

Ellsworth
Arroyo3 PVT Schematics

PCB Version : 6050A2516401 XTAL LIST

Table with 2 columns: CONTENTS, SHEET. Rows include: 01 : TABLE OF CONTENTS, 02 : SYSTEM BLOCK DIAGRAM, 03 : CLK/SMBUS/RESET MAP, 04 : AMD FT1 (1/2), 05 : AMD FT1 (2/2), 06 : DDR3 SODIMM A-1 CHANNEL, 07 : DDR3 SODIMM A-2 CHANNEL, 08 : SCALAR ANX3110, 09 : AMD HUDSON D3L (1/4), 10 : AMD HUDSON D3L (2/4), 11 : AMD HUDSON D3L (3/4), 12 : AMD HUDSON D3L (4/4), 13 : AUDIO ALC269-VC, 14 : LAN RTL8175E-CG/LED, 15 : CR/HDD/ODD/WEBCAM/D-MIC, 16 : USB/MINI PCI-E/FAN, 17 : USB3.0 CONN, 18 : EC IT8519E, 19 : DEBUG CIRCUIT, 20 : SYSTEM +3V/+5V, 21 : +VDDIO\_MEM/MEM\_VTT/DC-IN, 22 : +1.8V/+12V/+1.2V/+1.1V/DIS, 23 : +1.1V\_S3/+1.05V, 24 : VDDCR\_CPU/VDDCR\_NB, 25 : STACK UP 6L, 26 : SCREW HOLE/SILK SCREEN, 27 : Power Sequence Diagram, 28 : POWER SEQUENCE, 29 : GPIO TABLE, 30 : HISTORY

Table with 6 columns: PARTS, DIP/SMT, Frequency, PPM, CL. Rows include: 1 X2 SMT 25MHz ±20 12pF/15pF, 2 X3 SMT NC/25MHz ±20 10pF/10pF, 3 X4 SMT 32.768KHz ±20 10pF/10pF, 4 X5 SMT 25MHz ±20 12pF/12pF, 5 X6 SMT NC/32.768KHz ±20 12pF/12pF

USB LIST

Table with 3 columns: PORT, NET NAME, FUNCTION. Rows include: USB\_HSD0P/N, USB0\_DEBUG\_P/N, REAR IO; USB\_HSD1P/N, USB1P/N, REAR IO; USB\_HSD2P/N, USB2P/N, REAR IO; USB\_HSD3P/N, USB3P/N, REAR IO; USB\_HSD5P/N, USB5\_WLAN\_P/N, WLAN/BT; USB\_HSD8P/N, USB8\_WEBCAM\_P/N, WEBCAM; USB\_SS\_TX0P/N, USB3.0\_TX0P/N, SIDE IO; USB\_SS\_TX1P/N, USB3.0\_TX1P/N, SIDE IO

SATA LIST

Table with 3 columns: PORT, NET NAME, FUNCTION. Rows include: SATA\_TX0P/N, SATA0\_TXP/N, SATA HDD; SATA\_RX0P/N, SATA0\_RXP/N, SATA HDD; SATA\_TX1P/N, SATA1\_TXP/N, SATA ODD; SATA\_RX1P/N, SATA1\_RXP/N, SATA ODD

PCI-E LIST

Table with 3 columns: PORT, NET NAME, FUNCTION. Rows include: GPP\_TX3P/N, PCIE\_WLAN\_TXP/N, WIRELESS LAN; GPP\_RX3P/N, PCIE\_WLAN\_RXP/N, WIRELESS LAN; GPP\_TX1P/N, PCIE\_LAN\_TXP/N, LAN; GPP\_RX1P/N, PCIE\_LAN\_RXP/N, LAN; GPP\_TX2P/N, PCIE\_CARD\_TXP/N, CARDREADER; GPP\_RX2P/N, PCIE\_CARD\_RXP/N, CARDREADER

POWER STATES

Table with 8 columns: STATE, SIGNAL, VOTAGE, S0, S3, S5, S5 WARM, G3, REMARK. Rows include: FCH\_SLP\_S3#, FCH\_SLP\_S5#, S5\_PWR\_ON, +VBAT\_IN, +VIN, +3V\_ALW/+5V\_ALW, +3V\_S5, +1.1V\_S5, +5V\_S3, +3V\_S3, +VDDIO\_MEM, +1.1V\_S3, +MEM\_VTT, +3V\_S0/+5V\_S0, +1.8V\_S0, +12V\_S0, +1.1V\_S0, +1.5V\_S0, +1.2V\_S0, +1.05V\_S0, +VDDCR\_CPU, +VDDCR\_NB

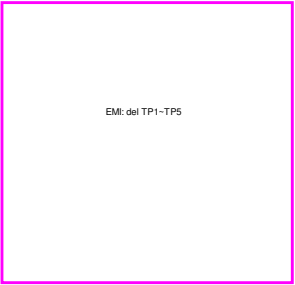
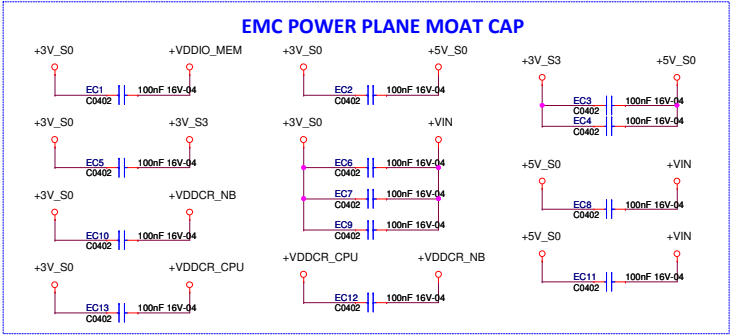
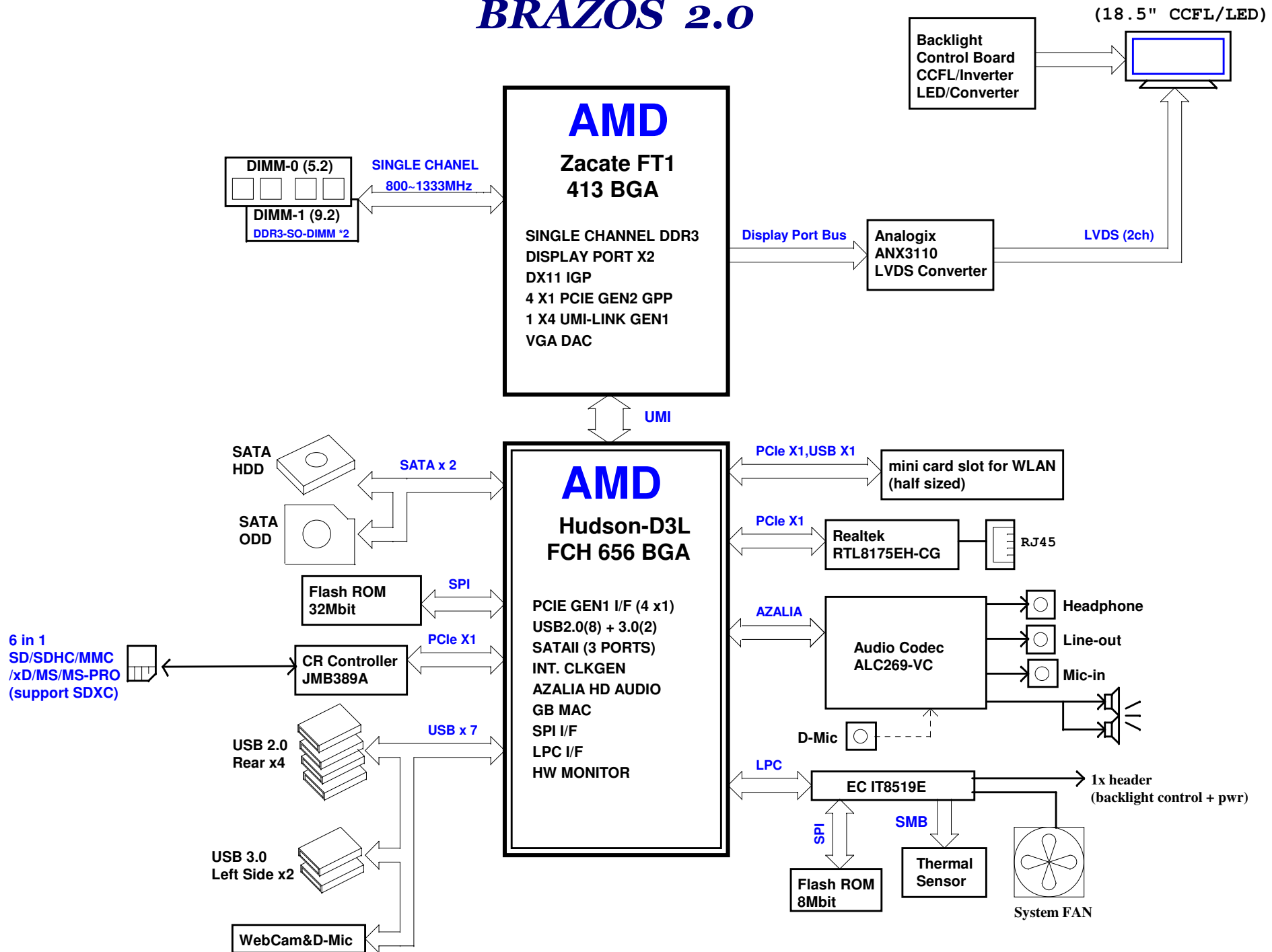


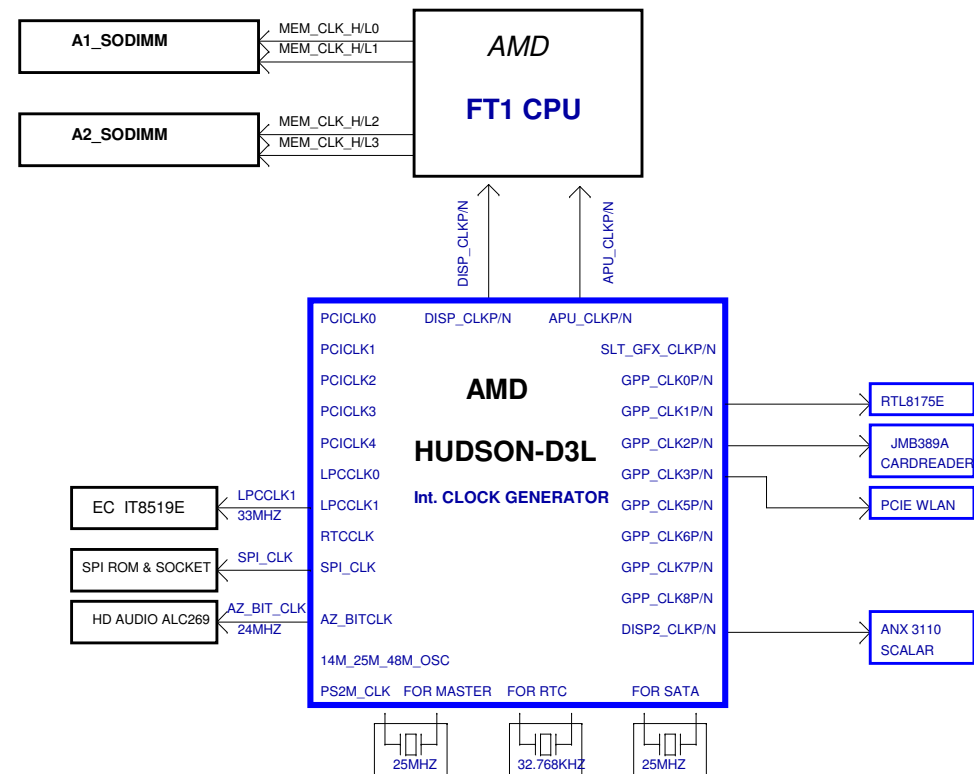
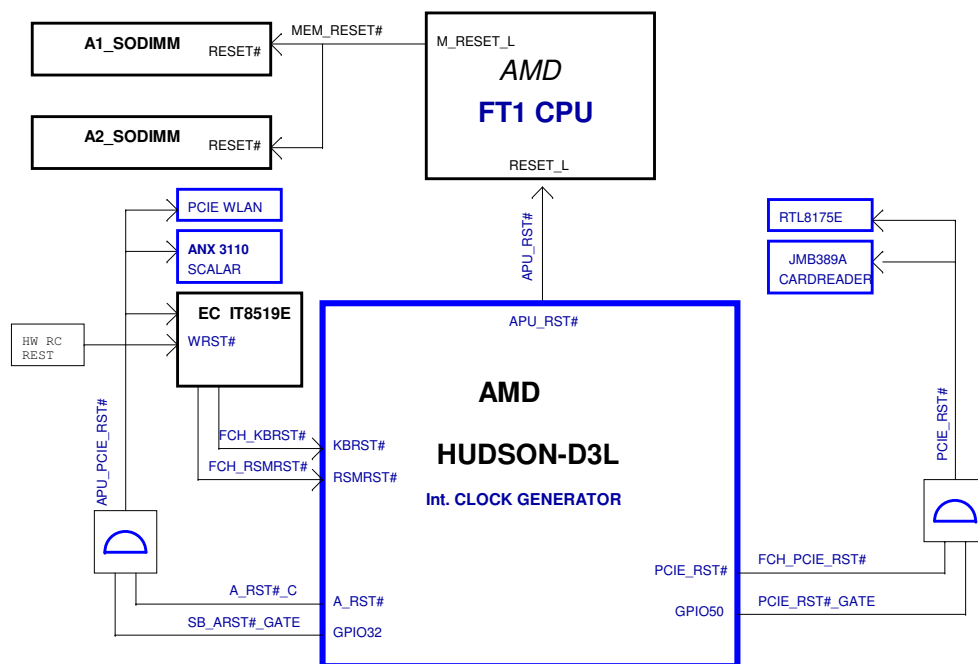
Table with 4 columns: TPV (Top Victory Electronics Co., Ltd.), OEM MODEL, HP Arroyo3, Size C. Rows include: Key Component, TABLE OF CONTENTS, Date, Tuesday, May 22, 2012, Sheet, 1 of 25, Rev, A01, 備註 <備註>

# BRAZOS 2.0

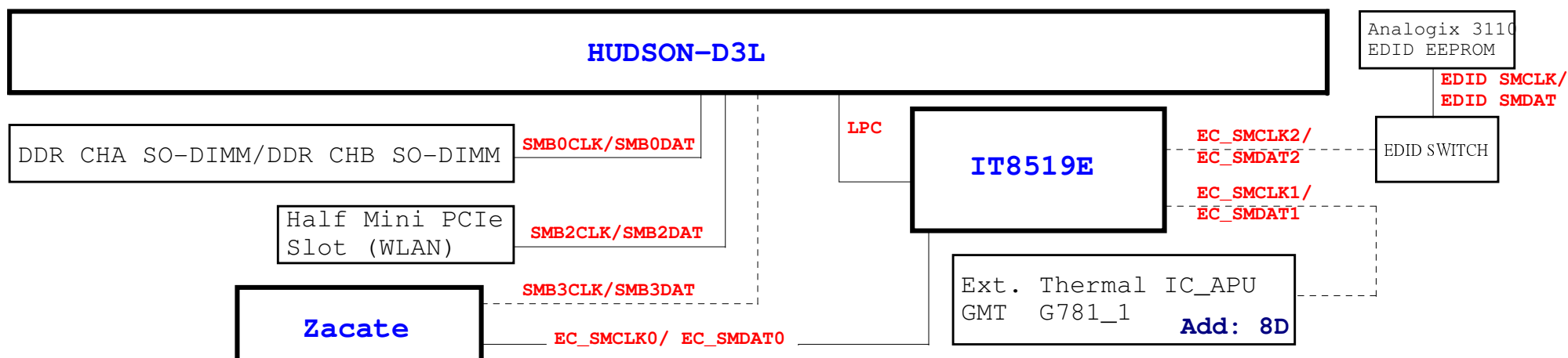


TPV (Top Victory Electronics Co., Ltd.)	OEM MODEL	HP_ArroyoS3	Size	C
Key Component	TPV MODEL	ArroyoS3	Rev	A01
TABLE OF CONTENTS	PCB NAME	6050A2516401	Sheet	2 of 25
Date	Tuesday, May 22, 2012			備註 <備註>

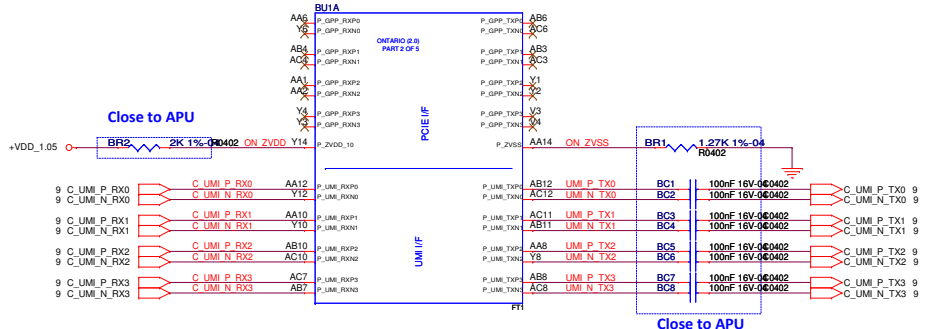
## INTERNAL CLOCK MODE



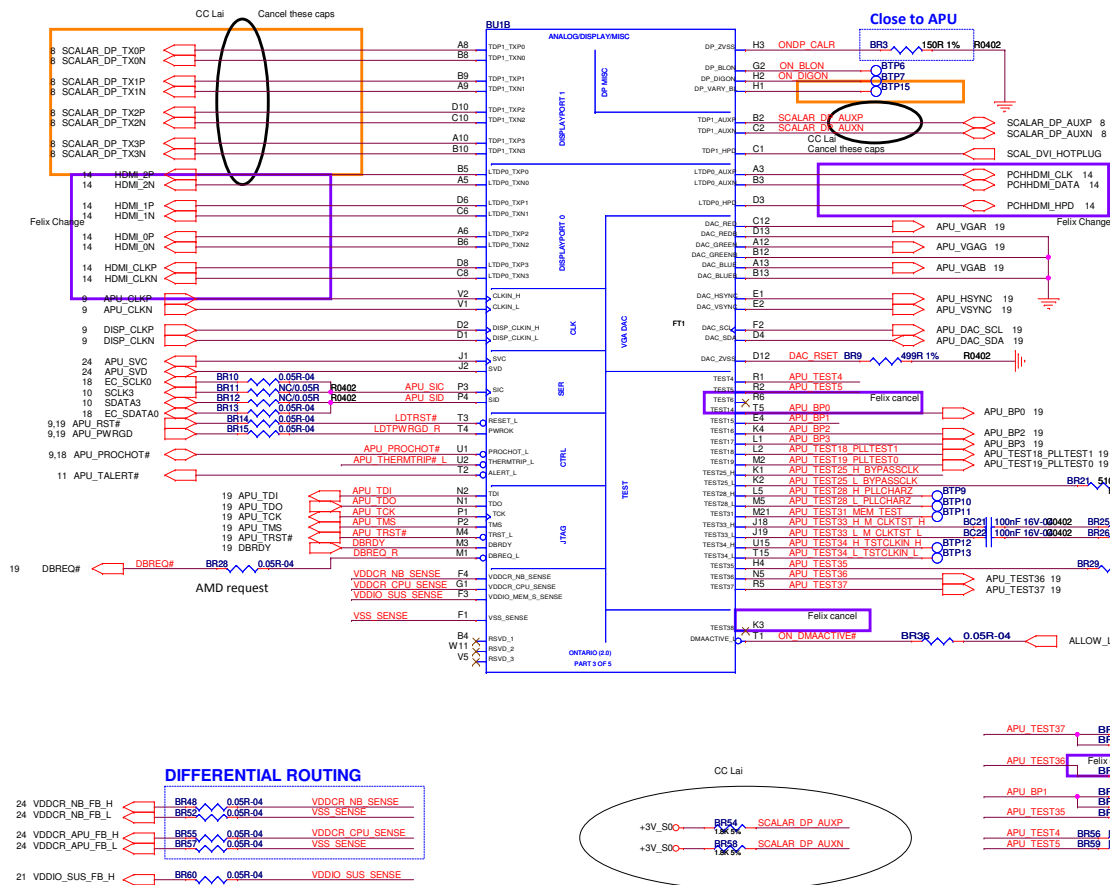
## SM Bus MAP



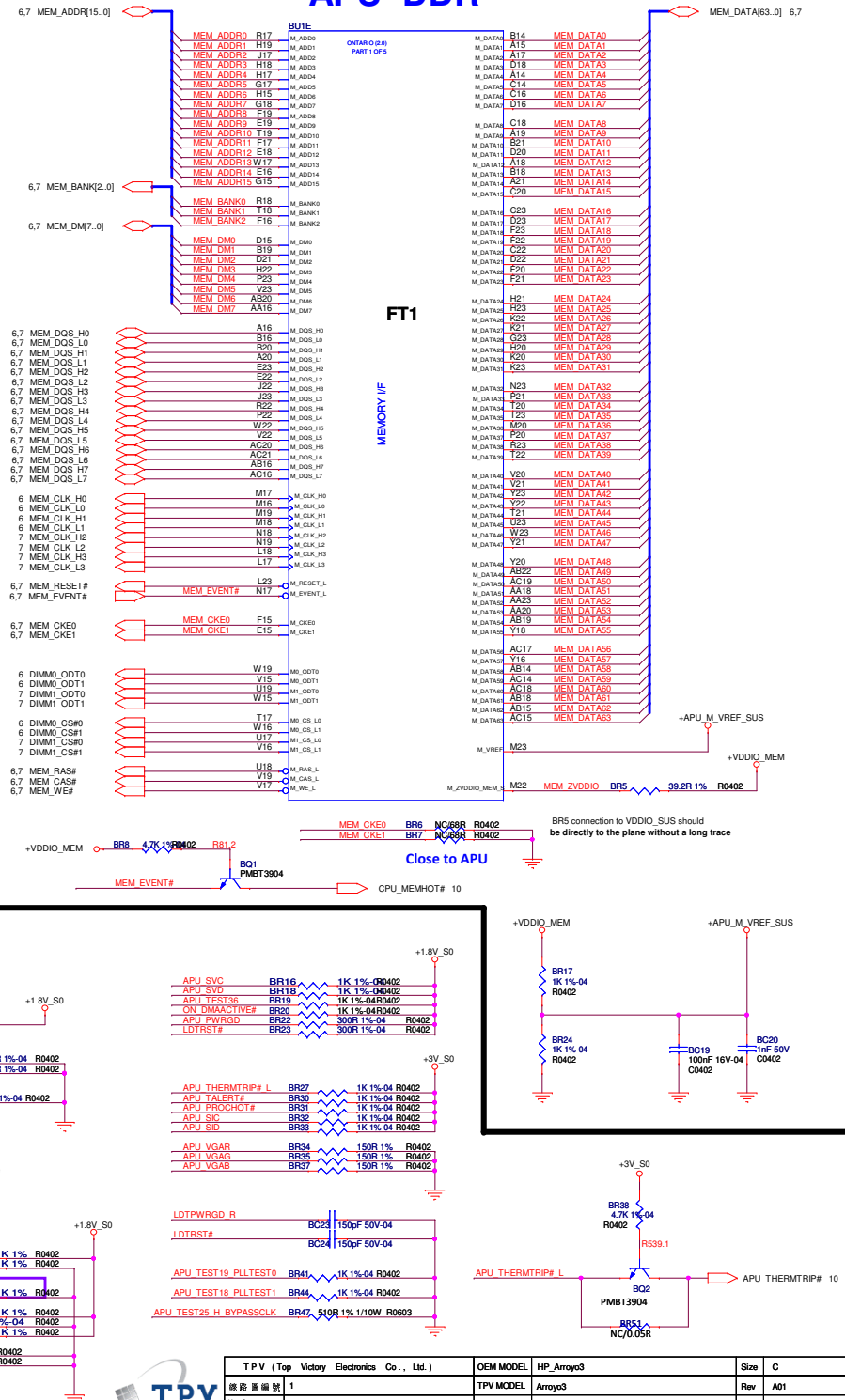
# UMI / PCIE



# DP / VGA / CLK / CTRL / SENSE

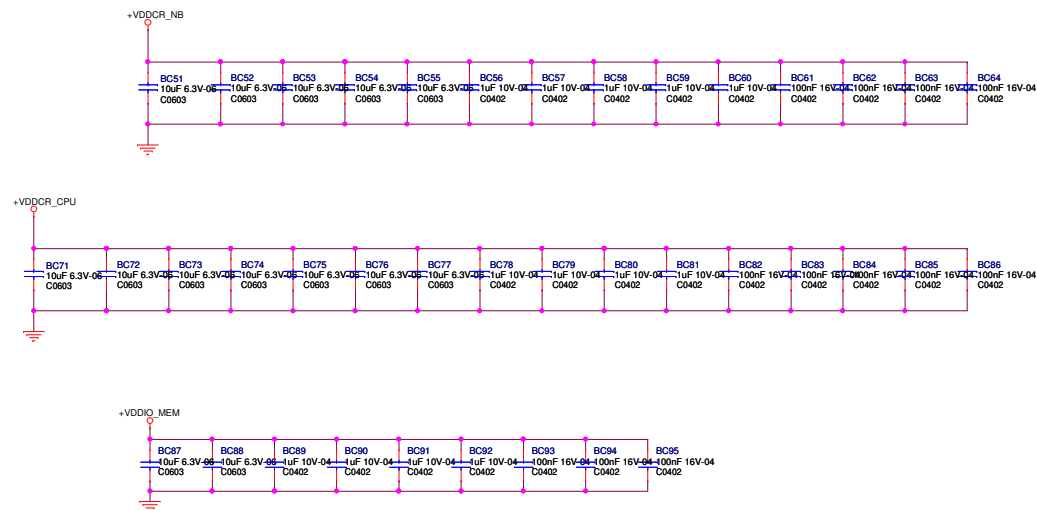
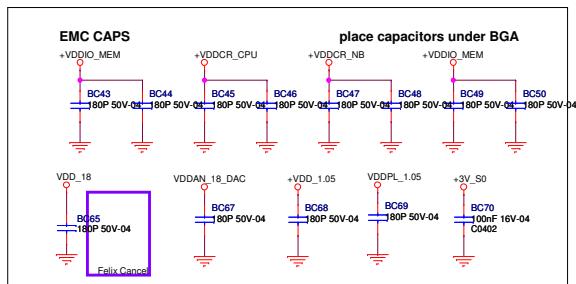
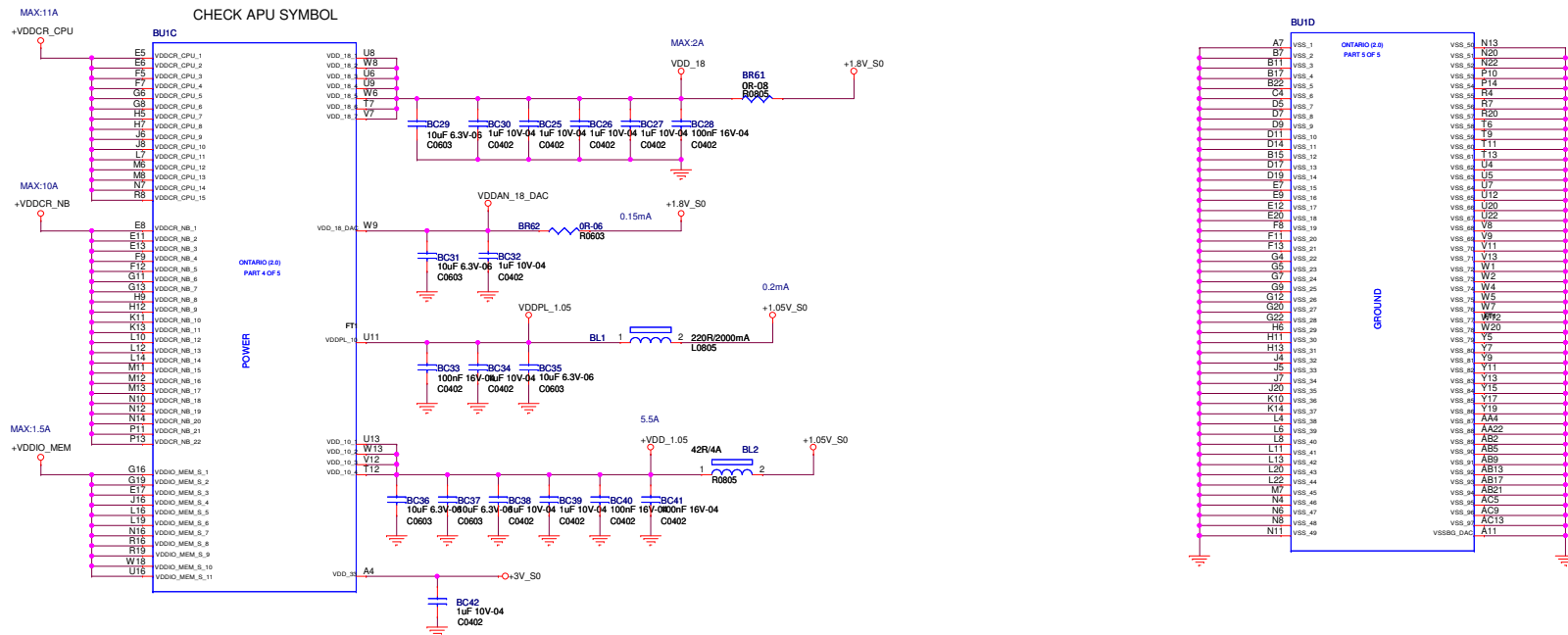


# APU DDR



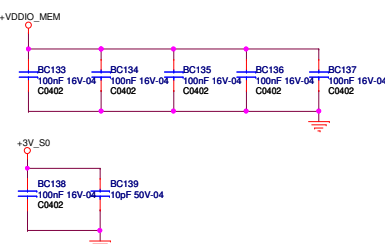
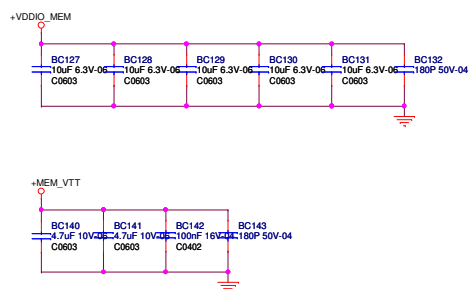
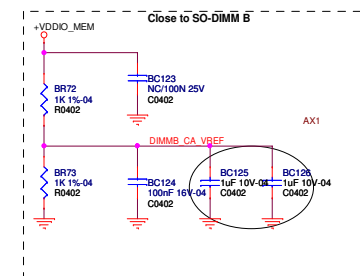
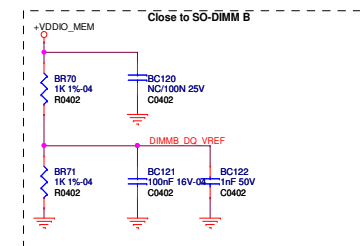
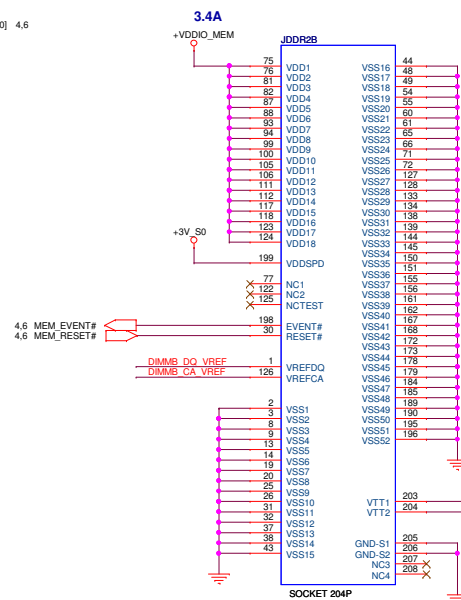
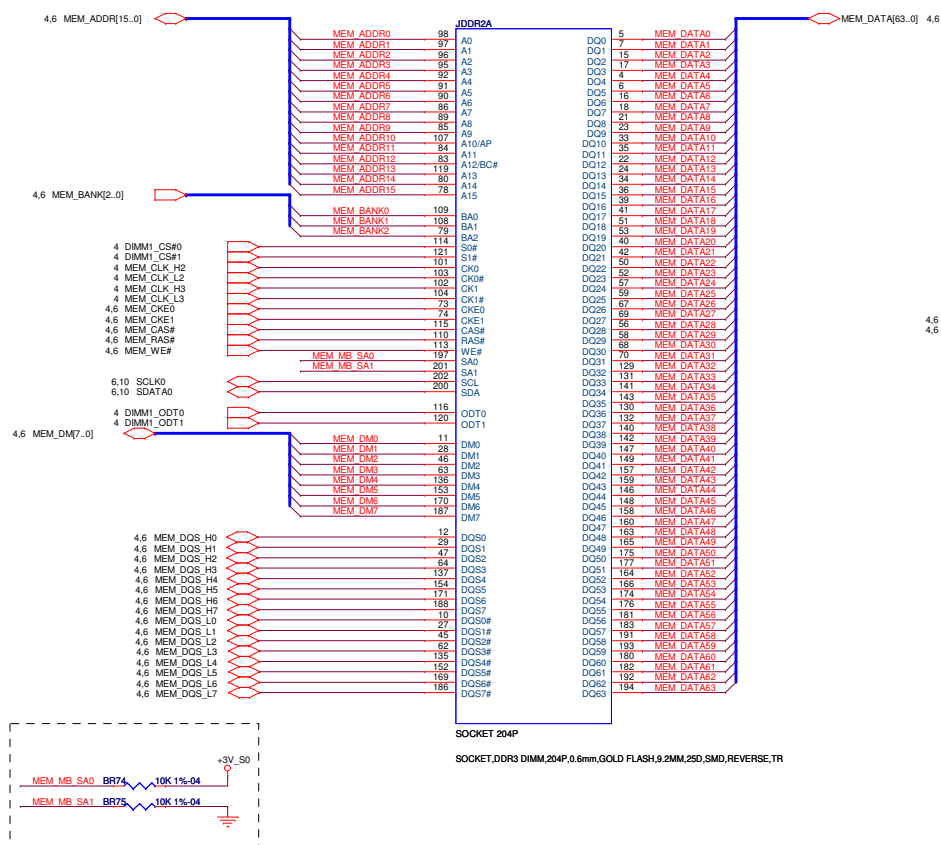
TPV (Top Victory Electronics Co., Ltd.)	OEM MODEL	HP_Arroyo3	Size	C
TPV MODEL	Arroyo3		Rev	A01
PCB NAME	6050A2516401		Sheet	4 of 25
Date	Tuesday, May 22, 2012			

## CPU POWER / GND





## CHB DDR 9.2H(DIMM-1)



TPV (Top Victory Electronics Co., Ltd.)		OEM MODEL	HP_Arroyo3	Size	C
線路圖編號 1		TPV MODEL	Arroyo3	Rev	A01
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Date	Tuesday, May 22, 2012	Sheet	7 of 25		



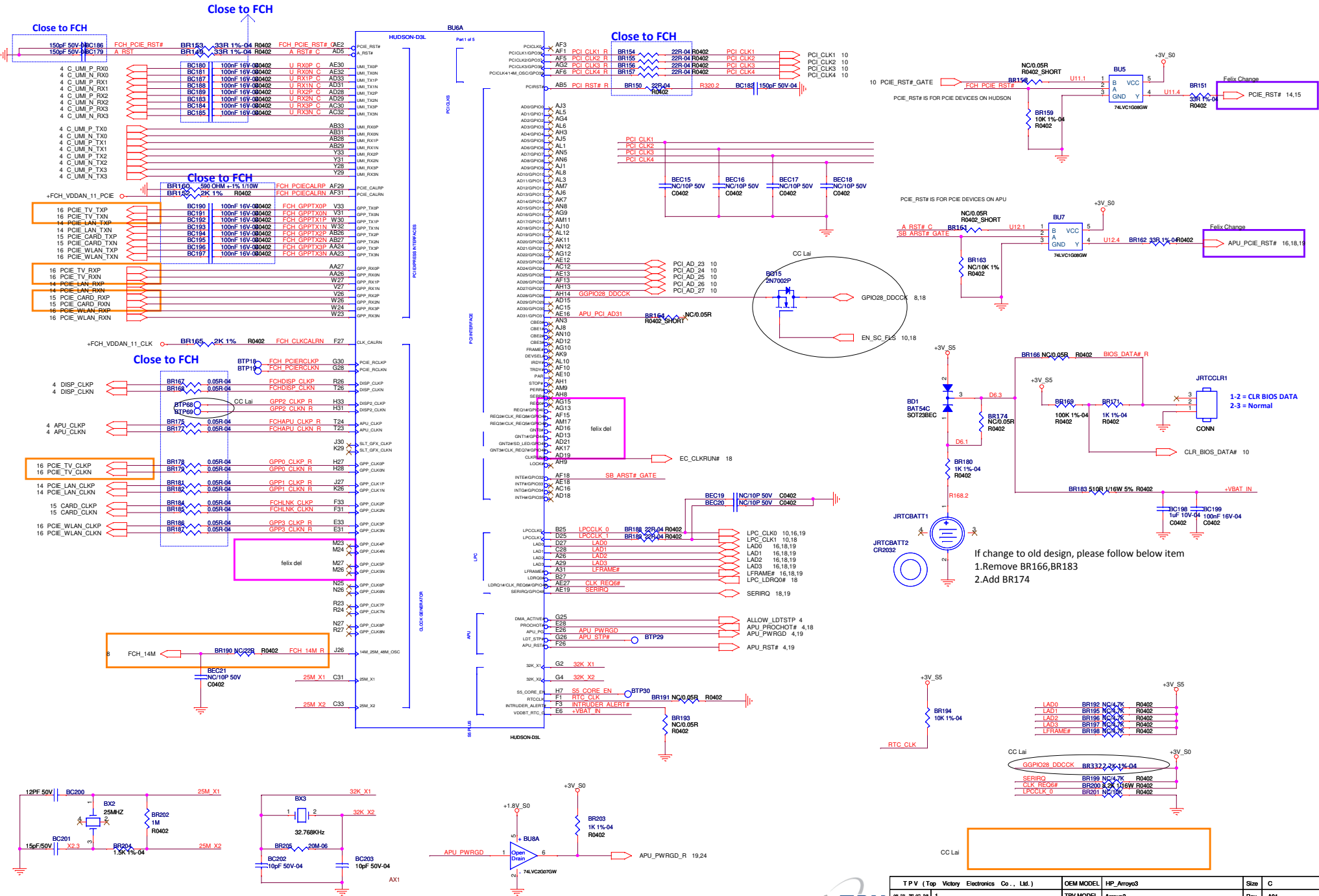
For SCALAR Panel ID



T P V ( Top Victory Electronics Co., Ltd. )		OEM MODEL	HP_Array3	Size	C
線路圖編號	1	TPV MODEL	Array3	Rev	A01
Key Component	TABLE OF CONTENTS	PCB Name	6050A2516401	備註	<備註>
Date	Tuesday, May 22, 2012	Sheet	8 of 25		

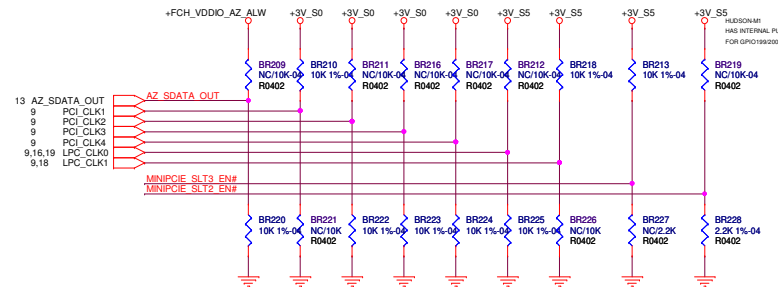


**UMI / PCIE / CLK / PCI I/F / LPC /RTC**

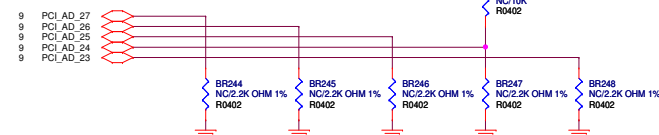


TPV (Top Victory Electronics Co., Ltd.)		OEM MODEL	HP_Arroyo3	Size	C
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Key Component	TABLE OF CONTENTS	PCB NAME	6050A2516401	備註	<備註>
Date	Tuesday, May 22, 2018	Sheet	8 of 26		

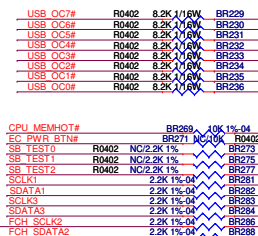
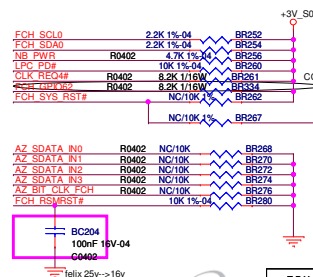
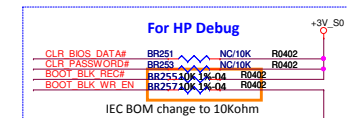
## STRAP PINS



## DEBUG STRAPS



	PCI_AD27	PCI_AD26	PCI_AD25	PCI_AD24	PCI_AD23
PULL "HIGH"	USE PCI PLL DEFAULT	DISABLE I/A AUTORUN DEFAULT	USE PCI PLL DEFAULT	USE DEFAULT PCI STRAPS DEFAULT	DISABLE PCI MEMO BOOT DEFAULT
PULL "LOW"	BYPASS PCI PLL	ENABLE I/A AUTORUN	BYPASS PCI PLL	USE EEPROM PCI STRAPS	ENABLE PCI MEMO BOOT

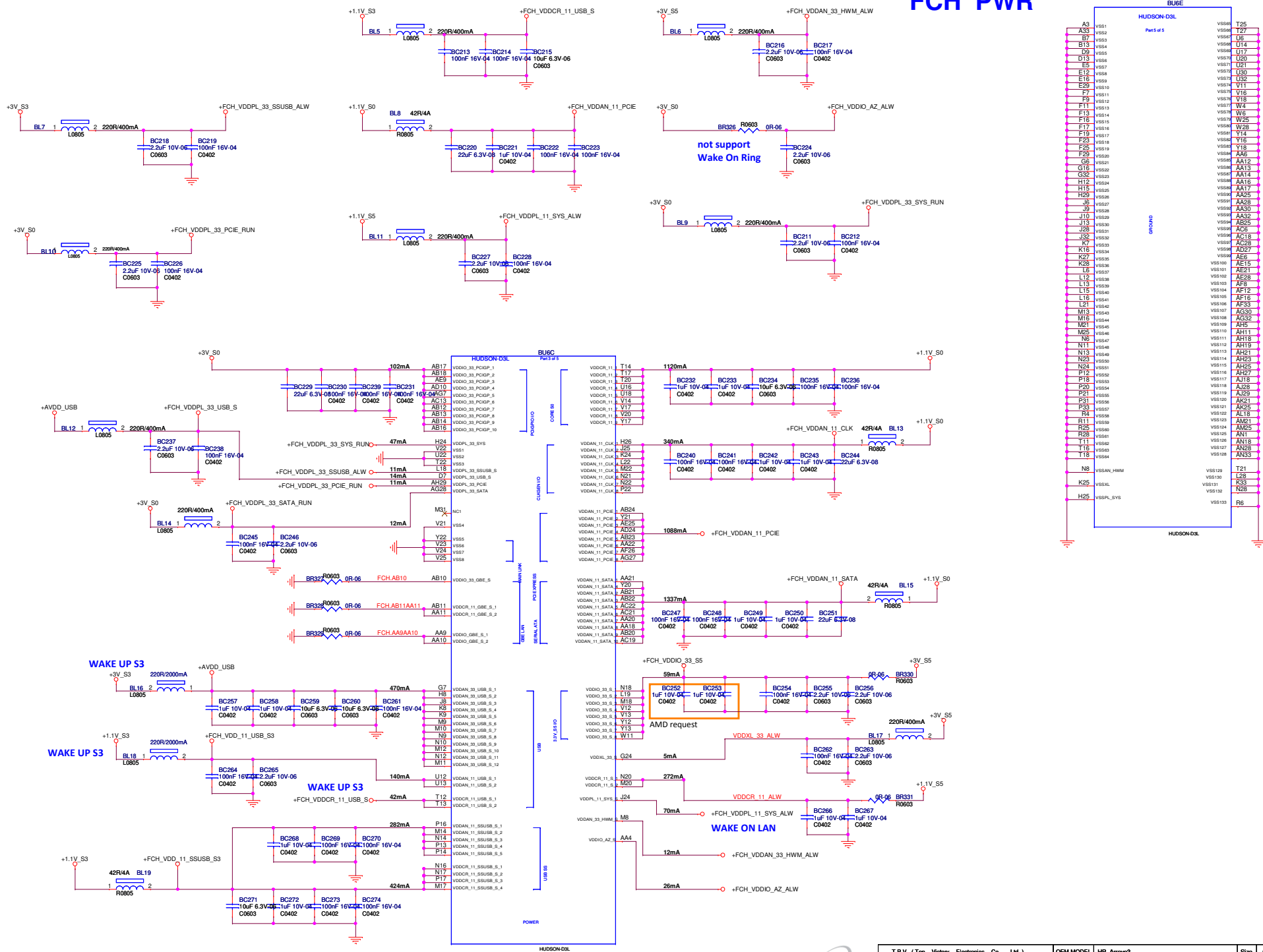


remove R158,R213,R154,Q9,Q12,add R159 R176 for SCLK0 undershoot issue.

TPV (Top Victory Electronics Co., Ltd.)		OEM MODEL	HP_Arroyo3	Size	C
維修圖編號	1	TPV MODEL	Arroyo3	Rev	A01
Key Component	TABLE OF CONTENTS	PCB NAME	6050A2516401	備註	<備註>
Date	Tuesday, May 22, 2012	Sheet	10 of 25		

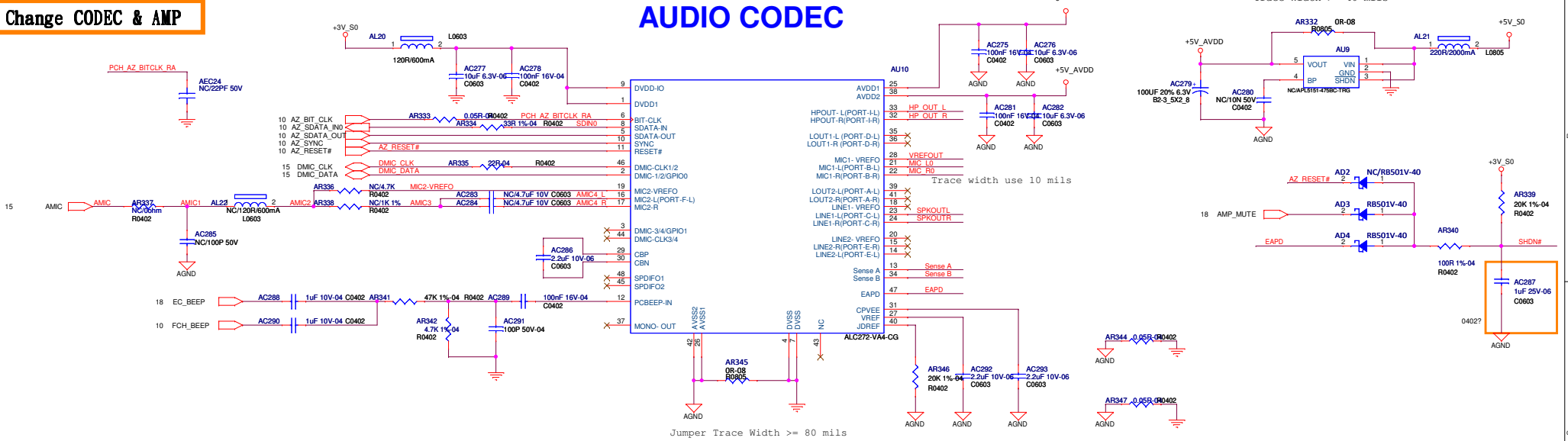


## FCH PWR

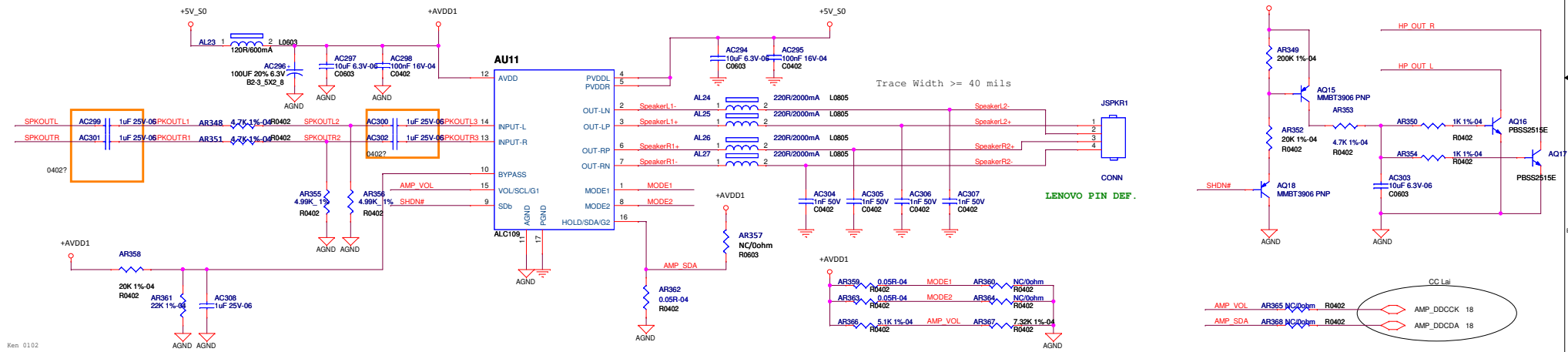


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Key Component	TABLE OF CONTENTS	PCB NAME	6050A2516401	備註 <機路圖>	
Date	Tuesday May 22 2012	Sheet	12 of 25		

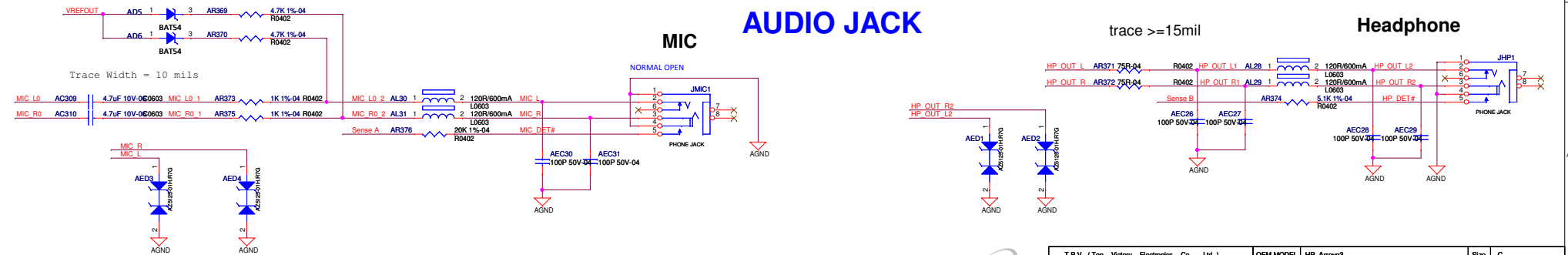
## Change CODEC & AMP



# AUDIO AMP



## AUDIO JACK

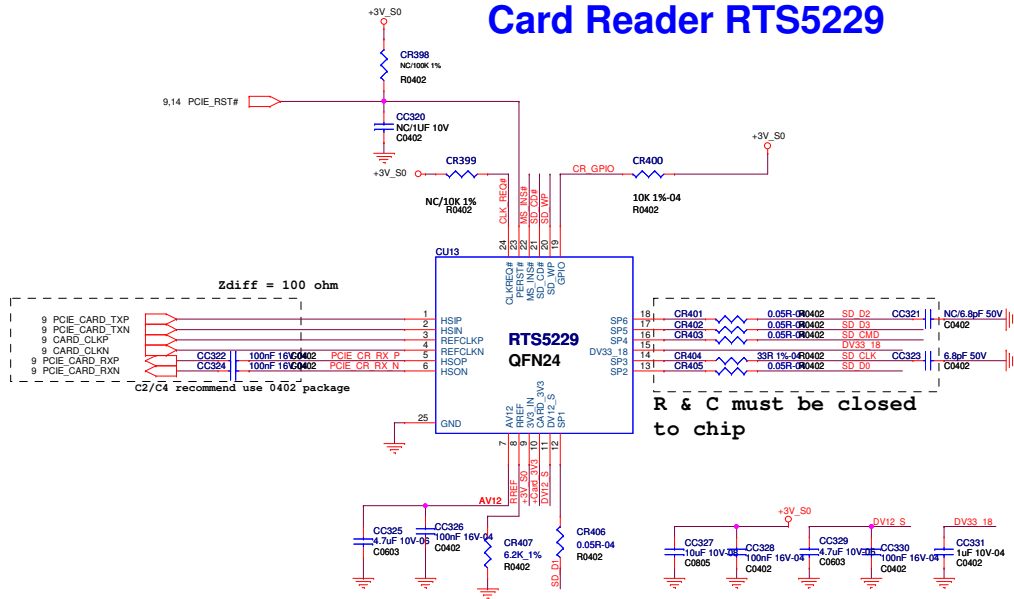


TPV (Top Victory Electronics Co., Ltd.)	OEM MODEL	HP_Array03	Size	C
條路圖編號 1	TPV MODEL	Arroy03	Rev	A01
Key Component	TABLE OF CONTENTS	POB Name	6050A2516401	
Date	Tuesday, May 22, 2012	Sheet	13 of 25	
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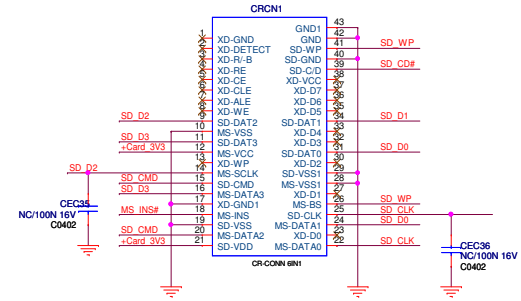
## DEL CR CKT

## Card Reader RTS5229

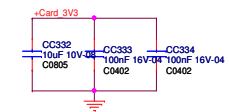


SP1	SD D1
SP2	SD D0
SP3	SD CLK
SP4	SD CMD
SP5	SD D3
SP6	SD D2
SP7	SD WP

SHARE PIN

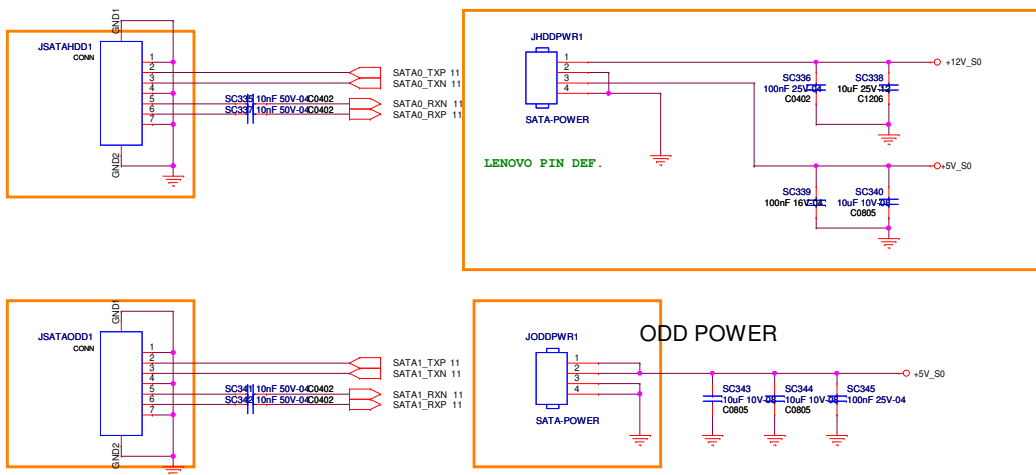


Silk Print-CARDREADER

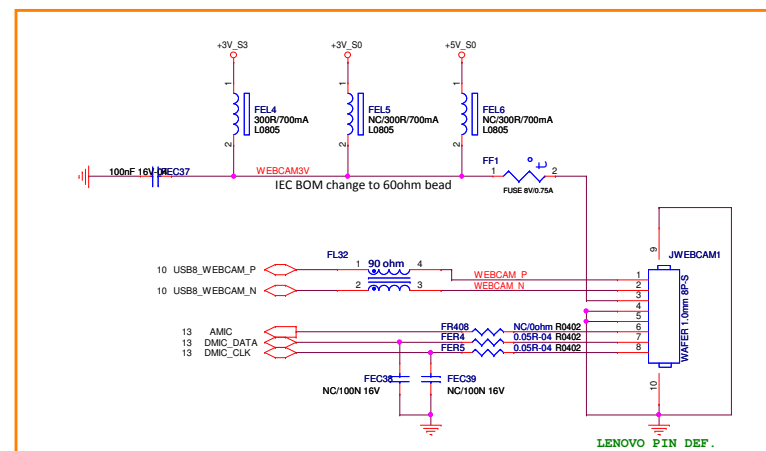


## HDD/ODD

## HDD POWER (3.5")



## WEB CAM / D-MIC



Silk Print-WEBCAM

TPV (Top Victory Electronics Co., Ltd.)	OEM MODEL	HP_Array03	Size	C
條路圖編號 1	TPV MODEL	Arroy03	Rev	A01
Key Component	TABLE OF CONTENTS	POB Name	6050A2516401	
Date	Tuesday, May 22, 2012	Sheet	15 of 25	備註 <備註>





# USB 3.0 (Side IO)

The diagrams illustrate the USB 3.0 Side IO circuitry, including power regulation, signal conditioning, and connector layouts for two different board configurations.

**Power Regulation:** The power is regulated from +5V\_S3 to +USB\_PWR\_2 and +USB\_PWR\_3 using a 1.5A LDO (U14, U15) and a 1.5A LDO (U16, U17). The output is connected to the USB connector (J1, J2) via a 1.5A LDO (U14, U15).

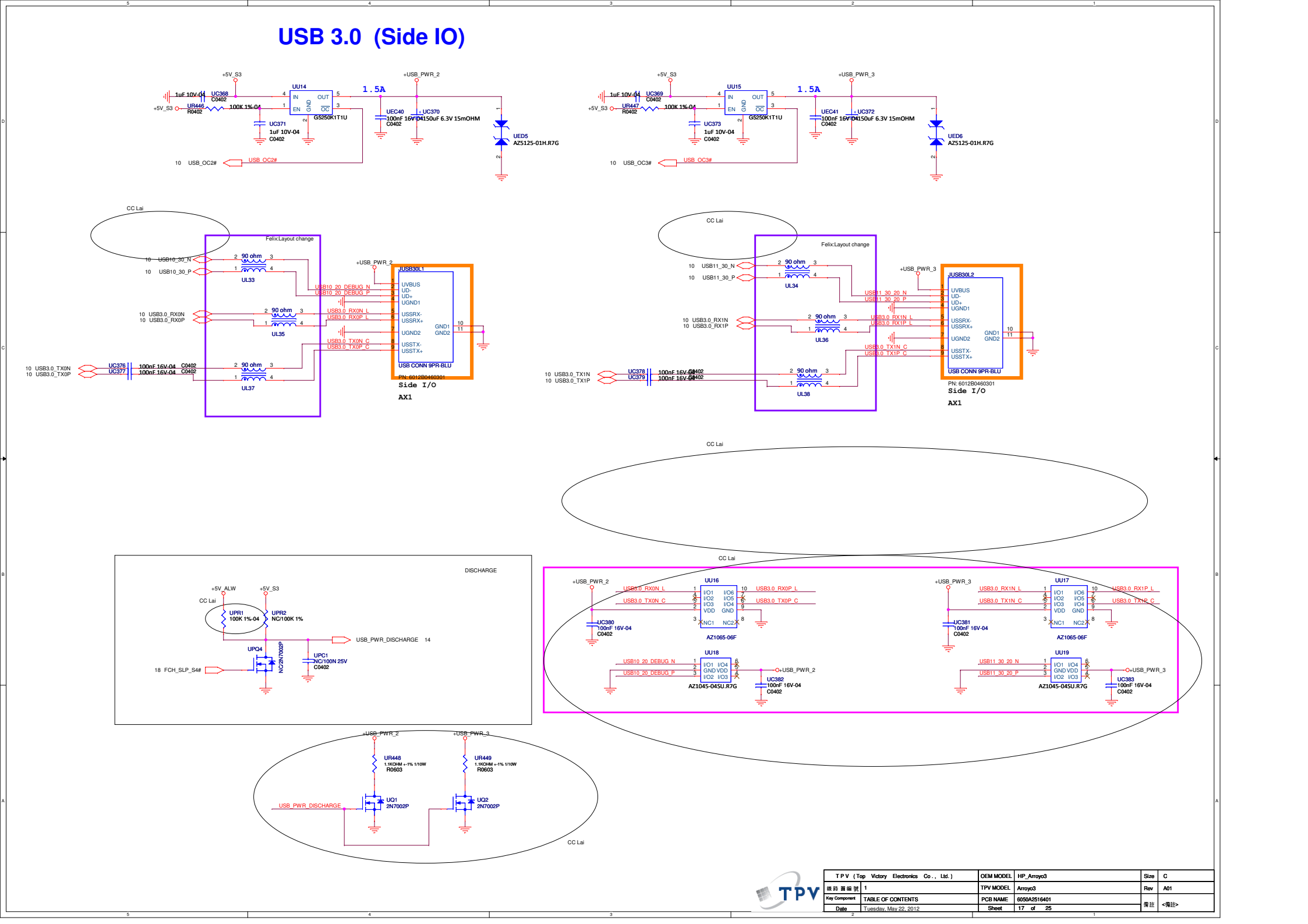
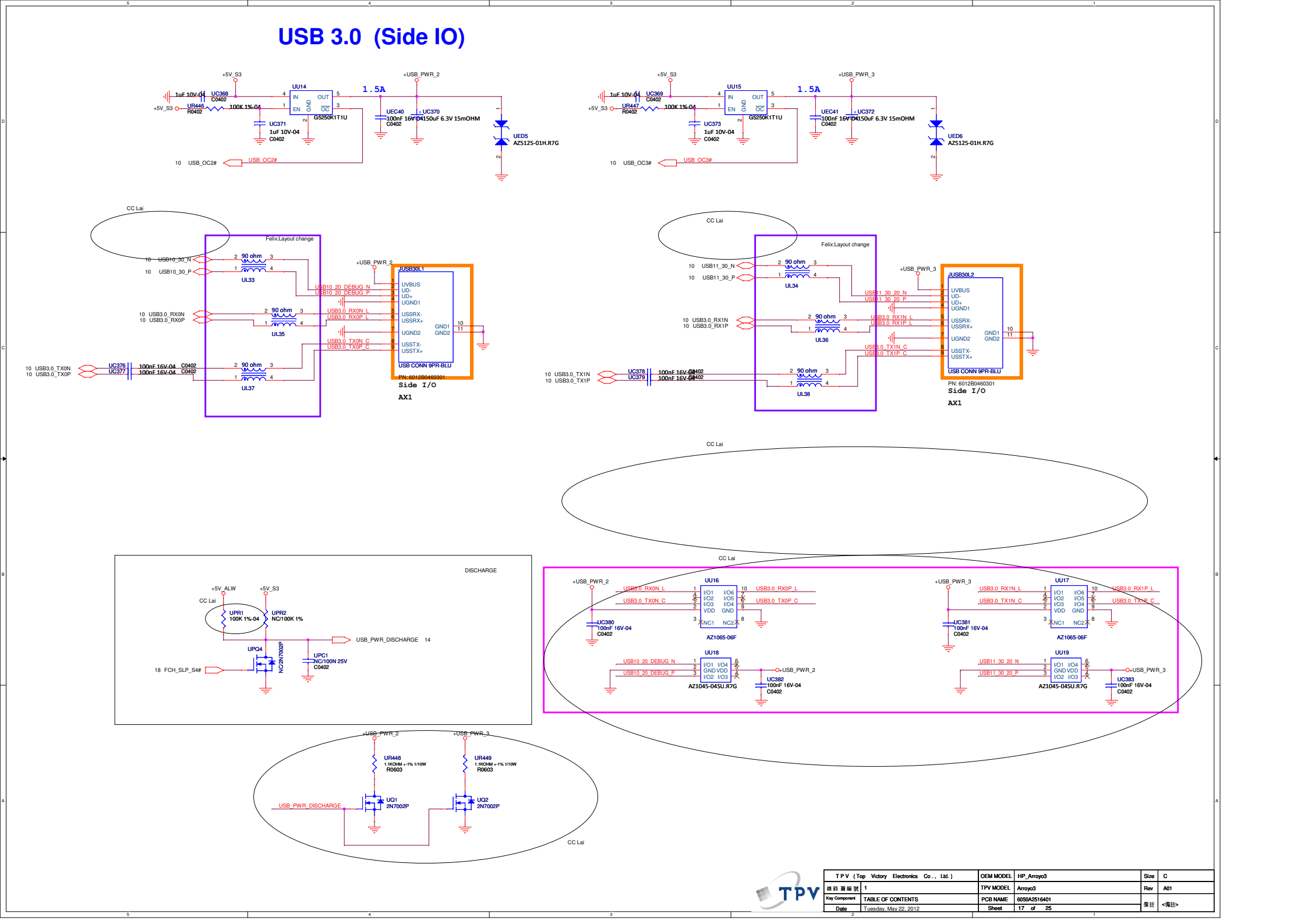
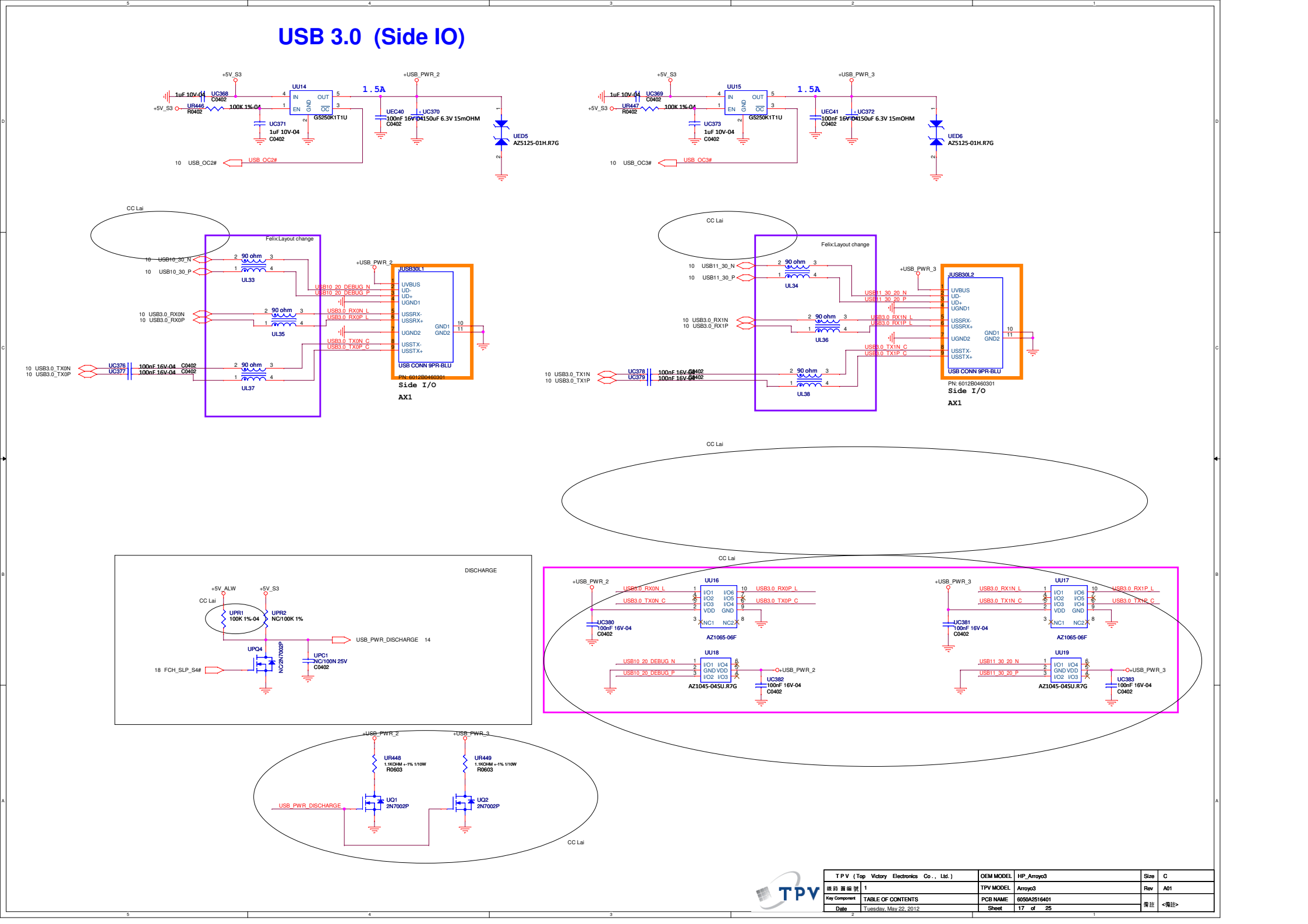
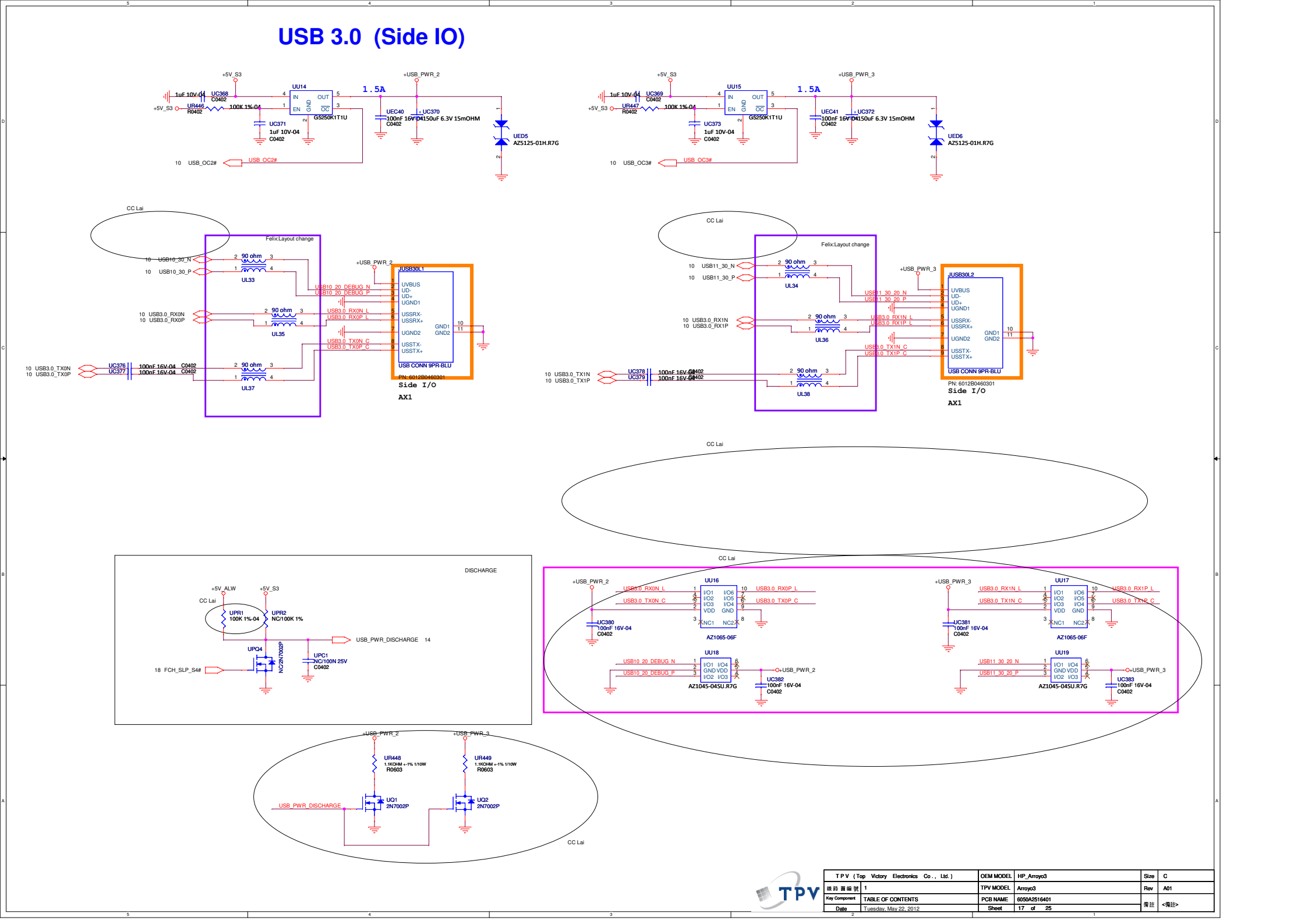
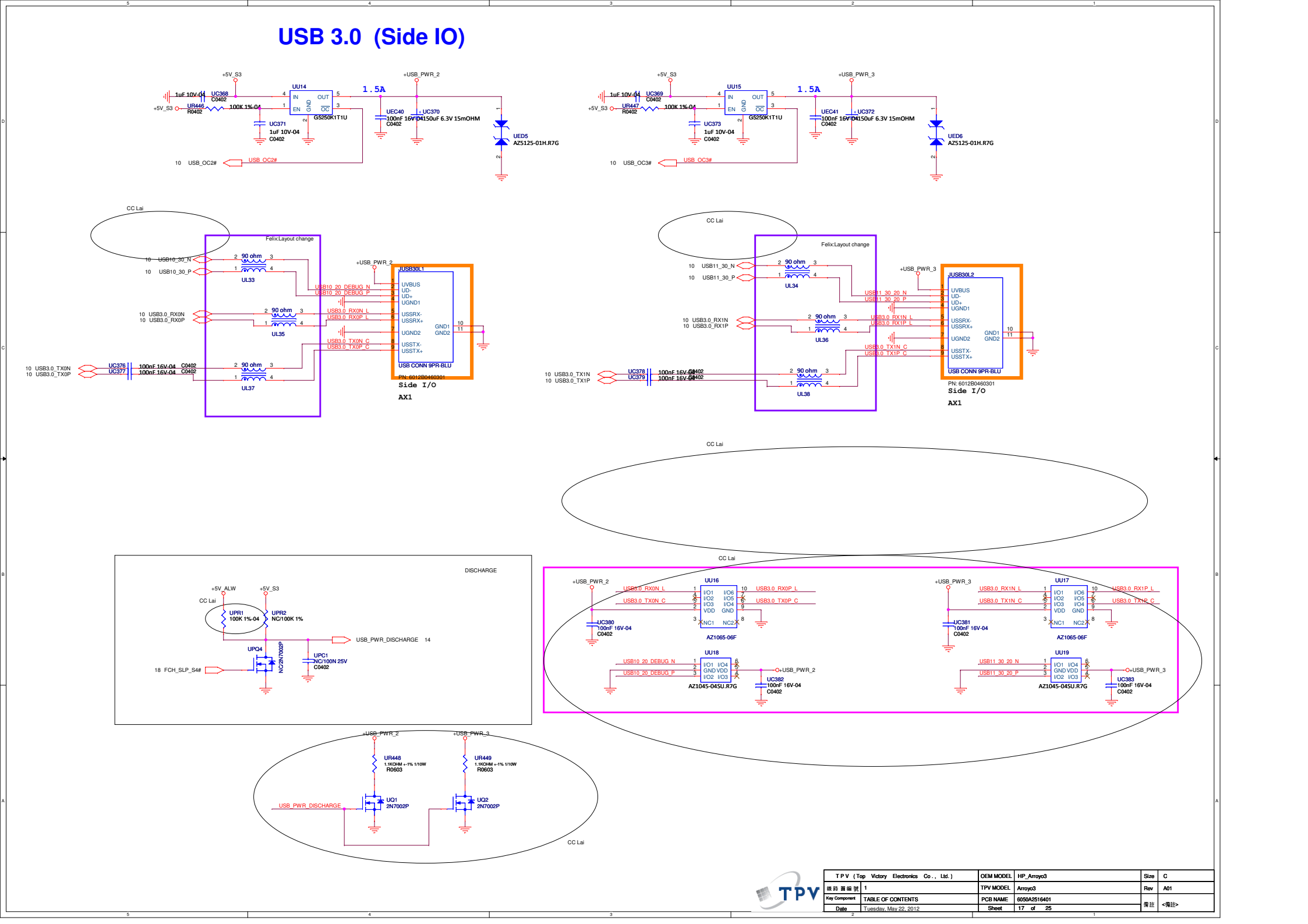
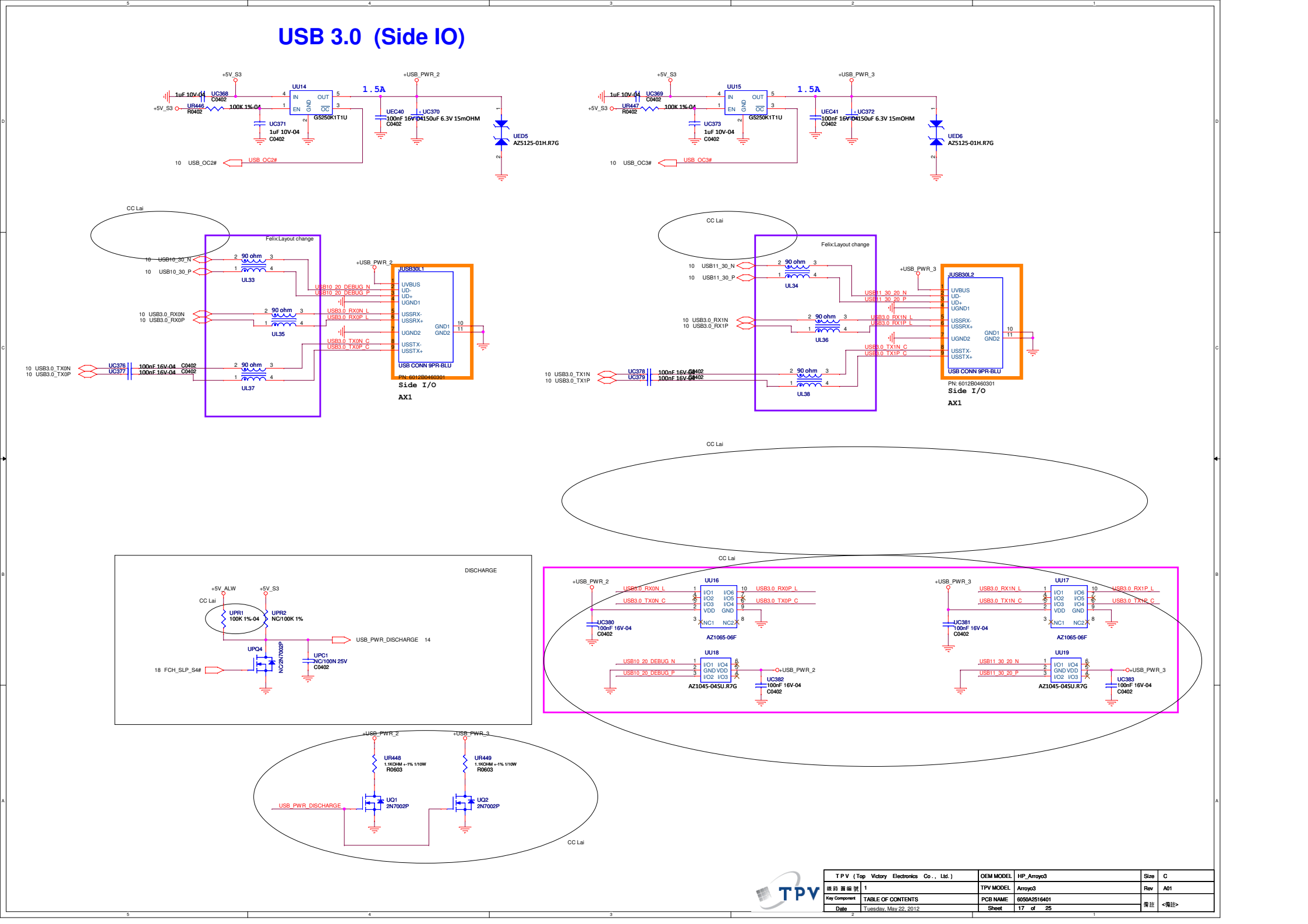
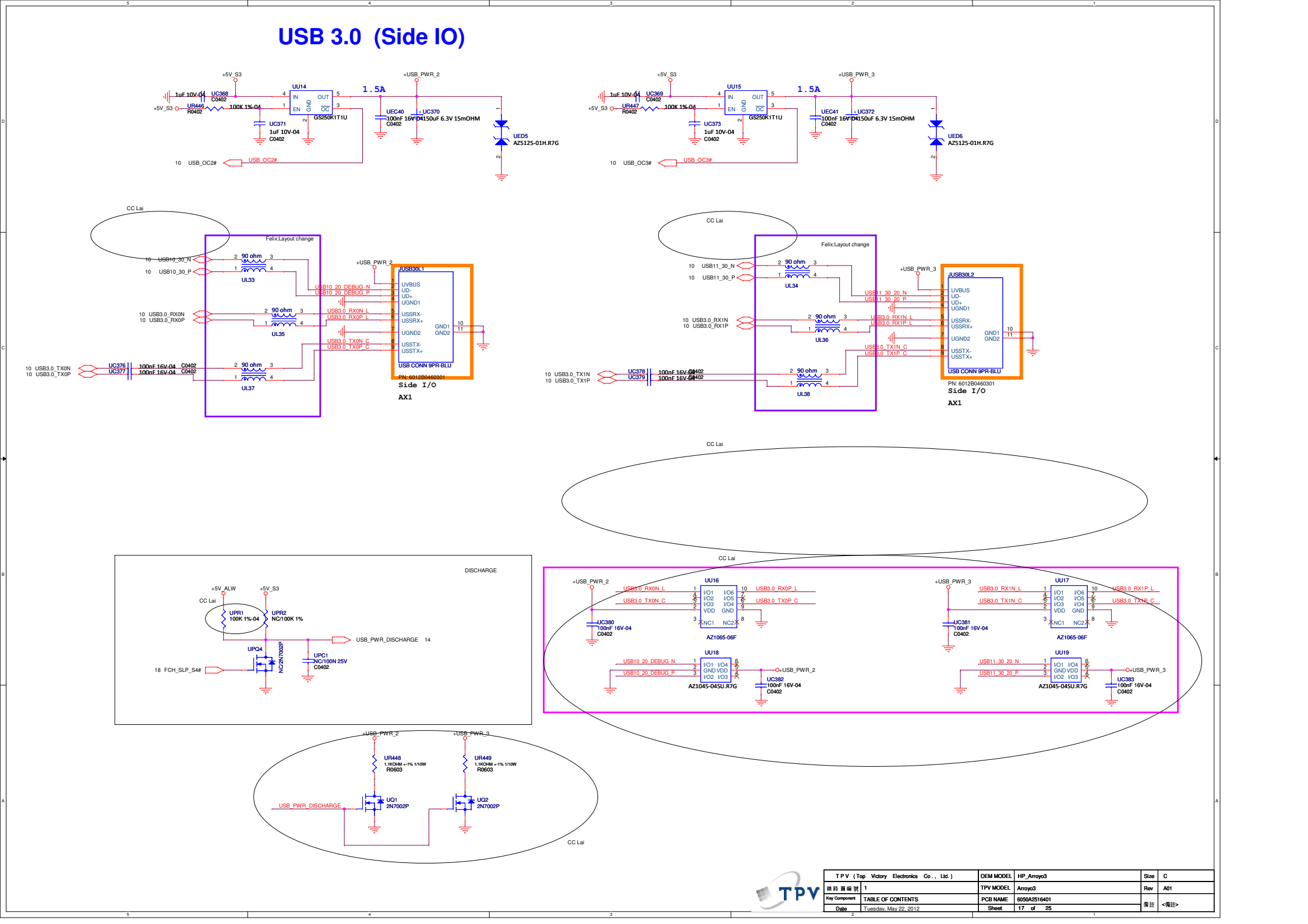
**Signal Conditioning:** The signal conditioning is performed by the USB30L1 and USB30L2 connectors, which are connected to the USB30L1 and USB30L2 connectors. The signal conditioning is performed by the USB30L1 and USB30L2 connectors, which are connected to the USB30L1 and USB30L2 connectors.

**Connector Layouts:** The connector layouts are shown for two different board configurations, including the USB30L1 and USB30L2 connectors. The connector layouts are shown for two different board configurations, including the USB30L1 and USB30L2 connectors.

**Discharge Circuit:** The discharge circuit is shown for the USB\_PWR\_DISCHARGE, which is connected to the USB\_PWR\_DISCHARGE pin. The discharge circuit is shown for the USB\_PWR\_DISCHARGE, which is connected to the USB\_PWR\_DISCHARGE pin.

**Key Components:**

- U14, U15: 1.5A LDO
- U16, U17: 1.5A LDO
- U18, U19: 1.5A LDO
- U20, U21: 1.5A LDO
- U22, U23: 1.5A LDO
- U24, U25: 1.5A LDO
- U26, U27: 1.5A LDO
- U28, U29: 1.5A LDO
- U30, U31: 1.5A LDO
- U32, U33: 1.5A LDO
- U34, U35: 1.5A LDO
- U36, U37: 1.5A LDO
- U38, U39: 1.5A LDO
- U40, U41: 1.5A LDO
- U42, U43: 1.5A LDO
- U44, U45: 1.5A LDO
- U46, U47: 1.5A LDO
- U48, U49: 1.5A LDO
- U50, U51: 1.5A LDO
- U52, U53: 1.5A LDO
- U54, U55: 1.5A LDO
- U56, U57: 1.5A LDO
- U58, U59: 1.5A LDO
- U60, U61: 1.5A LDO
- U62, U63: 1.5A LDO
- U64, U65: 1.5A LDO
- U66, U67: 1.5A LDO
- U68, U69: 1.5A LDO
- U70, U71: 1.5A LDO
- U72, U73: 1.5A LDO
- U74, U75: 1.5A LDO
- U76, U77: 1.5A LDO
- U78, U79: 1.5A LDO
- U80, U81: 1.5A LDO
- U82, U83: 1.5A LDO
- U84, U85: 1.5A LDO
- U86, U87: 1.5A LDO
- U88, U89: 1.5A LDO
- U90, U91: 1.5A LDO
- U92, U93: 1.5A LDO
- U94, U95: 1.5A LDO
- U96, U97: 1.5A LDO
- U98, U99: 1.5A LDO
- U100, U101: 1.5A LDO
- U102, U103: 1.5A LDO
- U104, U105: 1.5A LDO
- U106, U107: 1.5A LDO
- U108, U109: 1.5A LDO
- U110, U111: 1.5A LDO
- U112, U113: 1.5A LDO
- U114, U115: 1.5A LDO
- U116, U117: 1.5A LDO
- U118, U119: 1.5A LDO
- U120, U121: 1.5A LDO
- U122, U123: 1.5A LDO
- U124, U125: 1.5A LDO
- U126, U127: 1.5A LDO
- U128, U129: 1.5A LDO
- U130, U131: 1.5A LDO
- U132, U133: 1.5A LDO
- U134, U135: 1.5A LDO
- U136, U137: 1.5A LDO
- U138, U139: 1.5A LDO
- U140, U141: 1.5A LDO
- U142, U143: 1.5A LDO
- U144, U145: 1.5A LDO
- U146, U147: 1.5A LDO
- U148, U149: 1.5A LDO
- U150, U151: 1.5A LDO
- U152, U153: 1.5A LDO
- U154, U155: 1.5A LDO
- U156, U157: 1.5A LDO
- U158, U159: 1.5A LDO
- U160, U161: 1.5A LDO
- U162, U163: 1.5A LDO
- U164, U165: 1.5A LDO
- U166, U167: 1.5A LDO
- U168, U169: 1.5A LDO
- U170, U171: 1.5A LDO
- U172, U173: 1.5A LDO
- U174, U175: 1.5A LDO
- U176, U177: 1.5A LDO
- U178, U179: 1.5A LDO
- U180, U181: 1.5A LDO
- U182, U183: 1.5A LDO
- U184, U185: 1.5A LDO
- U186, U187: 1.5A LDO
- U188, U189: 1.5A LDO
- U190, U191: 1.5A LDO
- U192, U193: 1.5A LDO
- U194, U195: 1.5A LDO
- U196, U197: 1.5A LDO
- U198, U199: 1.5A LDO
- U200, U201: 1.5A LDO
- U202, U203: 1.5A LDO
- U204, U205: 1.5A LDO
- U206, U207: 1.5A LDO
- U208, U209: 1.5A LDO
- U210, U211: 1.5A LDO
- U212, U213: 1.5A LDO
- U214, U215: 1.5A LDO
- U216, U217: 1.5A LDO
- U218, U219: 1.5A LDO
- U220, U221: 1.5A LDO
- U222, U223: 1.5A LDO
- U224, U225: 1.5A LDO
- U226, U227: 1.5A LDO
- U228, U229: 1.5A LDO
- U230, U231: 1.5A LDO
- U232, U233: 1.5A LDO
- U234, U235: 1.5A LDO
- U236, U237: 1.5A LDO
- U238, U239: 1.5A LDO
- U240, U241: 1.5A LDO
- U242, U243: 1.5A LDO
- U244, U245: 1.5A LDO
- U246, U247: 1.5A LDO
- U248, U249: 1.5A LDO
- U250, U251: 1.5A LDO
- U252, U253: 1.5A LDO
- U254, U255: 1.5A LDO
- U256, U257: 1.5A LDO
- U258, U259: 1.5A LDO
- U260, U261: 1.5A LDO
- U262, U263: 1.5A LDO
- U264, U265: 1.5A LDO
- U266, U267: 1.5A LDO
- U268, U269: 1.5A LDO
- U270, U271: 1.5A LDO
- U272, U273: 1.5A LDO
- U274, U275: 1.5A LDO
- U276, U277: 1.5A LDO
- U278, U279: 1.5A LDO
- U280, U281: 1.5A LDO
- U282, U283: 1.5A LDO
- U284, U285: 1.5A LDO
- U286, U287: 1.5A LDO
- U288, U289: 1.5A LDO
- U290, U291: 1.5A LDO
- U292, U293: 1.5A LDO
- U294, U295: 1.5A LDO
- U296, U297: 1.5A LDO
- U298, U299: 1.5A LDO
- U300, U301: 1.5A LDO
- U302, U303: 1.5A LDO
- U304, U305: 1.5A LDO
- U306, U307: 1.5A LDO
- U308, U309: 1.5A LDO
- U310, U311: 1.5A LDO
- U312, U313: 1.5A LDO
- U314, U315: 1.5A LDO
- U316, U317: 1.5A LDO
- U318, U319: 1.5A LDO
- U320, U321: 1.5A LDO
- U322, U323: 1.5A LDO
- U324, U325: 1.5A LDO
- U326, U327: 1.5A LDO
- U328, U329: 1.5A LDO
- U330, U331: 1.5A LDO
- U332, U333: 1.5A LDO
- U334, U335: 1.5A LDO
- U336, U337: 1.5A LDO
- U338, U339: 1.5A LDO
- U340, U341: 1.5A LDO
- U342, U343: 1.5A LDO
- U344, U345: 1.5A LDO
- U346, U347: 1.5A LDO
- U348, U349: 1.5A LDO
- U350, U351: 1.5A LDO
- U352, U353: 1.5A LDO
- U354, U355: 1.5A LDO
- U356, U



# USB 3.0 (Side IO)

The diagrams illustrate the USB 3.0 Side IO circuitry, including power regulation, signal conditioning, and connector layouts for two different board configurations.

**Power Regulation:** The circuit uses two 1.5A LDOs (U14 and U15) to regulate the USB power (+USB\_PWR\_2 and +USB\_PWR\_3) from the +5V\_S3 input. The LDOs are configured with a 100k 1%-04 feedback resistor (UC368, UC369) and a 100nF 16V 04 output capacitor (UC370, UC372). The output voltage is set to 5.0V (U14) and 5.0V (U15). The LDOs are also equipped with a 100nF 16V 04 input capacitor (UC371, UC373) and a 100nF 16V 04 output capacitor (UC370, UC372).

**Signal Conditioning:** The USB 3.0 signals (USB10\_20\_N, USB10\_20\_P, USB3\_0\_RXIN, USB3\_0\_RXIP, USB3\_0\_TXIN, USB3\_0\_TXIP) are conditioned using 90 ohm resistors (UL33, UL34, UL35, UL36, UL37, UL38) and 100nF 16V 04 capacitors (UC376, UC377, UC378, UC379).

**Connector Layouts:** The diagrams show the USB 3.0 connector layouts for two different board configurations, labeled AX1 and AX2. The layouts include the USB 3.0 signals (USB10\_20\_N, USB10\_20\_P, USB3\_0\_RXIN, USB3\_0\_RXIP, USB3\_0\_TXIN, USB3\_0\_TXIP) and the power signals (+USB\_PWR\_2, +USB\_PWR\_3).

**Discharge Circuit:** The discharge circuit (DISCHARGE) uses a 100k 1%-04 resistor (UPR1) and a 100nF 16V 04 capacitor (UC380) to discharge the USB power (+USB\_PWR\_2) when the device is powered off. The discharge circuit is also equipped with a 100nF 16V 04 output capacitor (UC381, UC382).

**TPV Logo:** The TPV logo is located in the bottom right corner of the page.

TPV (Top Victory Electronics Co., Ltd.)	OEM MODEL	HP Arroyo3	Size	C
Key Component	TPV MODEL	Arroyo3	Rev	A01
TABLE OF CONTENTS	PCB NAME	6050A2516401	Sheet	17 of 25
Date	Tuesday, May 22, 2012			備註 <備註>

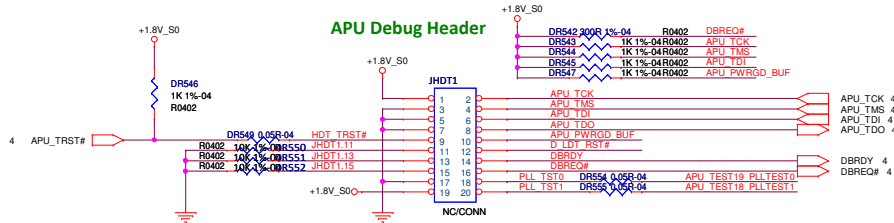


## HP LPC DEBUG PIN HEADER

### LPC Header

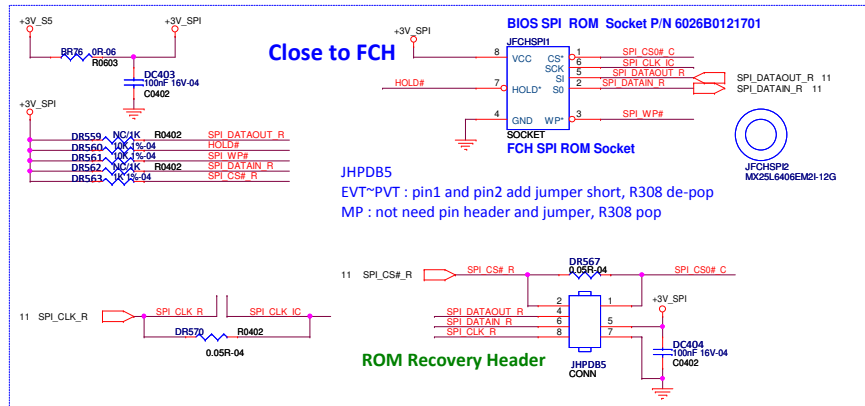


### APU Debug Header

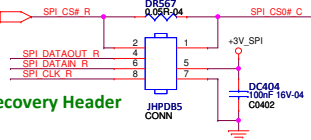


## HP ROM RECOVERY

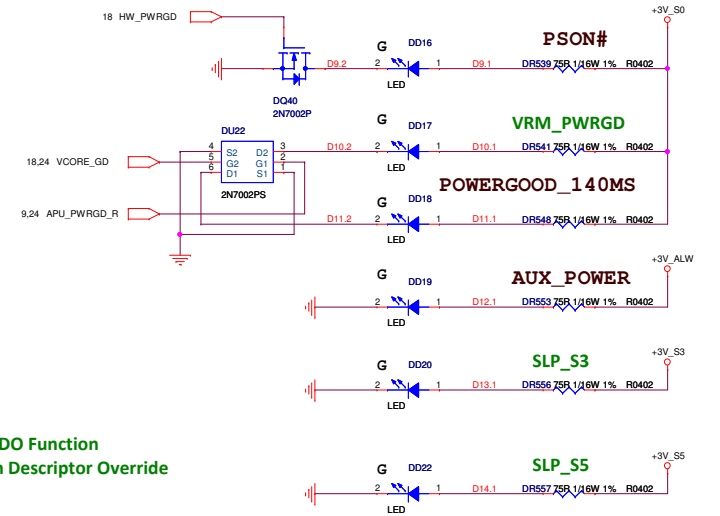
### Close to FCH



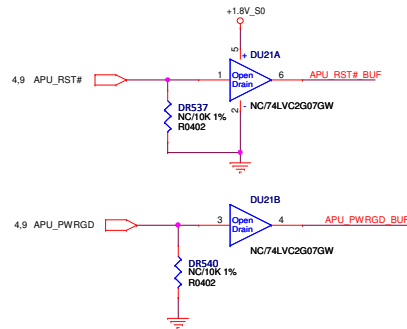
### ROM Recovery Header



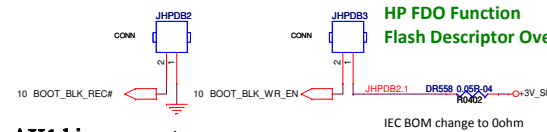
## HP Indicator LED



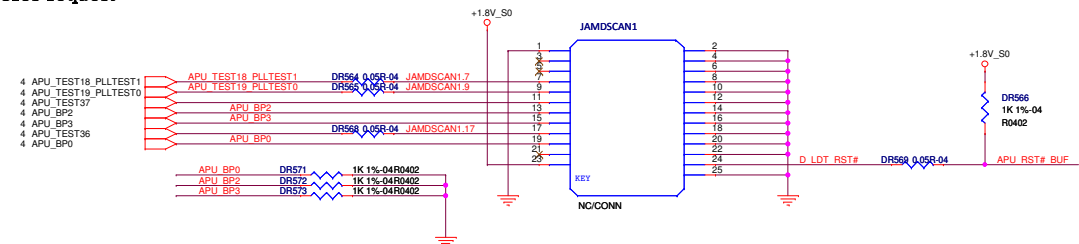
### Boot Block Write Enable



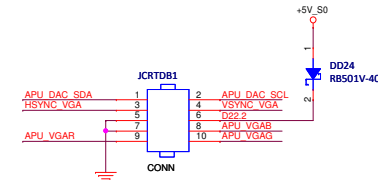
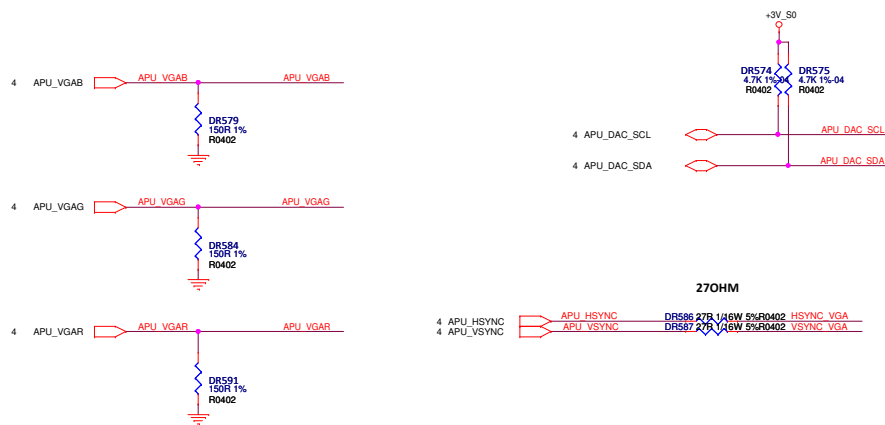
### HP FDO Function Flash Descriptor Override



### AX1 bios request

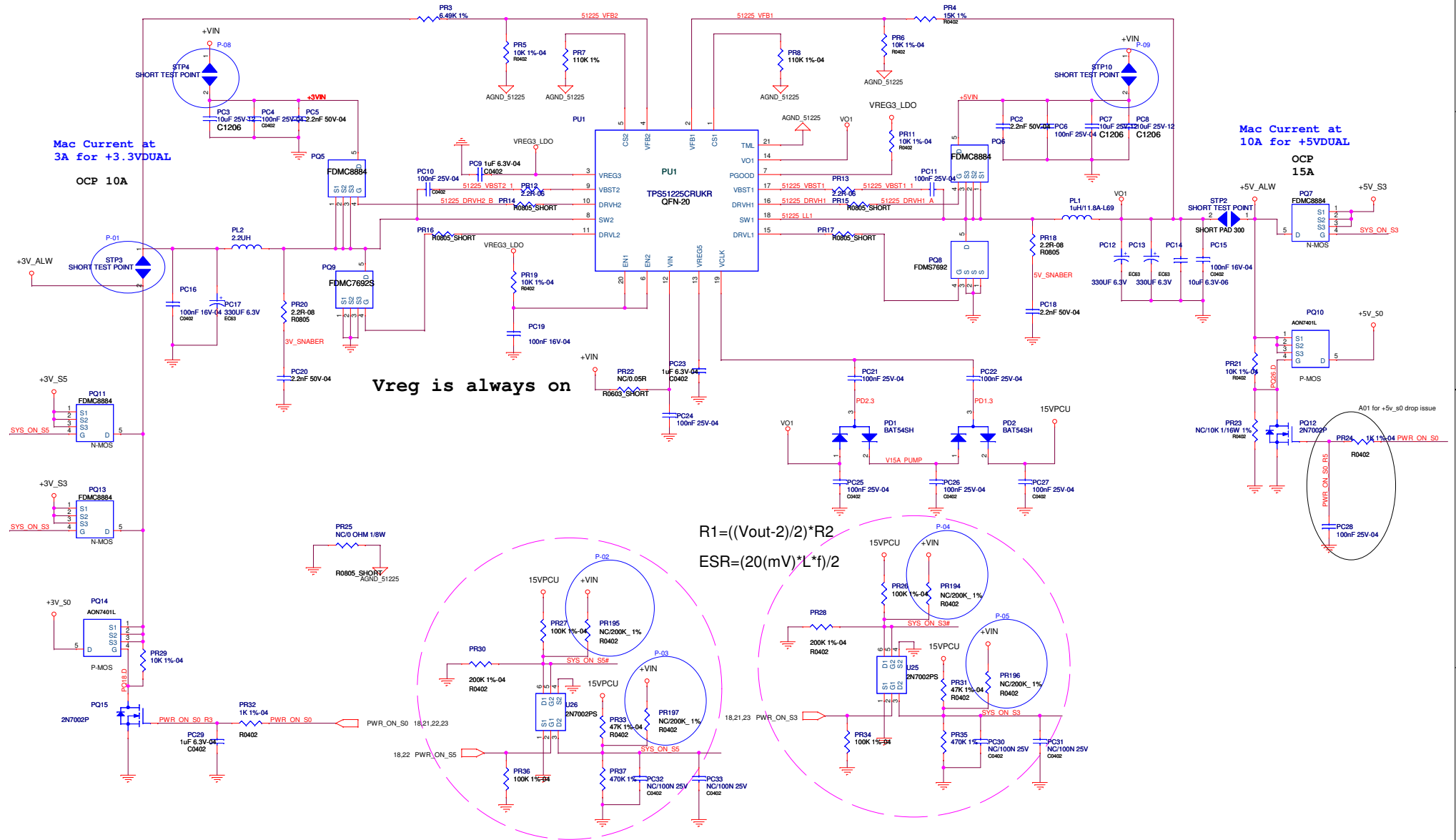


## DEBUG CRT



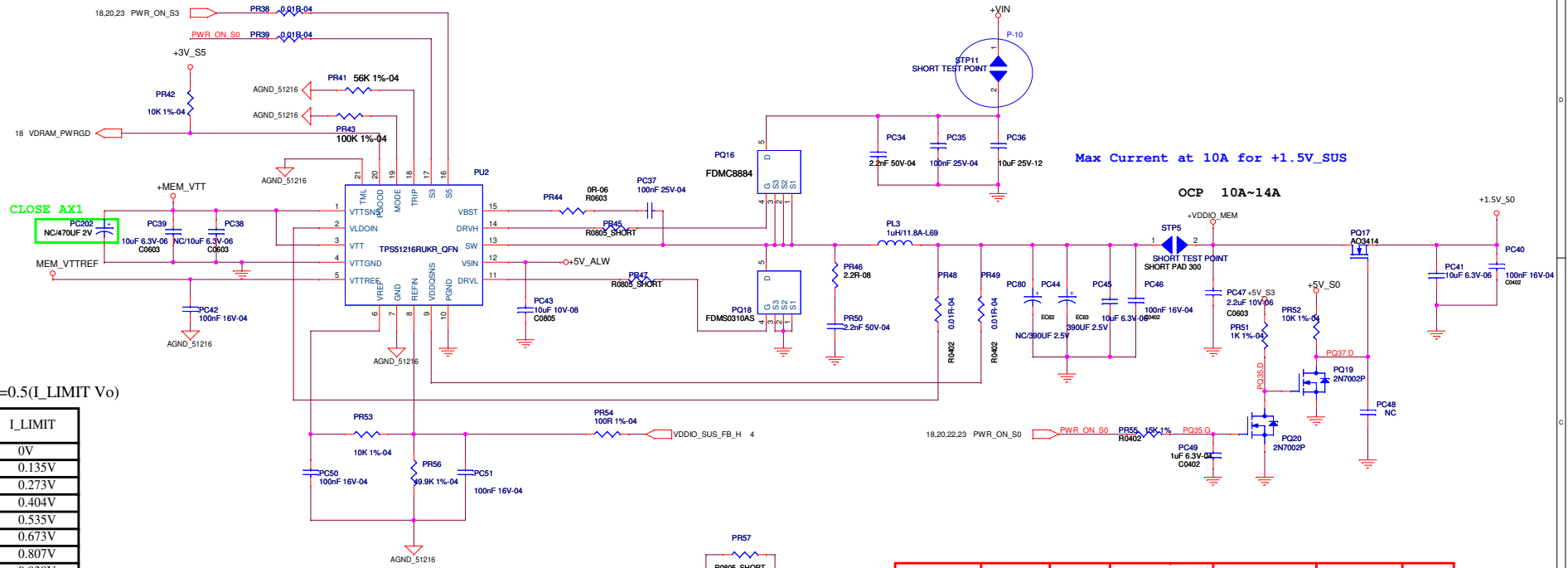
TPV (Top Victory Electronics Co., Ltd.)	OEM MODEL	HP Arroyo3	Size	C
Table of Contents	TPV MODEL	Arroyo3	Rev	A01
Key Component	PCB NAME	6050A2516401	Sheet	19 of 25
Date	Tuesday, May 22, 2012			

# SYSTEM +3V\_ALW/+3V\_S5/+3V\_S3/+3V\_S0 +5V\_ALW/+5V\_S3/+5V\_S0



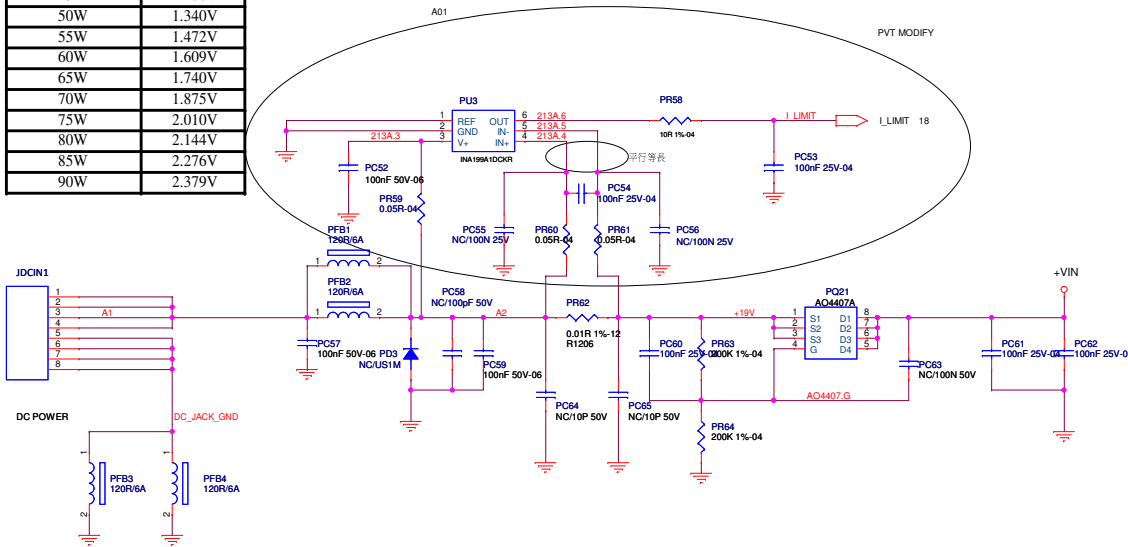
TPV (Top Victory Electronics Co., Ltd.)	OEM MODEL	HP_Arroyo3	Size	C
Key Component	TPV MODEL	Arroyo3	Rev	A01
TABLE OF CONTENTS	PCB NAME	6050A2516401		
Date	Sheet	20 of 25		
Tuesday, May 22, 2012				

# VDDIO\_SUS, MEM\_VTT, DC-IN

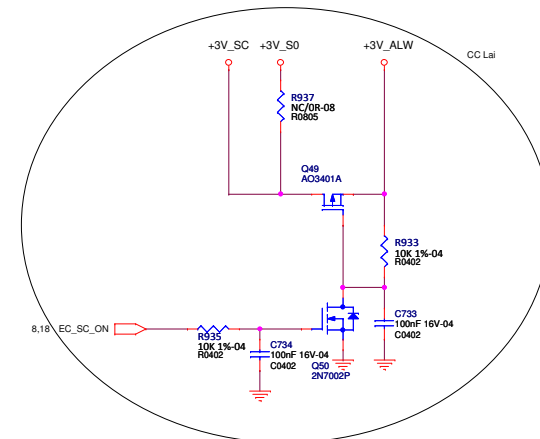
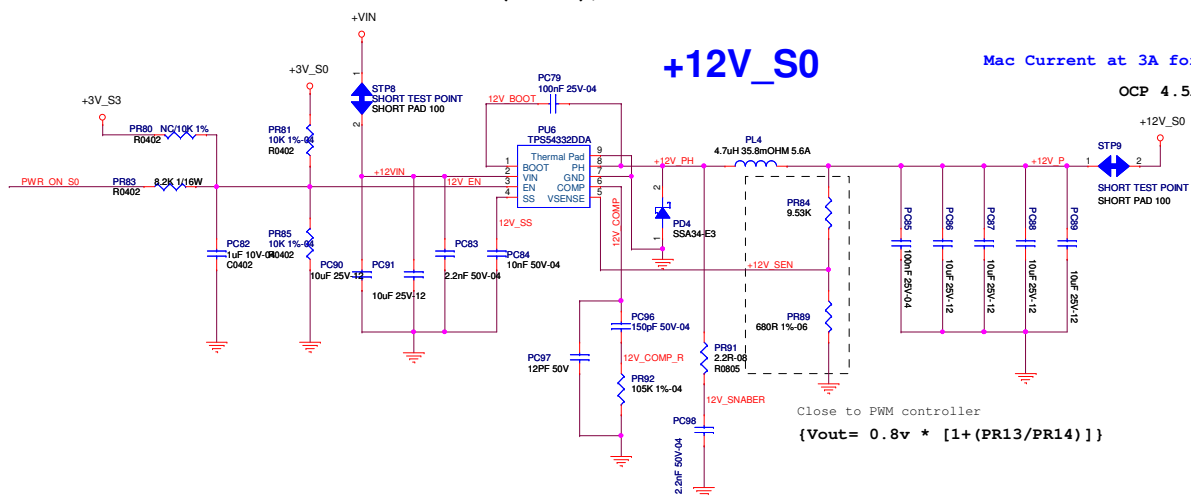
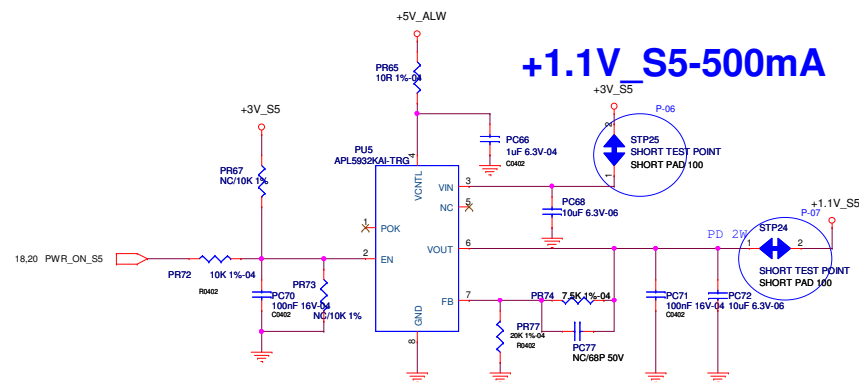
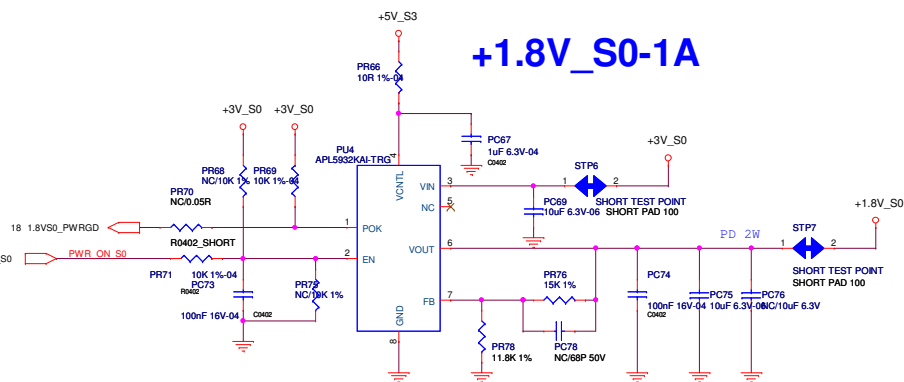


TOTAL POWER	I_LIMIT
0W	0V
5W	0.135V
10W	0.273V
15W	0.404V
20W	0.535V
25W	0.673V
30W	0.807V
35W	0.938V
40W	1.075V
45W	1.206V
50W	1.340V
55W	1.472V
60W	1.609V
65W	1.740V
70W	1.875V
75W	2.010V
80W	2.144V
85W	2.276V
90W	2.379V

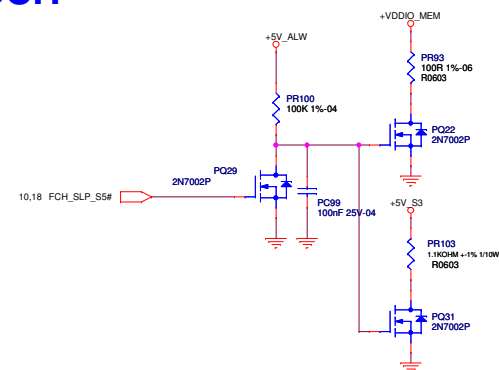
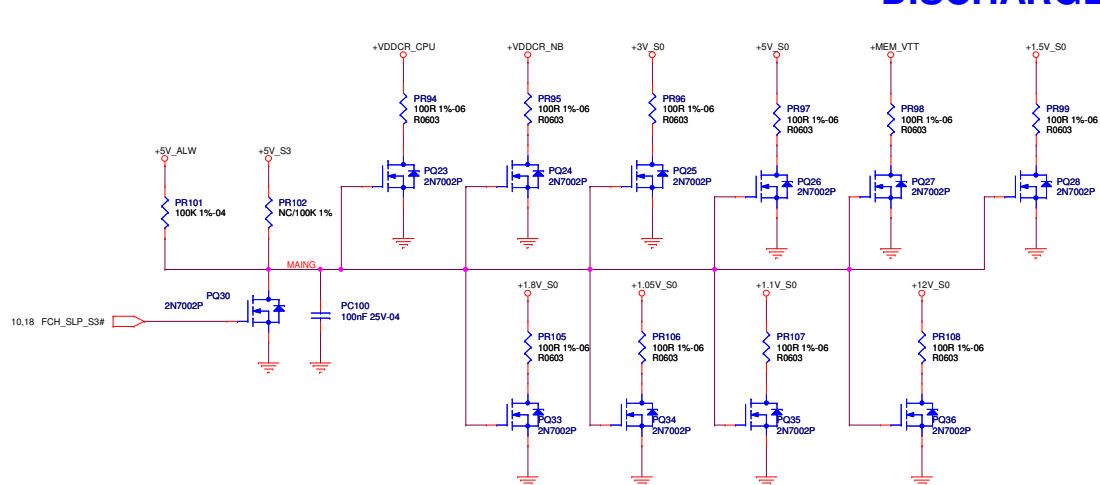
STATE	S3	S5	+VDDIO_MEM S5	+MEM_VTT	VTTREF	VREF
S0	H1	H1	ON	ON	ON	ON
S3	LO	H1	ON	OFF	ON	ON
S4/S5	X	X	OFF	OFF	OFF	OFF



TPV (Top Victory Electronics Co., Ltd.)	OEM MODEL	HP_Arroyo3	Size	C
Key Component	TPV MODEL	Arroyo3	Rev	A01
TABLE OF CONTENTS	PCB NAME	6050A2516401		
Date	Sheet	21 of 25		

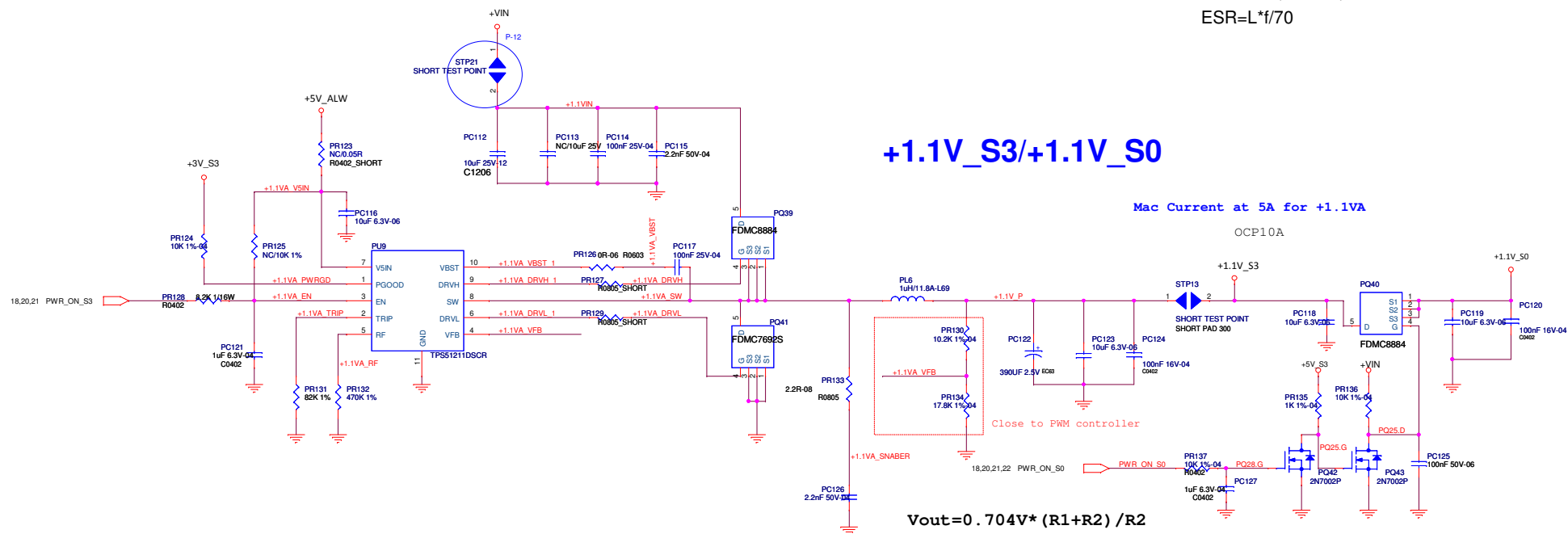
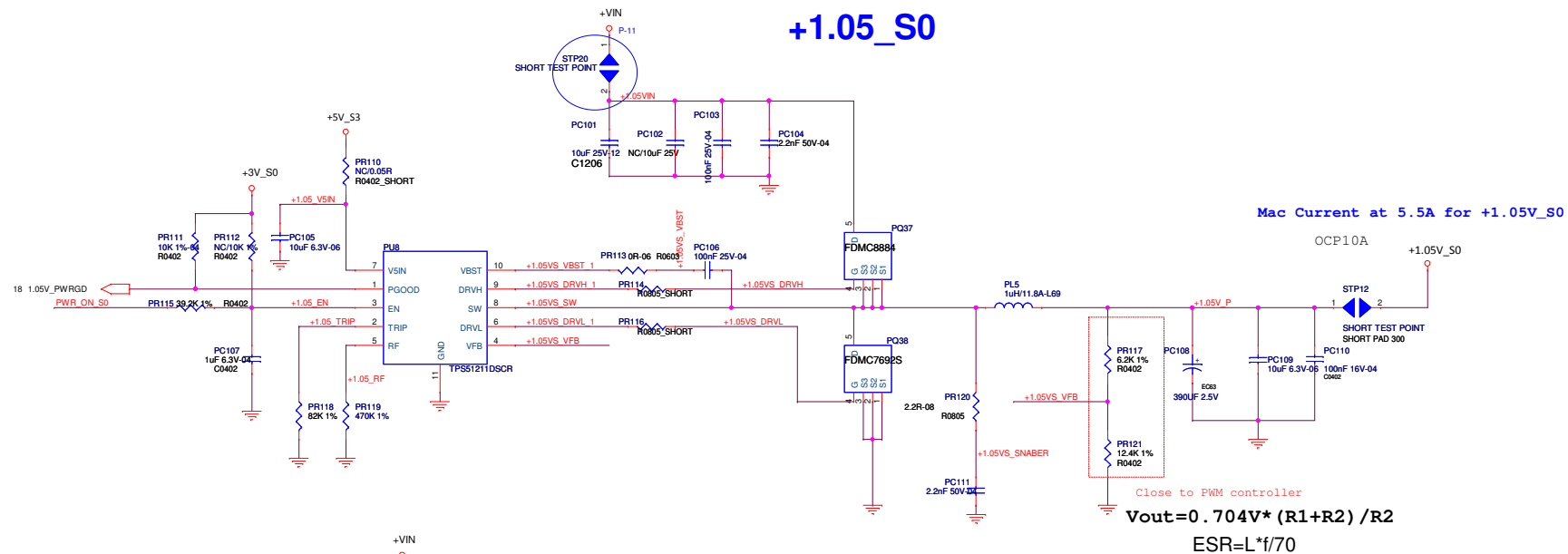


## DISCHARGE CIRCUIT

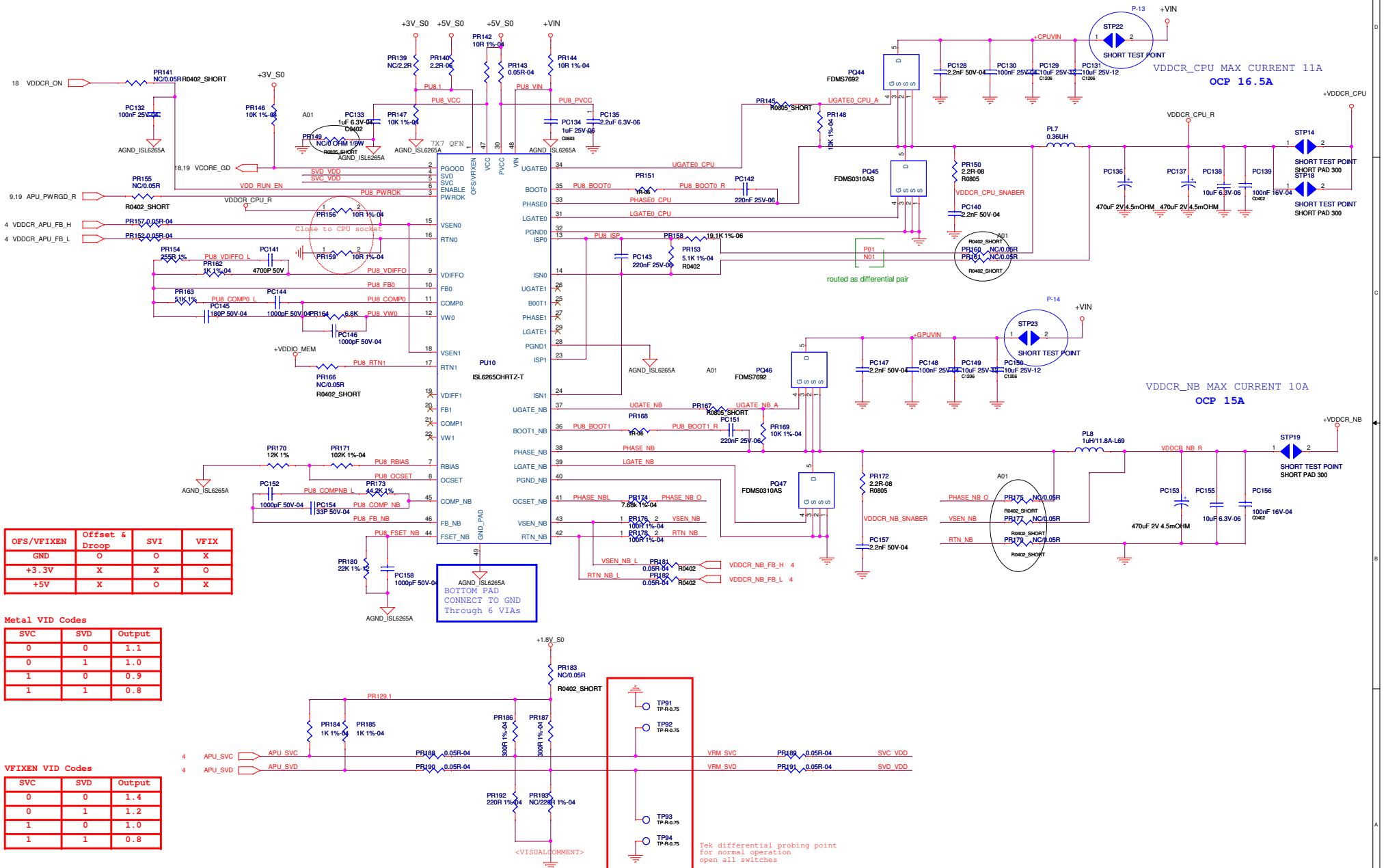


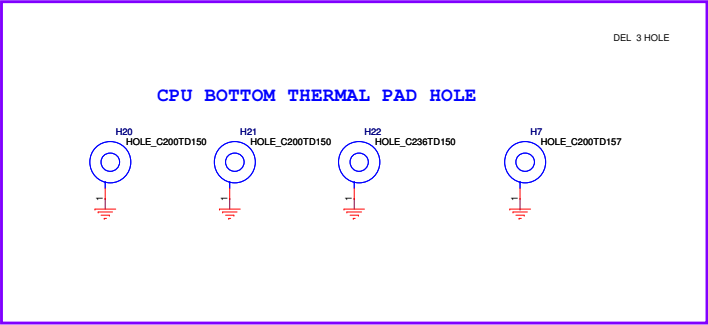
TPV (Top Victory Electronics Co., Ltd.)		OEM MODEL	HP_Arroyo3	Size	C
維修圖編號 1		TPV MODEL	Arroyo3	Rev	A01
Key Component		PCB NAME	6050A2516401		
Date	Tuesday, May 22, 2012	Sheet	22 of 25	實註	<備註>



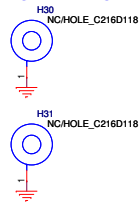


# VDDCR\_CPU & VDDCR\_NB

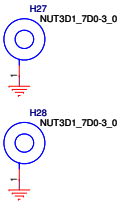




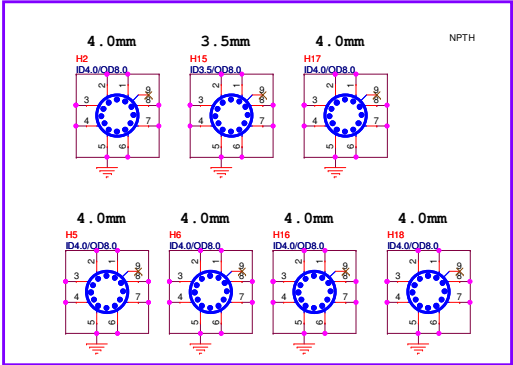
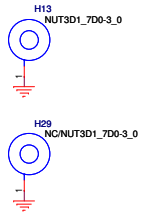
PCH HEATSINK



JTV1



JWLAN1



TPV (Top Victory Electronics Co., Ltd.)	OEM MODEL	HP_Arroyo3	Size	C
線路圖編號 1	TPV MODEL	Arroyo3	Rev	A01
Key Component	TABLE OF CONTENTS	PCB NAME	6050A2516401	備註 <備註>
Date	Tuesday, May 22, 2012	Sheet	25 of 25	