (nF)	Bits(5,4)
680	00
82	01
10	10
NC	11

Resistor Divider Lookup Table

R _{pu} (Ohm)	R _{pd} (Ohm)	Bits(3,2,1)
NC	4750	000
8450	2000	001
4530	2000	010
6980	4990	011
4530	4990	100
3240	5620	101
3400	10000	110
4750	NC	111



MLPS Bit	Strap Name	Description
PS_0[1]	ROM_CONFIG[0]	See Primary Memory Aperture Sizes.
PS_0[2]	ROM_CONFIG[1]	
PS_0[3]	ROM_CONFIG[2]	
PS_0[4]	N/A	Reserved for internal use only. Must be 1 at reset.
PS_0[5]	AUD_PORT_CONN_PINSTRAP[0]	The LSB (least significant bit) of the strap that indicates the number of audio-capable display outputs.
PS_1[1]	STRAP_BIF_GEN3_EN_A	PCIe GEN3 capability. 1 = PCIe GEN3 is supported.
PS_1[2]	STRAP_BIF_CLK_PM_EN	Determines whether or not the PCIe reference clock power management capability is reported in the PCI configuration space (otherwise known as CLKREQB). 0 = The CLKREQB power management capability is disabled
PS_1[3]	N/A	Reserved for internal use only. Must be 0 at reset.
PS_1[4]	STRAP_TX_CFG_DRV_FULL_SWING	Control the transmitter full-/half-swing mode 1 = The transmitter full-swing is enabled
PS_1[5]	STRAP_TX_DEEMPH_EN	PCI EXPRESS® transmitter, de-emphasis enable. 1 = Tx deemphasis enabled.
PS_2[1]	N/A	Reserved.
PS_2[2]	N/A	Reserved.
PS_2[3]	STRAP_BIOS_ROM_EN	To enable the external BIOS ROM device. 0 = Disable the external BIOS ROM device.
PS_2[4]	STRAP_BIF_VGA_DIS	VGA disable determines whether or not the card will be recognized as the system's VGA controller (through the SUBCLASS field in the PCI configuration space). 0 = VGA controller capacity enabled.
PS_2[5]	N/A	Reserved
PS_2[1]	N/A	Reserved.
PS_2[2]	N/A	Reserved.
PS_2[3]	STRAP_BIOS_ROM_EN	To enable the external BIOS ROM device. 0 = Disable the external BIOS ROM device.
PS_2[4]	STRAP_BIF_VGA_DIS	VGA disable determines whether or not the card will be recognized as the system's VGA controller (through the SUBCLASS field in the PCI configuration space). 0 = VGA controller capacity enabled.
PS_2[5]	N/A	Reserved
PS_3[1]	BOARD_CONFIG[0]	See Board configuration related strapping, such as for memory ID.
PS_3[2]	BOARD_CONFIG[1]	
PS_3[3]	BOARD_CONFIG[2]	
PS_3[4]	AUD_PORT_CONN_PINSTRAP[1]	Determines the maximum number of digital display audio endpoints that will be presented to the OS and user. 111 = No usable endpoints. 110 = One usable endpoint. 101 = Two usable endpoints. 100 = Three usable endpoints. 011 = Four usable endpoints. 010 = Five usable endpoints. 001 = Six usable endpoints. 000 = All endpoints are usable.
PS_3[5]	AUD_PORT_CONN_PINSTRAP[2]	

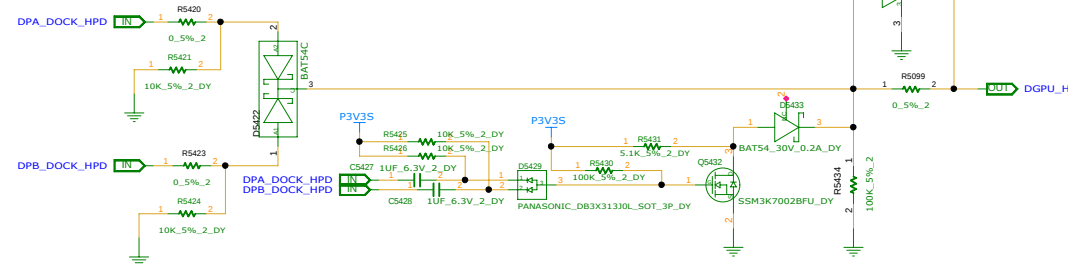
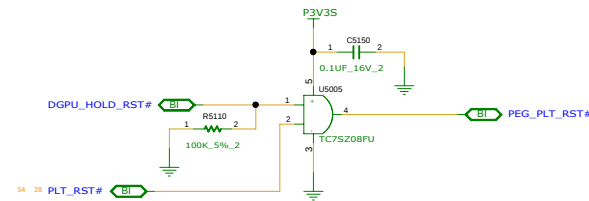
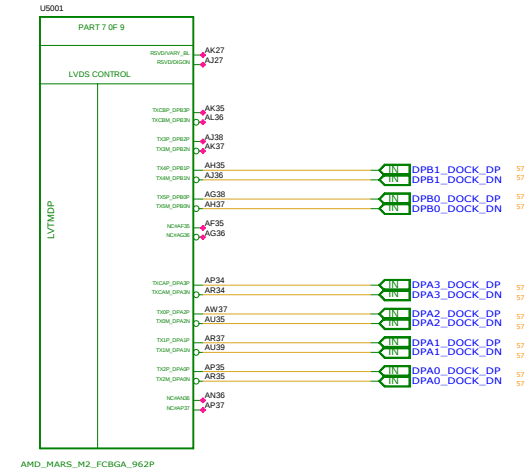
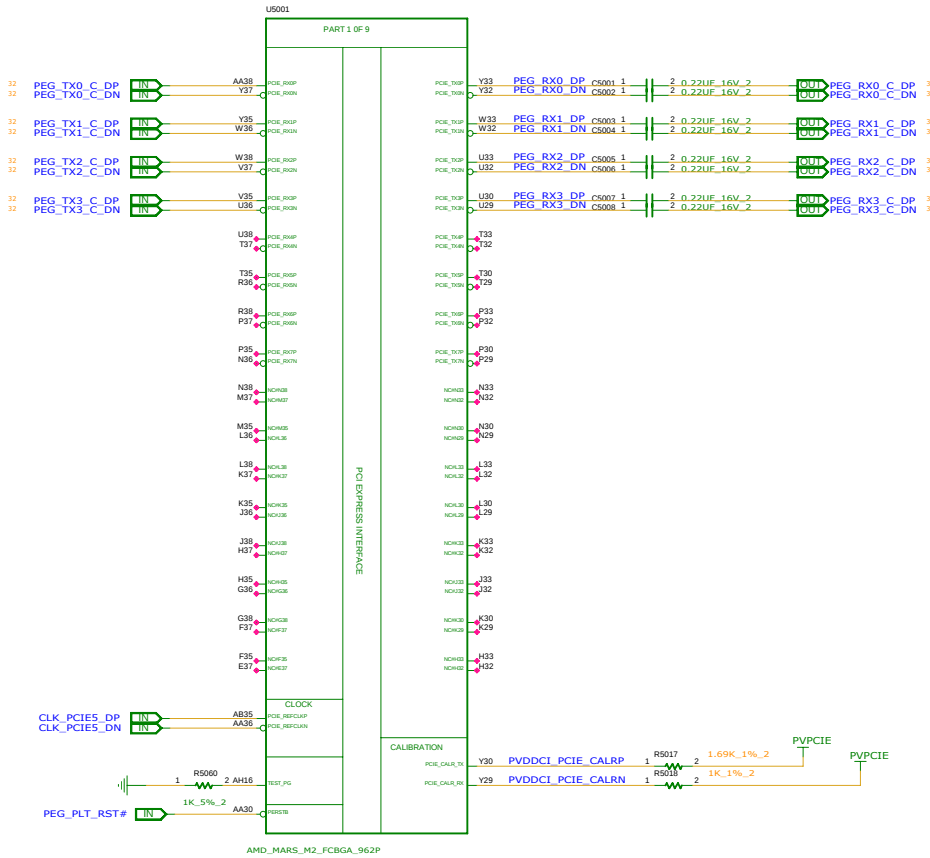
Note : AUD[1] (on HYSNC) and AUD[0] (on VSYNC) still need to be properly pin strapped even in a MLPS-based design.

Pin/Bit	Name	Description	Default	Legacy
PS_0[3:1]	romidcfg[2:0]	Memory aperture size or ROM type select: If bios_rom_en = 0, romidcfg[2:0] define memory aperture size If bios_rom_en = 1, romidcfg[2:0] define ROM type	xxx	gpio_13 gpio_12 gpio_11
PS_0[4]	n/a	Reserved	1	genlk_vsync
PS_1[1]	bif_gen3_en_a	PCIe Gen3 capability: 1=Gen3 supported, 0=Gen3 not supported	x	gpio_2
PS_1[2]	bif_clk_pm_en	PCIe Clk PM capability: 1 = CLKREQB supported	x	gpio_8
PS_1[3]	n/a	Reserved		genlk_clk
PS_1[4]	tx_pwrs_enb	PCIe Tx power savings: 0=50% swing, 1=full swing	x	gpio_0
PS_1[5]	tx_deemph_en	PCIe Tx de-emphasis: 1=Tx de-emphasis enabled	x	gpio_1
PS_2[1]	n/a	Reserved		n/a
PS_2[2]	n/a	Reserved		n/a
PS_2[3]	bios_rom_en	Enable external BIOS ROM: 1=External ROM connected	x	gpio_22
PS_2[4]	vga_dis	VGA disable: 1=Disable this GPU as the system's VGA controller	0	gpio_9
PS_2[5]	n/a	Reserved		n/a
PS_3[1]	MEM Vendor ID	MEM Vendor ID	0	n/a
PS_3[2]	MEM Vendor ID	MEM Vendor ID	0	n/a
PS_3[3]	MEM Vendor ID	MEM Vendor ID	0	n/a
PS_3[5]	aud_port_cp[2] PS_3[4] PS_0[5]	3-bit field indicating number of audio-capable display outputs	xxx	n/a

INVENTEC

TITLE			
MODEL, PROJECT, FUNCTION			
Block Diagram			
SIZE	CODE	DOC NUMBER	REV
C	CS	1310XXXX-0-0	201
SHEET		08	of 07

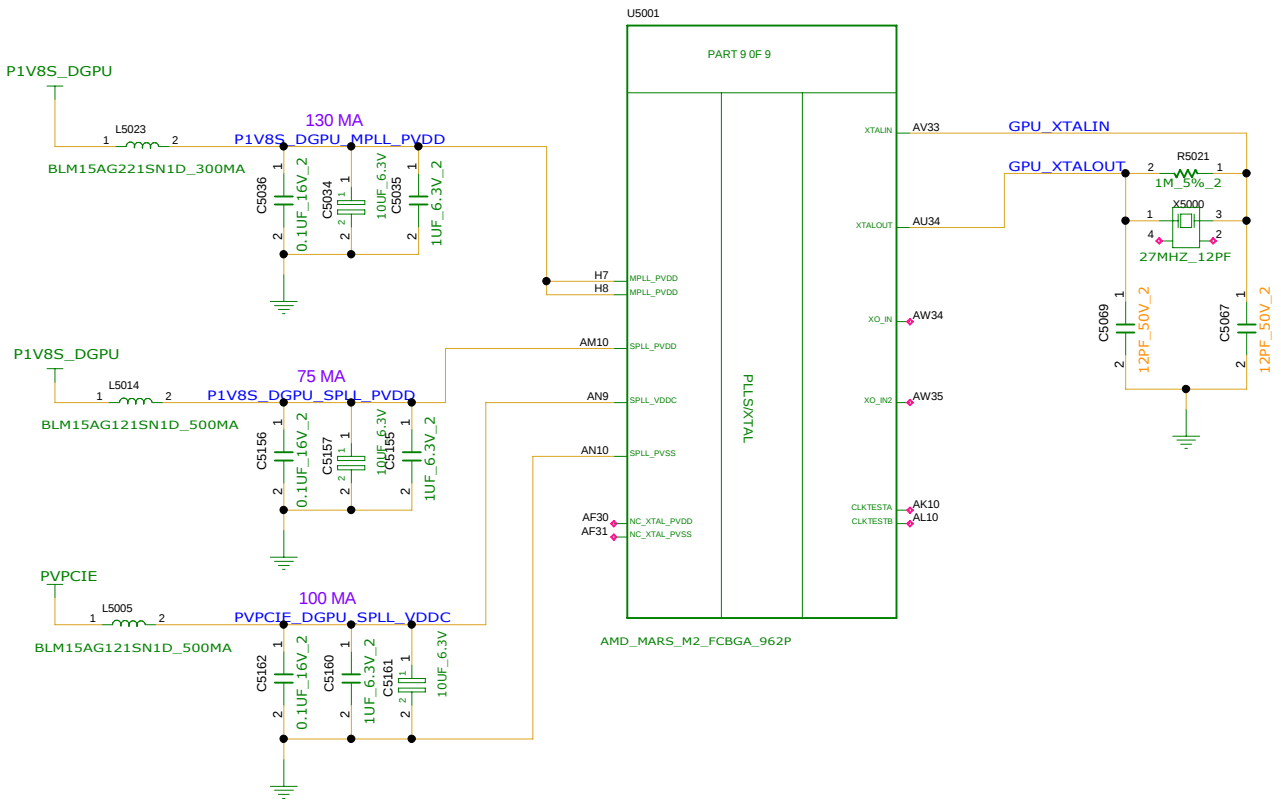
CHANGE BY: xxx DATE: 21-JULY-2007



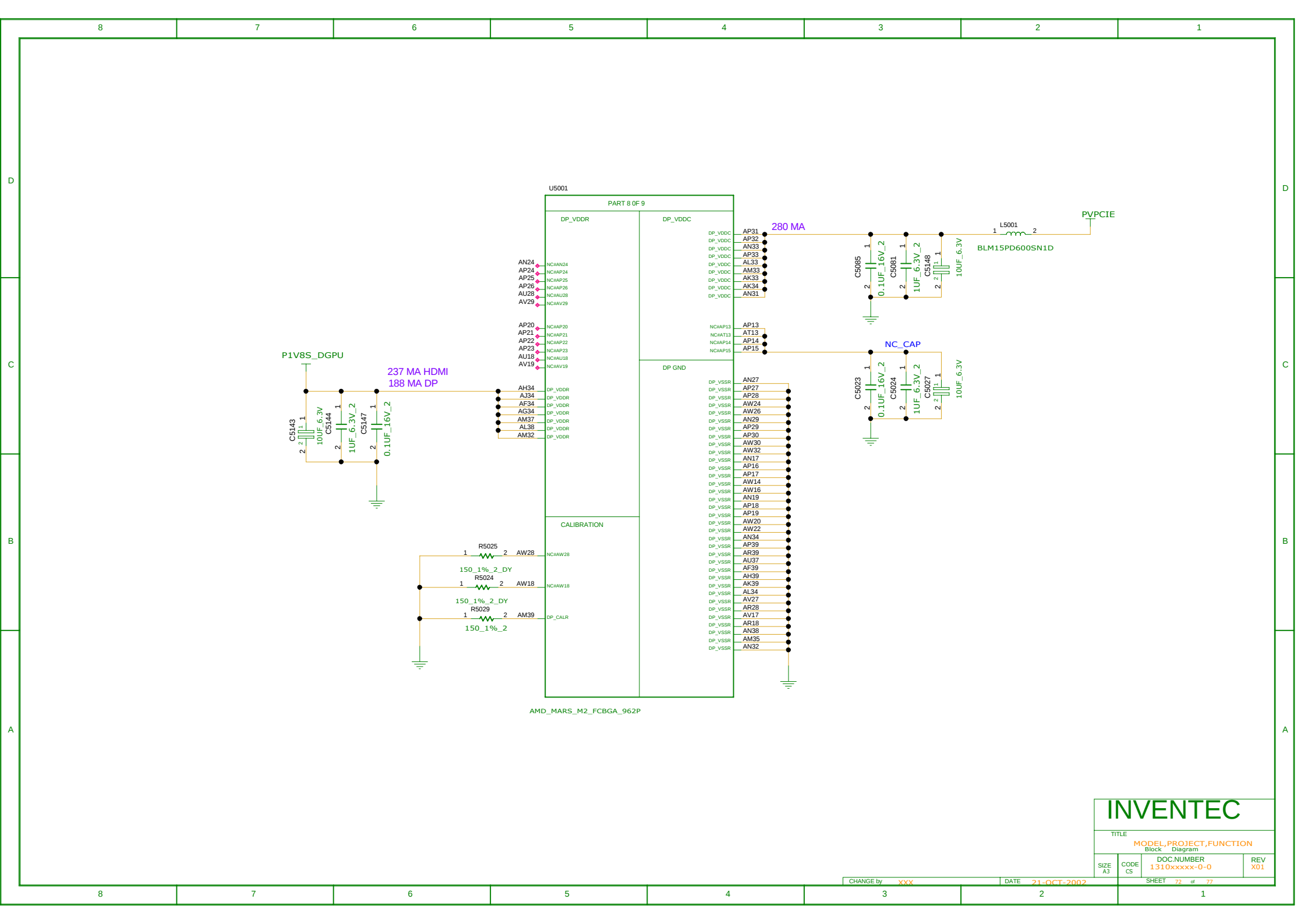
INVENTEC

TITLE			
MODEL,PROJECT,FUNCTION			
Block Diagram			
SIZE	CODE	DOC NUMBER	REV
C	CS	13101000000-0-0	201
SHEET		36	of 37

CHANGE BY: VXX DATE: 21-JUL-2002



INVENTEC			
TITLE			
MODEL,PROJECT,FUNCTION			
Block Diagram			
SIZE	CODE	DOC NUMBER	REV
A3	CS	1310xxxxx-0-0	X01
SHEET 71 of 77			

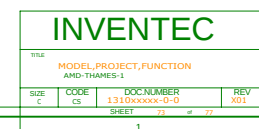


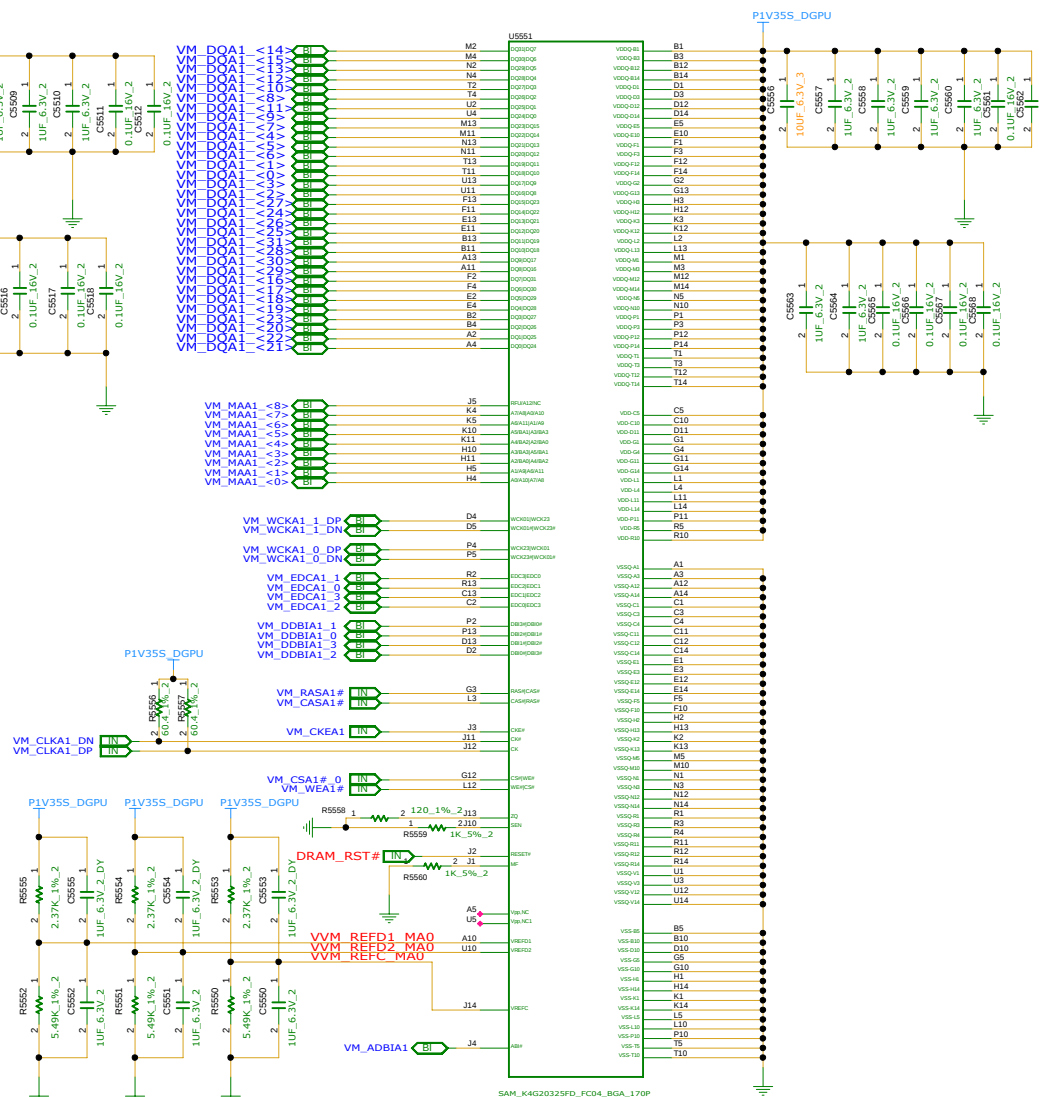
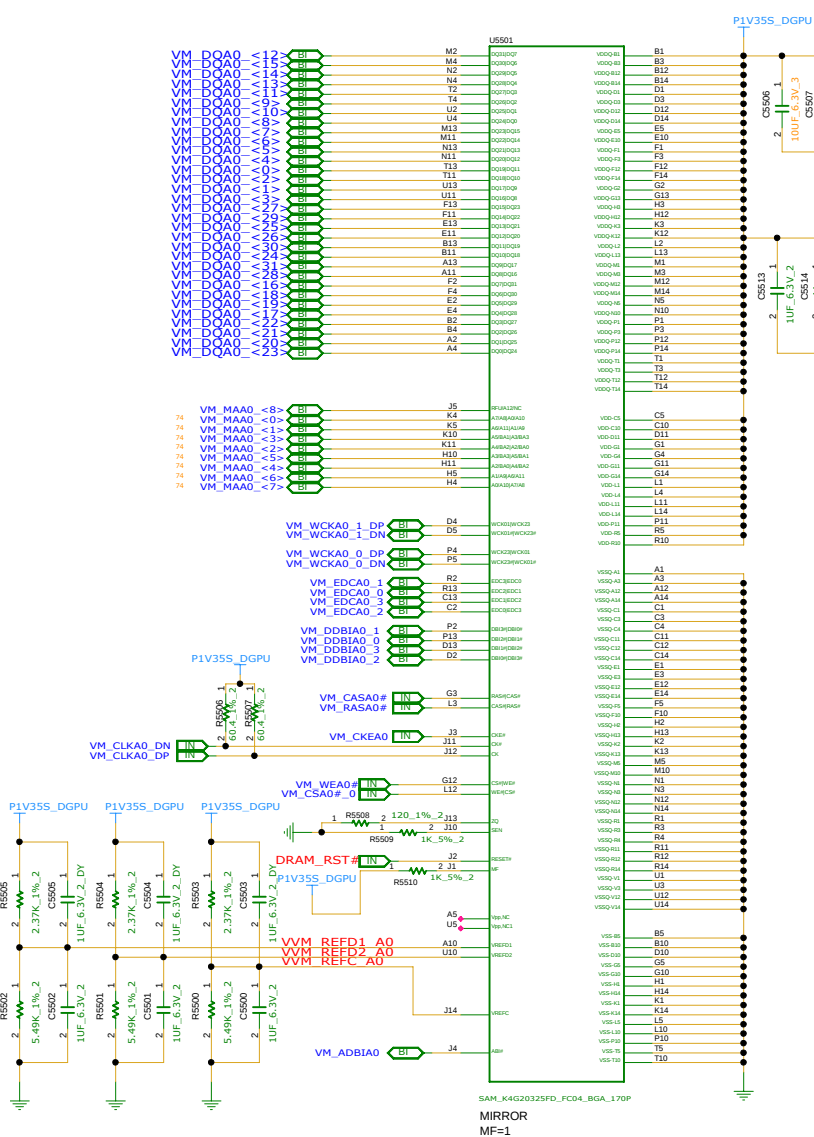
INVENTEC

TITLE
MODEL, PROJECT, FUNCTION
Block Diagram

SIZE A3 CODE CS DOC NUMBER 1310xxxxx-0-0 REV X01

CHANGE by XXX DATE 21-OCT-2002 SHEET 72 of 77



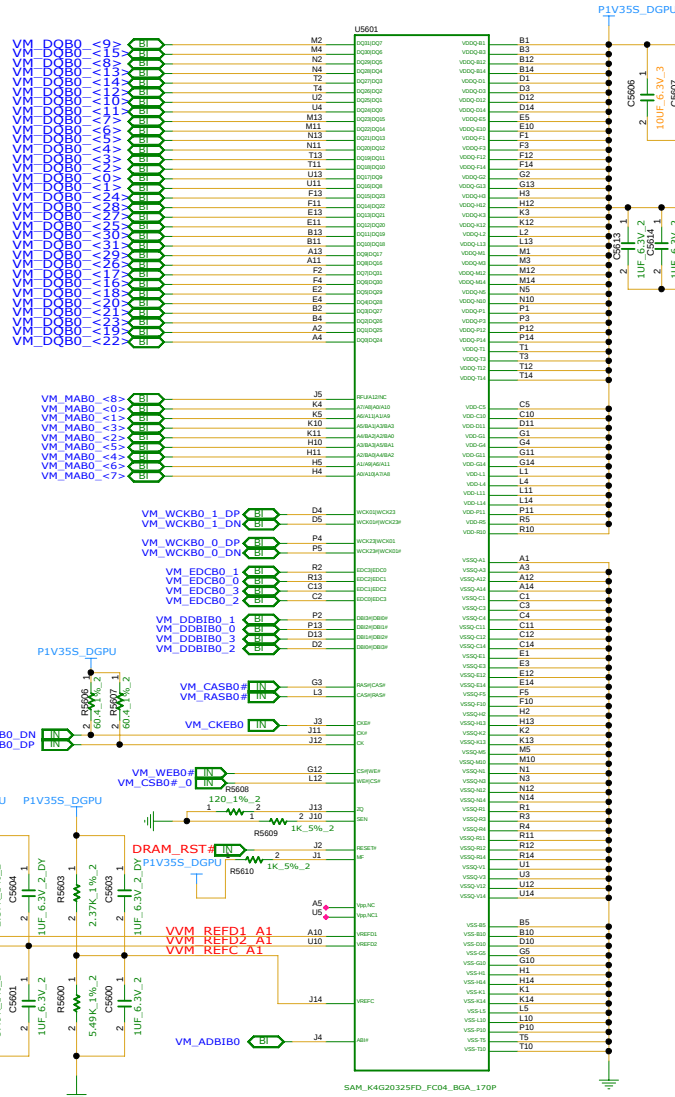


SAM_K4G20325FD_FC04_BGA_170P

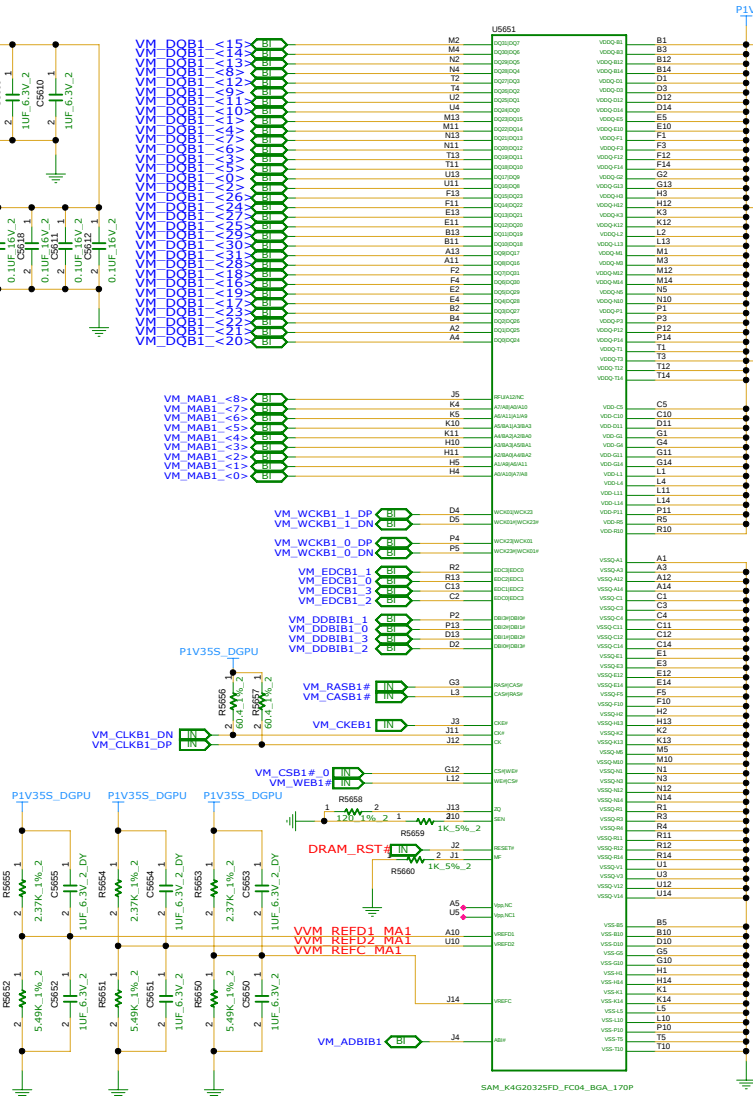
MIRROR
MF=1

INVENTEC

TITLE			
MODEL,PROJECT,FUNCTION VRAM-1			
SIZE C	CODE CS	DOC NUMBER 1310xxxxx-0-0	REV X01
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MIRROR
MF=1



INVENTEC

TITLE			
MODEL,PROJECT,FUNCTION			
VRAM-2			
SIZE	CODE	DOC NUMBER	REV
C	CS	1310VAXXXX-0-0	201
SHEET 27 of 27			