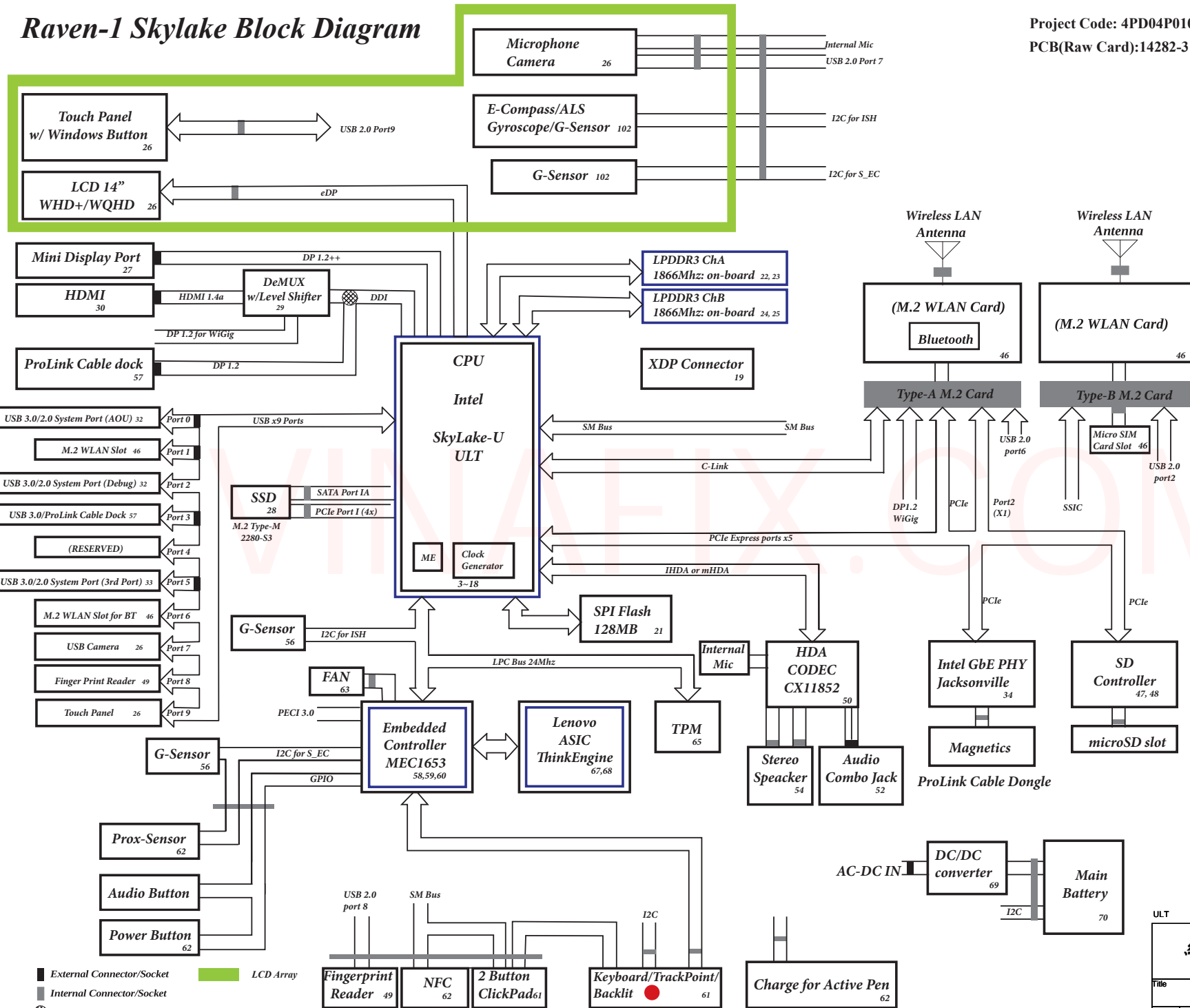


Raven-1 Skylake Block Diagram

Project Code: 4PD04P010003

PCB(Raw Card):14282-3



PCB Layer Stackup

L1:Component
L2:GND
L3:Signal 1
L4:VCC
L5:Signal 2
L6:Signal 3
L7:VCC
L8:Signal 4
L9:GND
L10:Component

Battery Charger/Selector

BQ24780 71/72

INPUTS	OUTPUTS
--------	---------

System DC/DC

TPS51285

74

VINT20	VCC5M
	VCC3M

CPU DC/DC
CP81208/NCP8138275/76

VINT20	VCCCPUCORE
--------	------------

VENT20	VECCFCORE
GMCH GEY CORE	

NCP81382 77

VINT20	VCCGEXCORE
--------	------------

VCCSA	

UT20	
------	--

	<i>VCCPU10</i>

TPS62134A 80

VCC1R0S

<i>BD91364AM</i>	81
------------------	----

<i>VCC5M</i>	<i>VCC1R0_SU</i>
--------------	------------------

1409027

VINT20 *VCC1R2A*

<i>VCC0R6B</i>

CIR2A

VCC1R8SUS

BU90004GWZ	85

VCCPCHCORE

TPS62134D	86

<i>VCC5M</i>	<i>VCCPCHCORE</i>
--------------	-------------------

90004GWZ	
----------	--

<i>VCC5M</i>	<i>VCC1R8A</i>
--------------	----------------

[illegible]

緯創資通

Wistron Corporation
21F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih,

Title	Block Diagram
-------	----------------------

Block Diagram		
Size	Document Number	Rev.

Size A3	Document Number Raven-1	Rev -3
------------	-----------------------------------	------------------

Date: Monday, July 20, 2015 Sheet 1 of 102

RESISTOR

Symbol name	Value	Tolerance (J: 5%, F: 1%, D: 0.5%, B: 0.1 %)	Rating 0402=> 1/16W, 25V 0603 => 1/16W, 75V 0805 => 1/10W, 100V	Size 2=>0402, 3=>0603, 5=>0805 6=>1206, 0=>1210
10KR3	10K Ohm	If no letter, it means J: 5%	1/16W, 75V	0603
33D3R5	33.3 Ohm	If no letter, it means J: 5%	1/10W, 100V	0805
1KR3F	1K Ohm	F: 1%	1/16W, 75V	0603

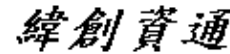
The naming rule is value + R + size + tolerance
 For the value, it can be read by the number before R. (R means resistor)
 For the tolerance, it can be read from the last letter.
 For the rating, we don't show on the symbol name.
 For the size, R2=>0402, R3=>0603, R5=>0805,....

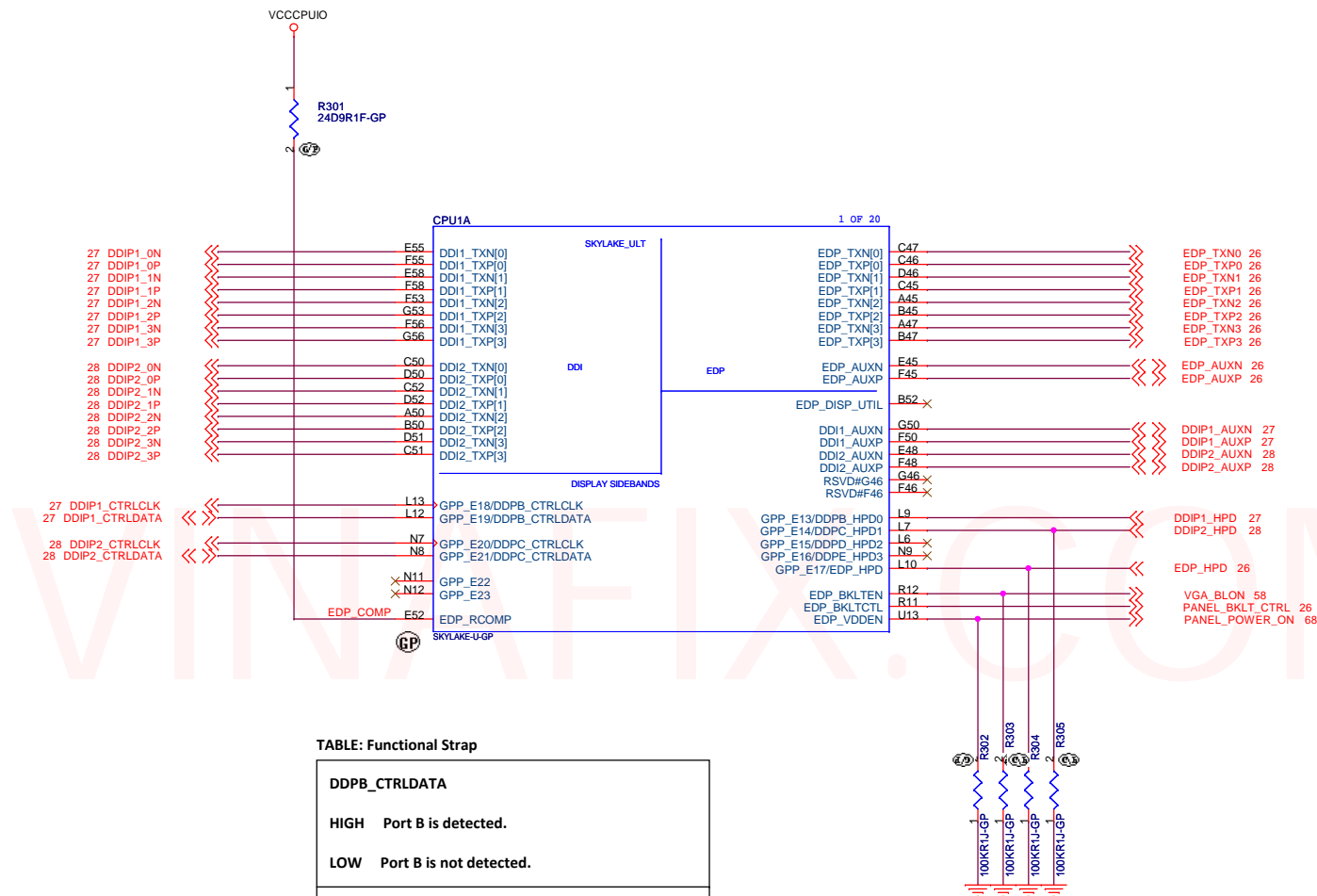
CAPACITOR

Symbol name	Value	Tolerance (M: +/-20, K: +/-10, Z: +80/-20)	Rating	Size 2=>0402, 3=>0603, 5=>0805 6=>1206, 0=>1210
SCD1U10V2MX-1	0.1uF	M/X5R	10V	0402
SC10U6D3V5MX	10uF	M/X5R	6.3V	0805
SC2D2U16V5ZY	2.2uF	Z/Y5V	16V	0805

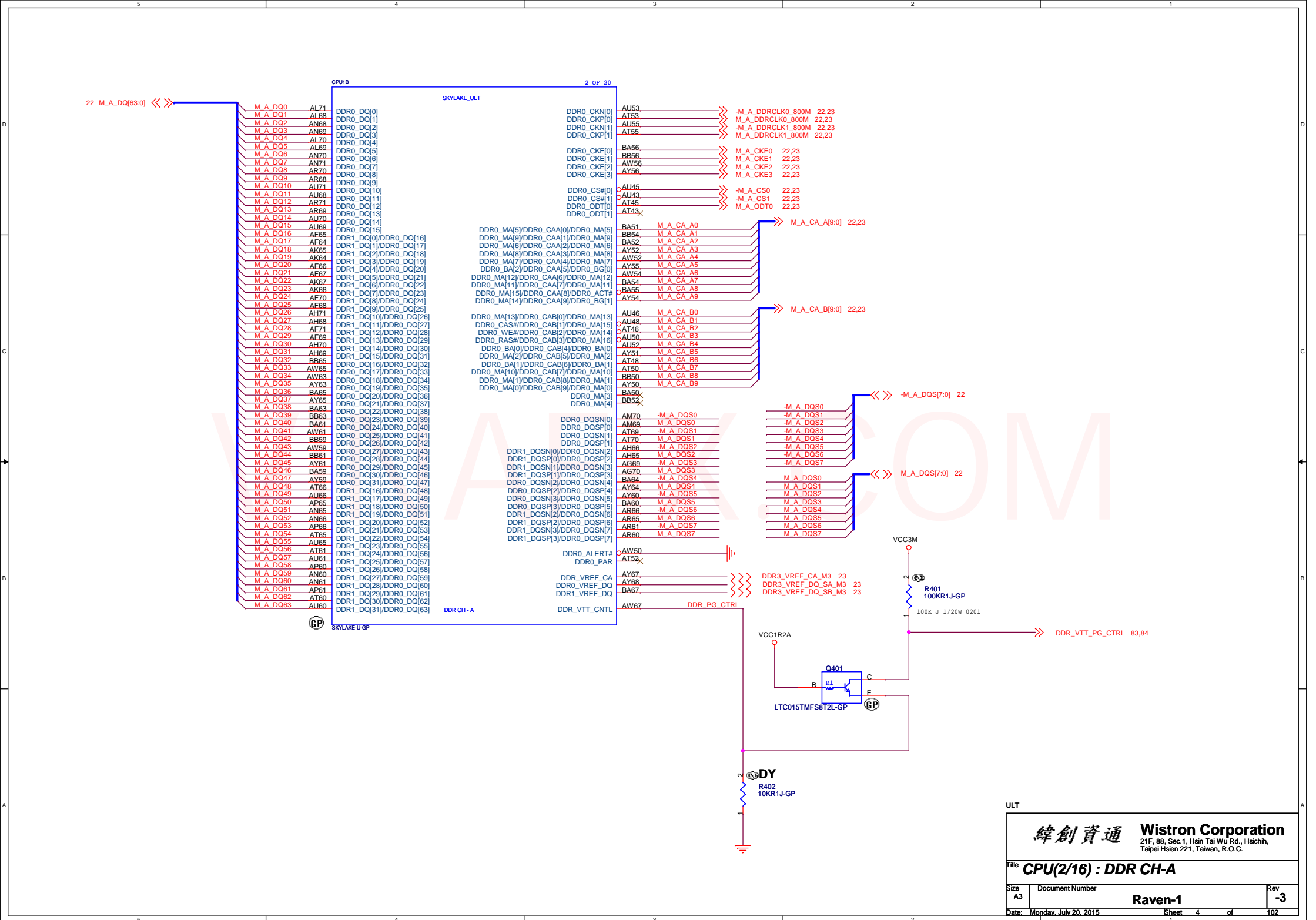
The naming rule is
 Capacitor type + value + rating + size + tolerance + material
 SCD1U10V2MX-1
 SC=> SMT Ceramic, TC=> POS cap or SP cap
 D1U => 0.1uF
 10V => the voltage rating is 10V
 2=> 0402, 3=>0603, 5=>0805
 M=>tolerance M, K, Z
 X=> X7R/X5R, Y=> Y5V
 -1 => symbol version, nonsense to EE characteristic

ULT

 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title Description	
Size A4	Document Number <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Raven-1</div>
Date: Monday, July 20, 2015	Rev <div style="text-align: center; font-weight: bold; font-size: 1.2em;">-3</div>
Sheet 2 of 102	



ULT



24 M_B_DQ[63:0] <<>

M_B_DQ0 AY39
M_B_DQ1 AW39
M_B_DQ2 AY37
M_B_DQ3 AW37
M_B_DQ4 BB39
M_B_DQ5 BA39
M_B_DQ6 BA37
M_B_DQ7 BB37
M_B_DQ8 AY35
M_B_DQ9 AW35
M_B_DQ10 AY33
M_B_DQ11 AW33
M_B_DQ12 BB35
M_B_DQ13 BA35
M_B_DQ14 BA33
M_B_DQ15 BB33
M_B_DQ16 AU40
M_B_DQ17 AT40
M_B_DQ18 AT37
M_B_DQ19 AU37
M_B_DQ20 AR40
M_B_DQ21 AP40
M_B_DQ22 AP37
M_B_DQ23 AR37
M_B_DQ24 AT33
M_B_DQ25 AU33
M_B_DQ26 AU30
M_B_DQ27 AT30
M_B_DQ28 AR33
M_B_DQ29 AP33
M_B_DQ30 AR30
M_B_DQ31 AP30
M_B_DQ32 AY31
M_B_DQ33 AW31
M_B_DQ34 AY29
M_B_DQ35 AW29
M_B_DQ36 BB31
M_B_DQ37 BA31
M_B_DQ38 BA29
M_B_DQ39 BB29
M_B_DQ40 AY27
M_B_DQ41 AW27
M_B_DQ42 AY25
M_B_DQ43 AW25
M_B_DQ44 BB27
M_B_DQ45 BA27
M_B_DQ46 BA25
M_B_DQ47 BB25
M_B_DQ48 AU27
M_B_DQ49 AT27
M_B_DQ50 AT25
M_B_DQ51 AU25
M_B_DQ52 AP27
M_B_DQ53 AN27
M_B_DQ54 AN25
M_B_DQ55 AP25
M_B_DQ56 AT22
M_B_DQ57 AU22
M_B_DQ58 AU21
M_B_DQ59 AT21
M_B_DQ60 AN22
M_B_DQ61 AP22
M_B_DQ62 AP21
M_B_DQ63 AN21

CPUIC

SKYLAKE_ULT

3 OF 20

DDR1_CKN[0]
DDR1_CKN[1]
DDR1_CKP[0]
DDR1_CKP[1]

DDR1_CKE[0]
DDR1_CKE[1]
DDR1_CKE[2]
DDR1_CKE[3]

DDR1_CS#[0]
DDR1_CS#[1]
DDR1_ODT[0]
DDR1_ODT[1]

DDR1_MA[5]/DDR1_CAA[0]/DDR1_MA[5]
DDR1_MA[9]/DDR1_CAA[1]/DDR1_MA[9]
DDR1_MA[6]/DDR1_CAA[2]/DDR1_MA[6]
DDR1_MA[8]/DDR1_CAA[3]/DDR1_MA[8]
DDR1_MA[7]/DDR1_CAA[4]/DDR1_MA[7]
DDR1_BA[2]/DDR1_CAA[5]/DDR1_BA[2]
DDR1_MA[12]/DDR1_CAA[6]/DDR1_MA[12]
DDR1_MA[11]/DDR1_CAA[7]/DDR1_MA[11]
DDR1_MA[15]/DDR1_CAA[8]/DDR1_ACT#
DDR1_MA[14]/DDR1_CAA[9]/DDR1_BG[1]

DDR1_MA[13]/DDR1_CAB[0]/DDR1_MA[13]
DDR1_CAS#/DDR1_CAB[1]/DDR1_MA[15]
DDR1_WE#/DDR1_CAB[2]/DDR1_MA[14]
DDR1_RAS#/DDR1_CAB[3]/DDR1_MA[16]
DDR1_BA[0]/DDR1_CAB[4]/DDR1_BA[0]
DDR1_MA[2]/DDR1_CAB[5]/DDR1_MA[2]
DDR1_BA[1]/DDR1_CAB[6]/DDR1_BA[1]
DDR1_MA[10]/DDR1_CAB[7]/DDR1_MA[10]
DDR1_MA[11]/DDR1_CAB[8]/DDR1_MA[11]
DDR1_MA[0]/DDR1_CAB[9]/DDR1_MA[0]
DDR1_MA[3]
DDR1_MA[4]

DDR0_DQSN[4]/DDR1_DQSN[0]
DDR0_DQSP[4]/DDR1_DQSP[0]
DDR0_DQSN[5]/DDR1_DQSN[1]
DDR0_DQSP[5]/DDR1_DQSP[1]
DDR1_DQSN[4]/DDR1_DQSN[2]
DDR1_DQSP[4]/DDR1_DQSP[2]
DDR1_DQSN[5]/DDR1_DQSN[3]
DDR1_DQSP[5]/DDR1_DQSP[3]
DDR0_DQSN[6]/DDR1_DQSN[4]
DDR0_DQSP[6]/DDR1_DQSP[4]
DDR0_DQSN[7]/DDR1_DQSN[5]
DDR0_DQSP[7]/DDR1_DQSP[5]
DDR1_DQSN[6]
DDR1_DQSP[6]
DDR1_DQSN[7]
DDR1_DQSP[7]

DDR1_ALERT#
DDR1_PAR
DRAM_RESET#
DDR1_RCOMP[0]
DDR1_RCOMP[1]
DDR1_RCOMP[2]



AN45
AN46
AP45
AP46

AN56
AP55
AN55
AP53

BB42
AY42
BA42
AW42

AY48
AP50
BA48
BB48
AP48
AP52
AN50
AN48
AN53
AN52

BA43
AY43
AY44
AW44
BB44
AY47
BA44
AW46
AY46
BA46
BB46
BA47

BA38
AY38
AY34
BA34
AT38
AR38
AT32
AR32
BA30
AY30
AY26
BA26
AR25
AR27
AR22
AR21

AN43
AP43
AT13
AR18
AT18
AU18

M_B_DDRCLK0_800M 24.25
M_B_DDRCLK1_800M 24.25
M_B_DDRCLK0_800M 24.25
M_B_DDRCLK1_800M 24.25

M_B_CKE0 24.25
M_B_CKE1 24.25
M_B_CKE2 24.25
M_B_CKE3 24.25

M_B_CS0 24.25
M_B_CS1 24.25
M_B_ODT0 24.25

M_B_CA_A[9:0] 24.25

M_B_CA_B[9:0] 24.25

M_B_DQS[7:0] 24

M_B_DQS0
M_B_DQS1
M_B_DQS2
M_B_DQS3
M_B_DQS4
M_B_DQS5
M_B_DQS6
M_B_DQS7

M_B_DQS[7:0] 24

M_B_DQS0
M_B_DQS1
M_B_DQS2
M_B_DQS3
M_B_DQS4
M_B_DQS5
M_B_DQS6
M_B_DQS7

VCC1R2A

R501
DY470R1J-GP

-DRAMRST

DRAMRST 99

R502 1 200R1F-GP
R503 1 80D6R1F-GP
R504 1 162R1F-GP

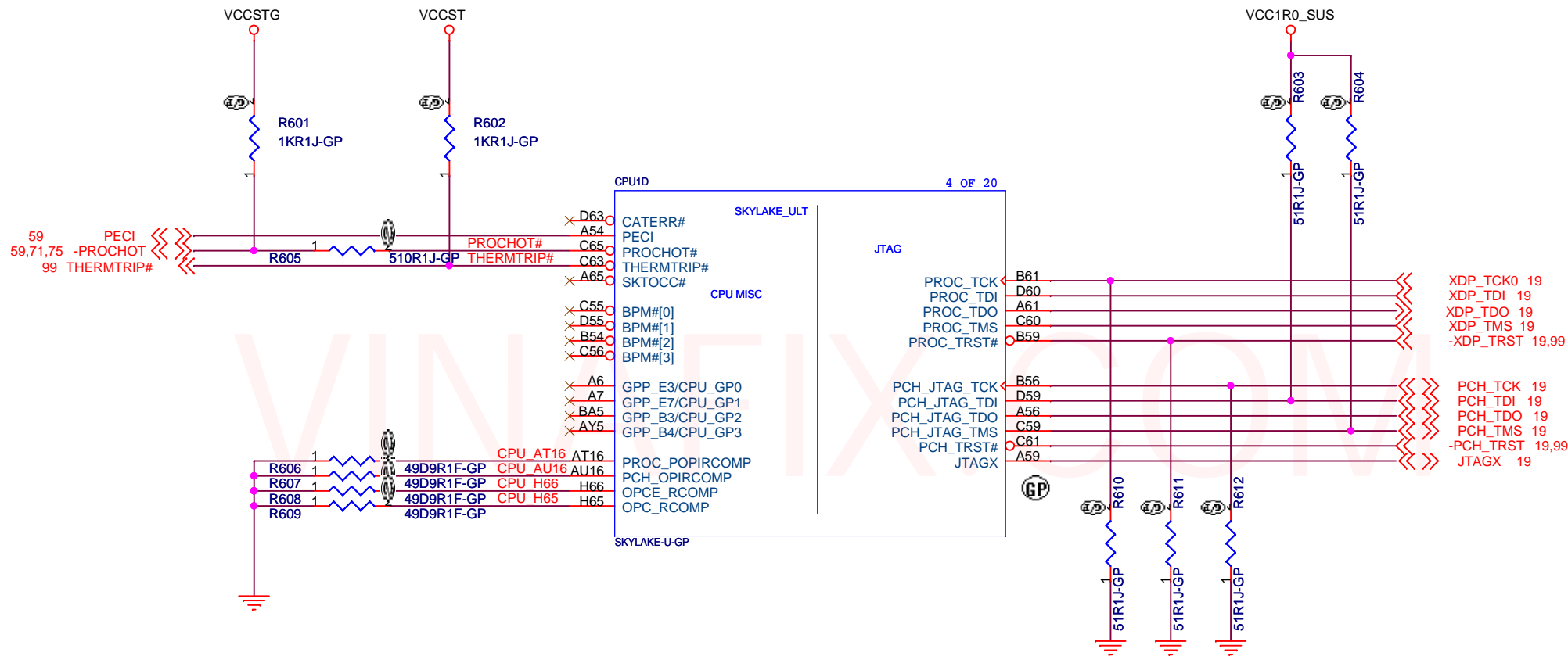
ULT

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title CPU(3/16) : DDR CH-B

Size A3 Document Number Raven-1 Rev -3

Date: Monday, July 20, 2015 Sheet 5 of 102



ULT

緯創資通

Wistron Corporation

21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title **CPU(4/16) : MISC/JTAG**

Size
A4

Document Number

Raven-1

Rev
-3

Date: Monday, July 20, 2015

Sheet 6 of 102

TABLE: Functional Strap

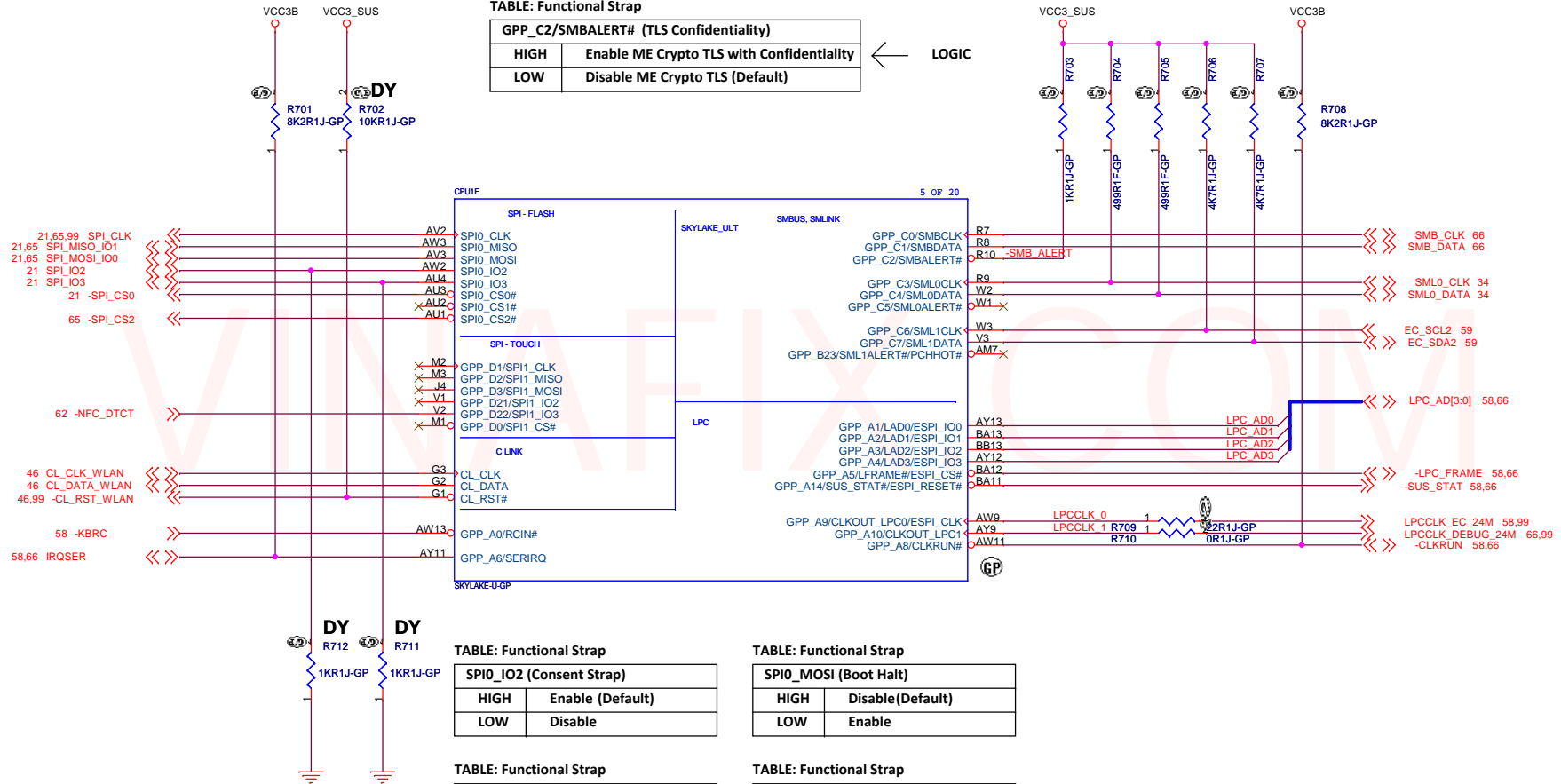
GPP_C5/SML0ALERT# (LPC or eSPI)	
HIGH	eSPI is selected
LOW	LPC is selected (Default)

← LOGIC

TABLE: Functional Strap

GPP_C2/SMBALERT# (TLS Confidentiality)	
HIGH	Enable ME Crypto TLS with Confidentiality
LOW	Disable ME Crypto TLS (Default)

← LOGIC



ULT

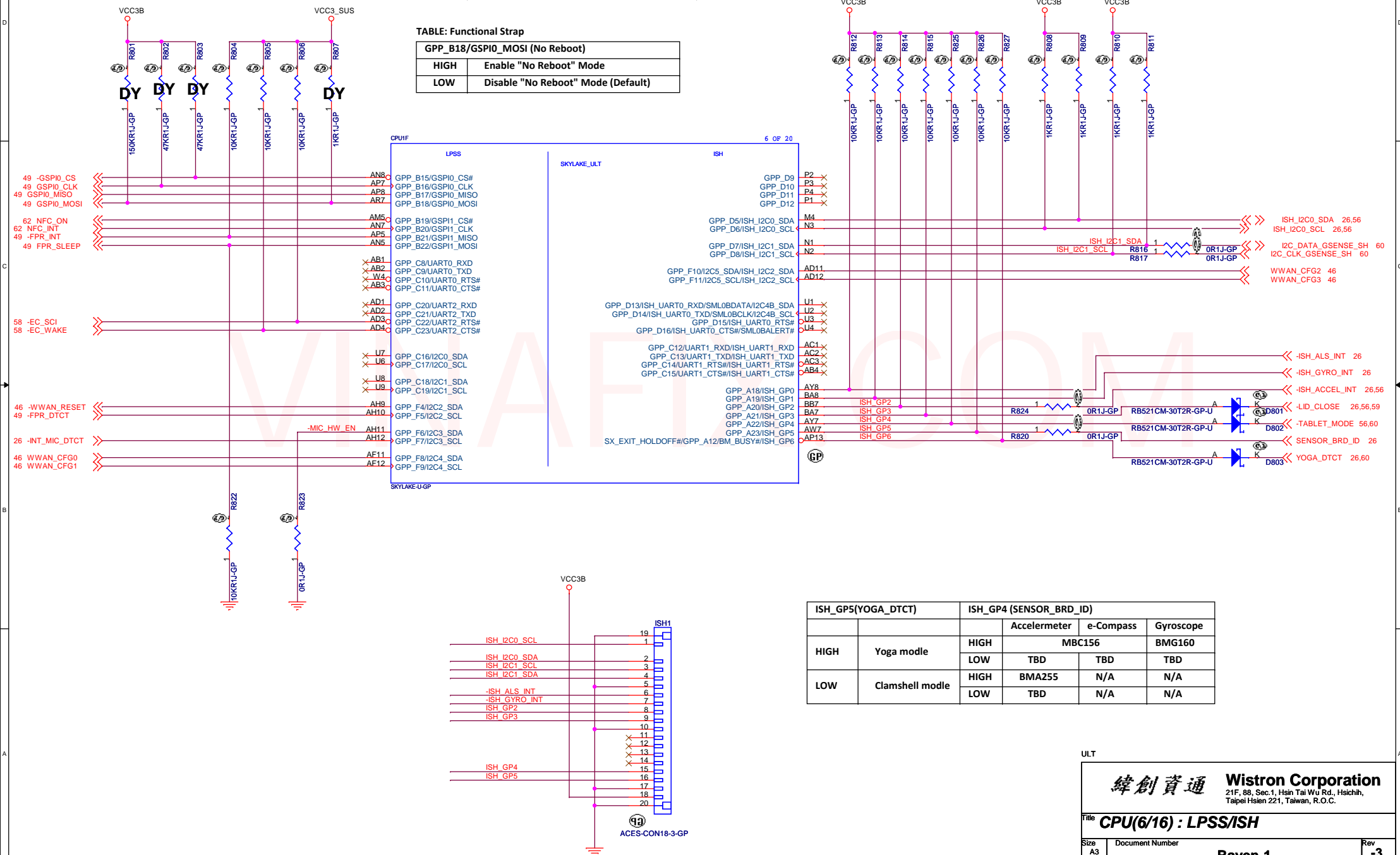
緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title CPU(5/16) : LPC/SPI/SMBUS

Size A3	Document Number	Rev -3
Date: Monday, July 20, 2015	Sheet 7 of 102	

GPP_B22/GSPI1_MOSI (Boot BIOS Destination)	
HIGH	Boot BIOS from LPC
LOW	Boot BIOS from SPI (Default)

GPP_B18/GSPI0_MOSI (No Reboot)	
HIGH	Enable "No Reboot" Mode
LOW	Disable "No Reboot" Mode (Default)



ISH_GP5(YOGA_DTCT)		ISH_GP4 (SENSOR_BRD_ID)			
			Accelermeter	e-Compass	Gyroscope
HIGH	Yoga modle	HIGH	MBC156		BMG160
		LOW	TBD	TBD	TBD
LOW	Clamshell modle	HIGH	BMA255	N/A	N/A
		LOW	TBD	N/A	N/A

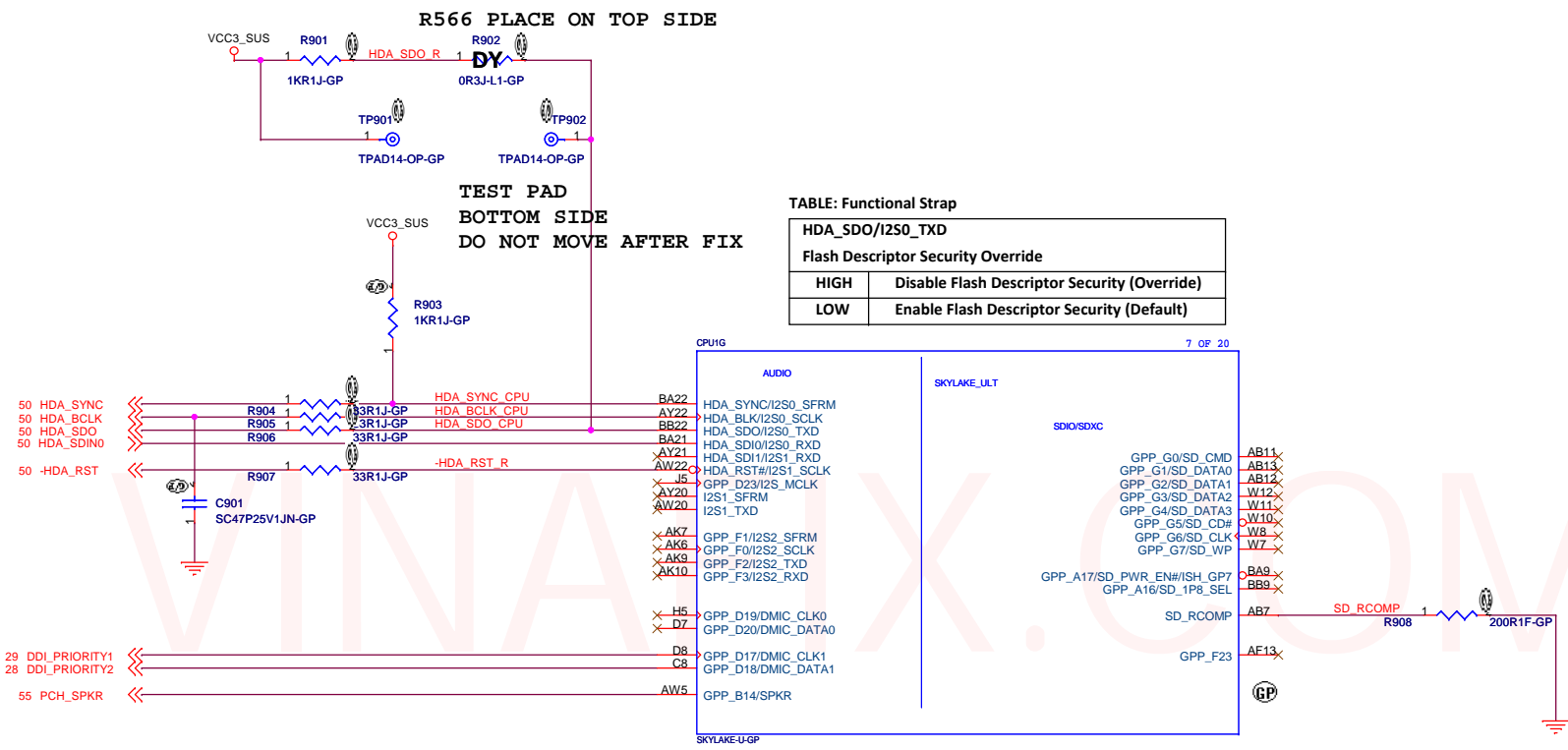


TABLE: Functional Strap

HDA_SDO/I2S0_TXD	
Flash Descriptor Security Override	
HIGH	Disable Flash Descriptor Security (Override)
LOW	Enable Flash Descriptor Security (Default)

TABLE: Functional Strap

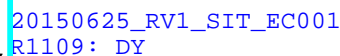
GPP_B14/SPKR (Top Swap Override)	
HIGH	Enable "Top Swap" Mode
LOW	Disable "Top Swap" Mode (Default)

← LOGIC

ULT




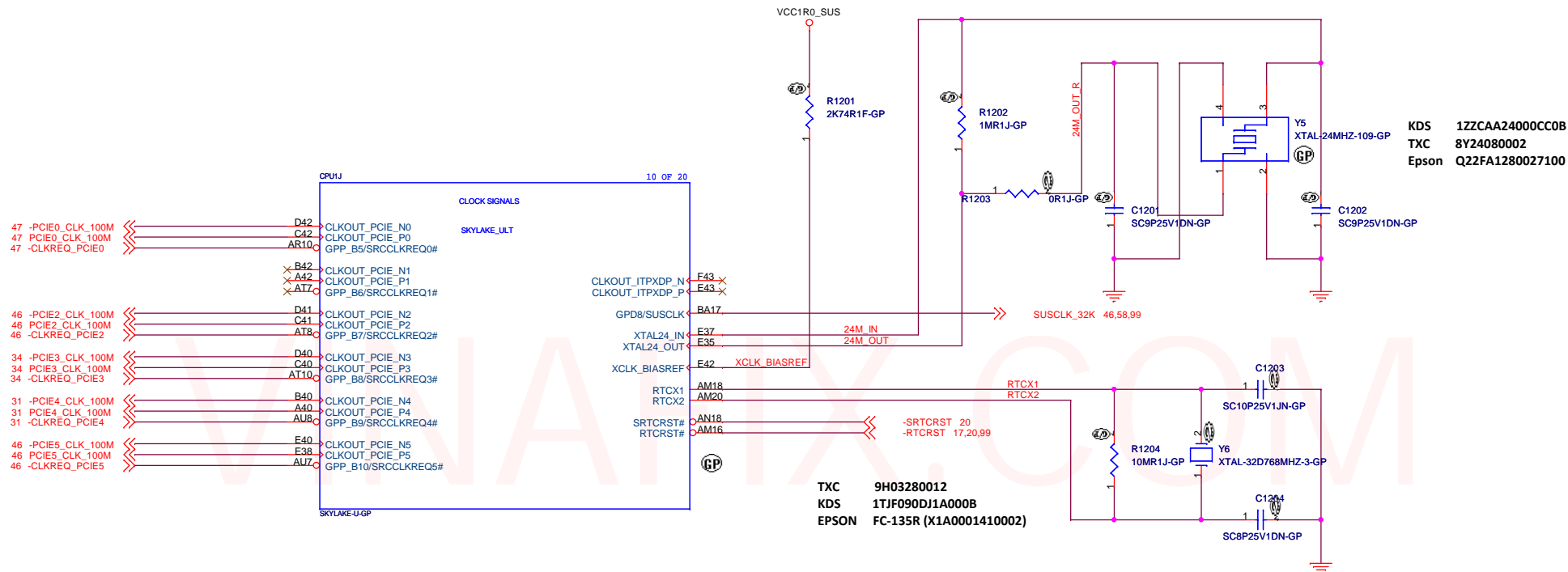
Memory Die Revision

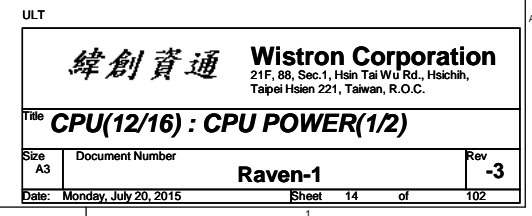


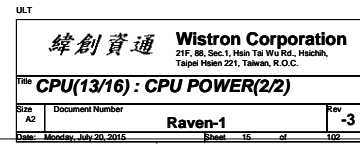
LEVEL	PLANAR ID			
	3	2	1	0
	R1106	R1107	R1108	R1109
1	NA	NA	NA	NA
0	ASM	ASM	ASM	ASM

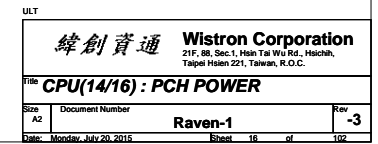
LEVEL	PLANARID[3..0]
PDV	0000B
SDV	0001B
ME-FVT	0010B
EE-SDV2	0011B
FVT	0100B
SIT	0101b

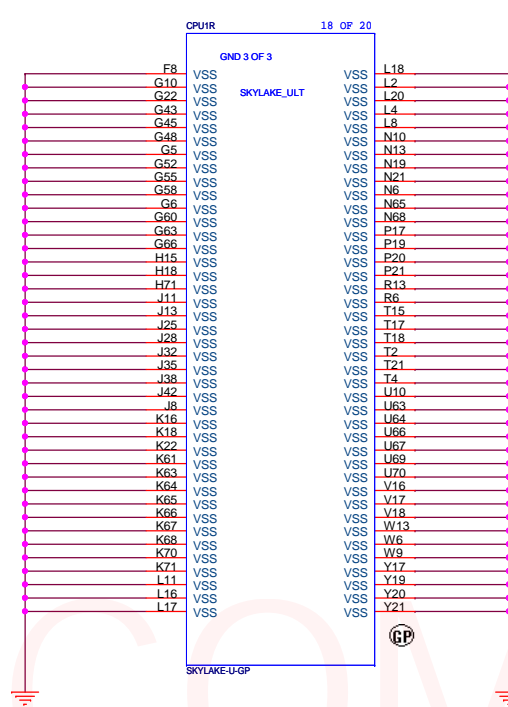
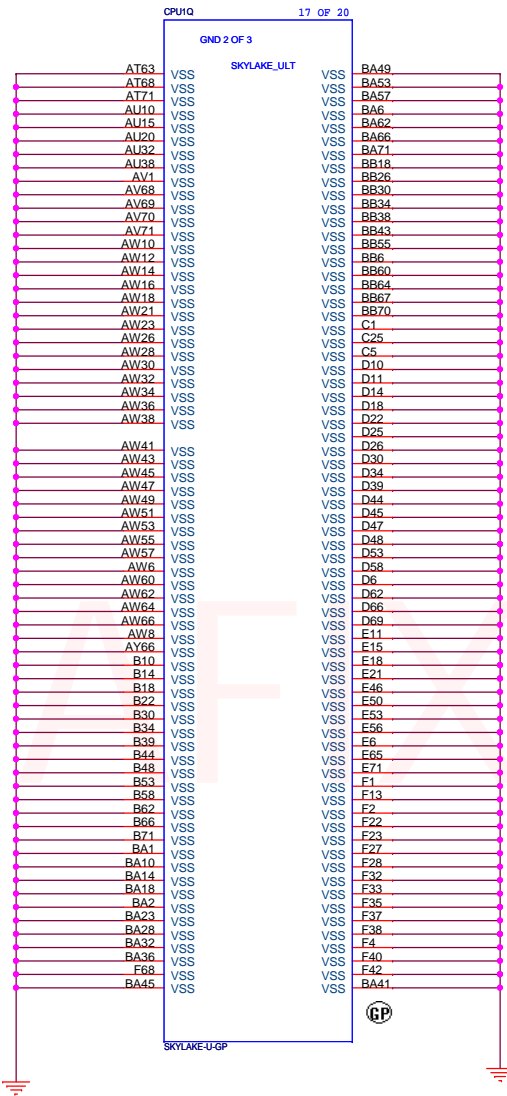
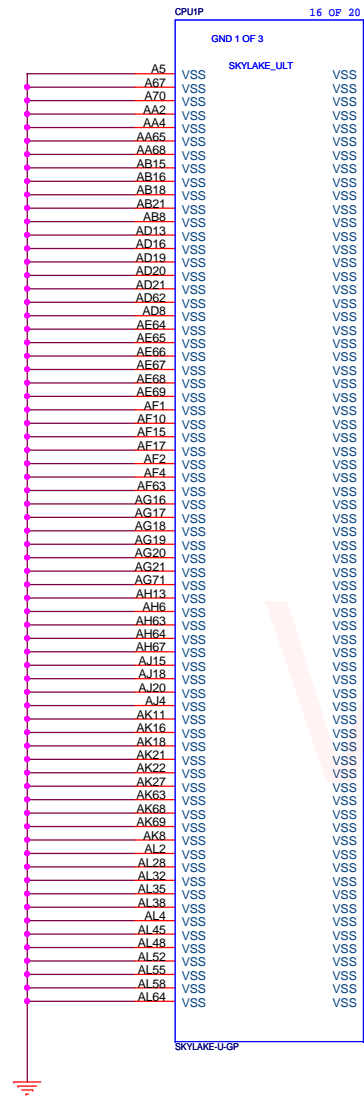
 <div> Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. </div>	
Title CPU(9/16) : CSI-2/EMMC	
Size A4	Document Number Raven-1
Rev -3	
Date: Monday, July 20, 2015	Sheet 11 of 102



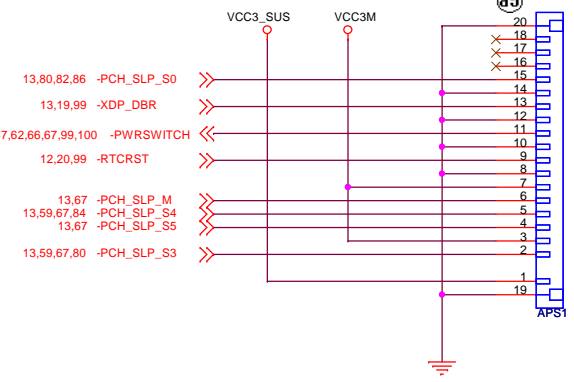




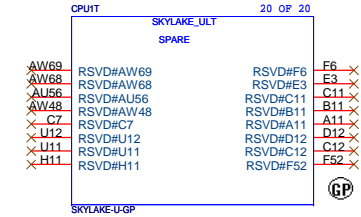


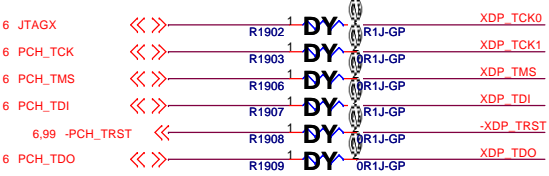
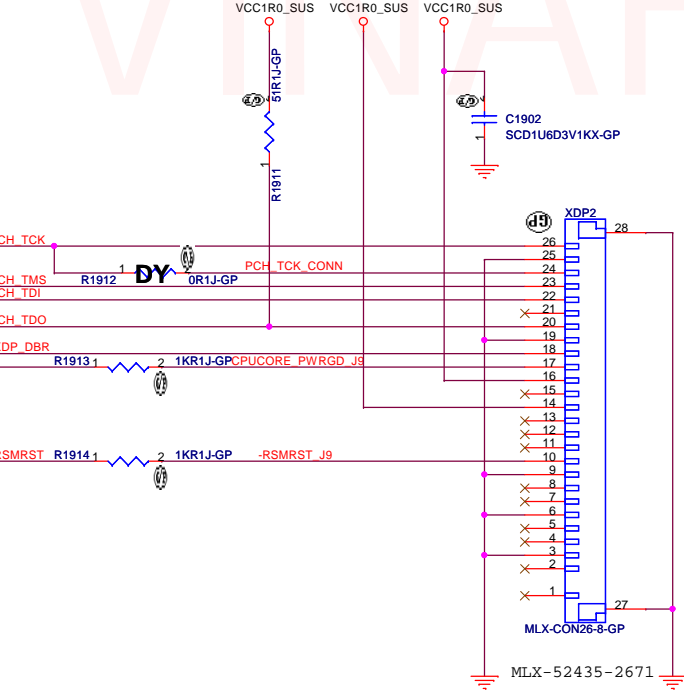
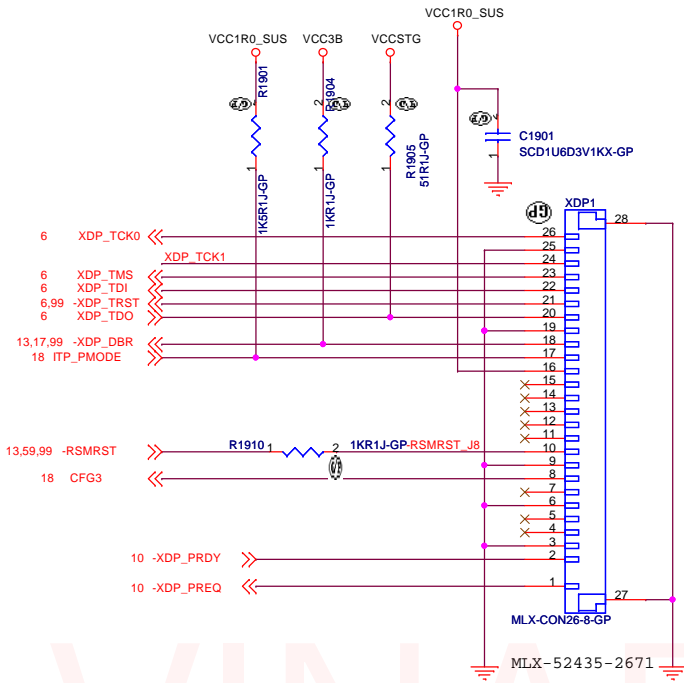


APS/PETS Interface



CFG0 : Stall Reset Sequence after PCU PLL Lock until de-asserted 1 : No Stall 0 : Stall
CFG3 : MSR Privacy Bit Feature 1 : MSR (C80h) bit[0] setting 0 : MSR (C80h) bit[0] overridden
CFG4 : eDP Enable 1 : Disabled 0 : Enabled
CFG9 : SVID Bus Communication 1 : Enabled 0 : Disabled





TABLE

	Individual Port	Merged Port	DCI 2.0 w/o Connector
R610	ASM	ASM	ASM
R611	ASM	NO_ASM	NO_ASM
R612	ASM	NO_ASM	NO_ASM
R603	ASM	NO_ASM	NO_ASM
R604	ASM	NO_ASM	NO_ASM
R1905 J8	ASM	ASM	ASM
C1901	ASM	ASM	NO_ASM
R1904	ASM	ASM	ASM
R1901	ASM	ASM	NO_ASM
R1910	ASM	ASM	NO_ASM
R1912	NO_ASM	NO_ASM	NO_ASM
R1911	ASM	NO_ASM	NO_ASM
J9	ASM	ASM	NO_ASM
C1902	ASM	ASM	NO_ASM
R1913	ASM	ASM	NO_ASM
R1914	ASM	ASM	NO_ASM
R1902	NO_ASM	ASM	ASM
R1903	NO_ASM	ASM	NO_ASM
R1906	NO_ASM	ASM	ASM
R1907	NO_ASM	ASM	ASM
R1908	NO_ASM	ASM	ASM
R1909	NO_ASM	ASM	ASM

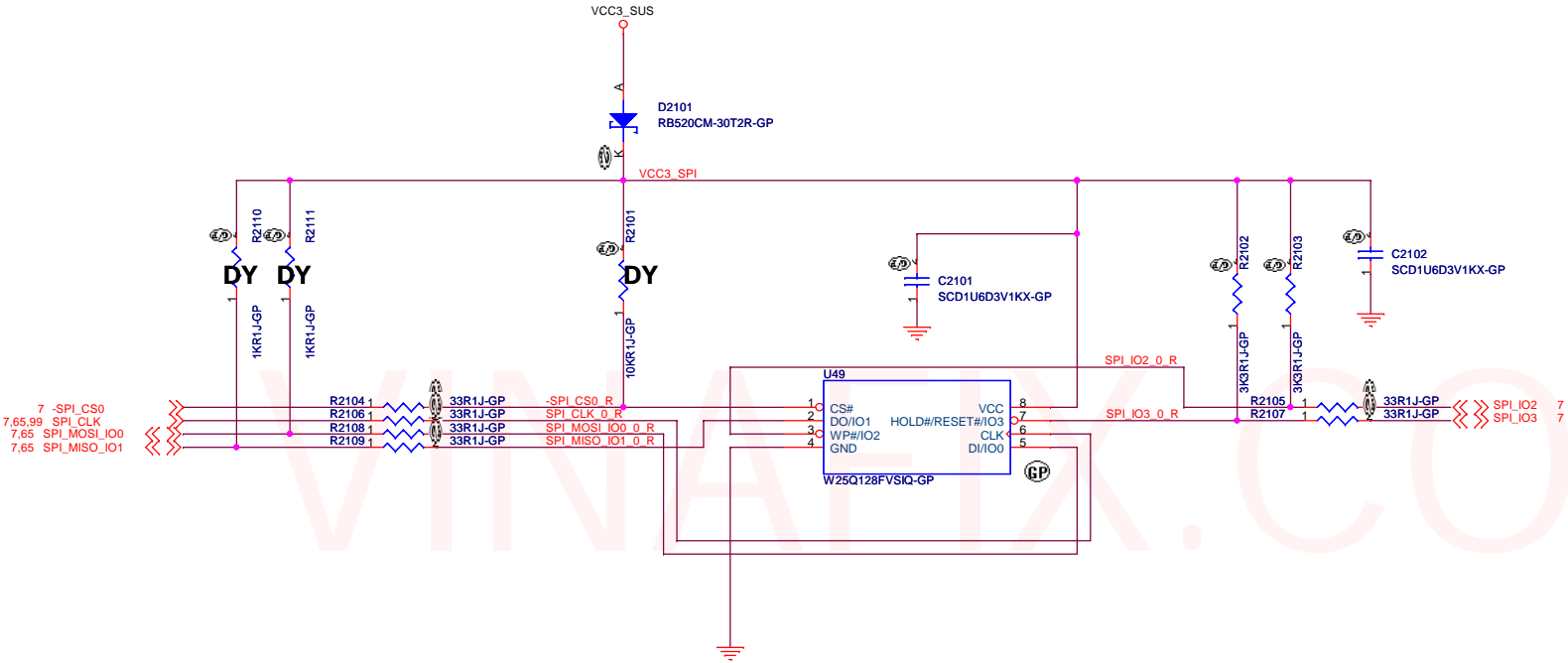
↑
LOGIC

TABLE

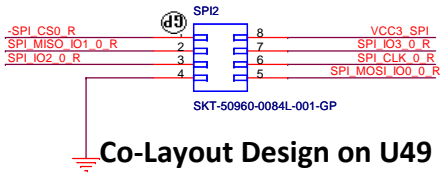
Skylake	R2111	R2110	R2102	R711
PreES / ES	ASM	ASM	DY	ASM
After QS	DY	DY	ASM	DY

← LOGIC

16MB SOIC8
WINBOND W25Q128FVSIQ
MACRONIX MX25L12873FM2I-10G
MICRON N25Q128A13ESED0F
EON EN25QH128A-104HIP

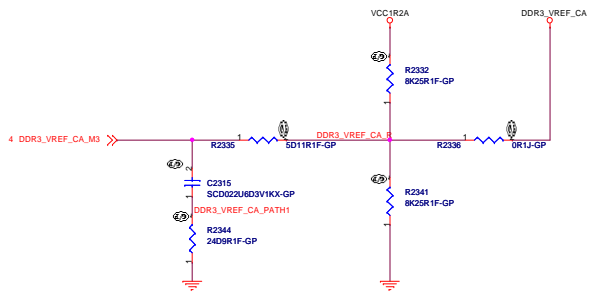
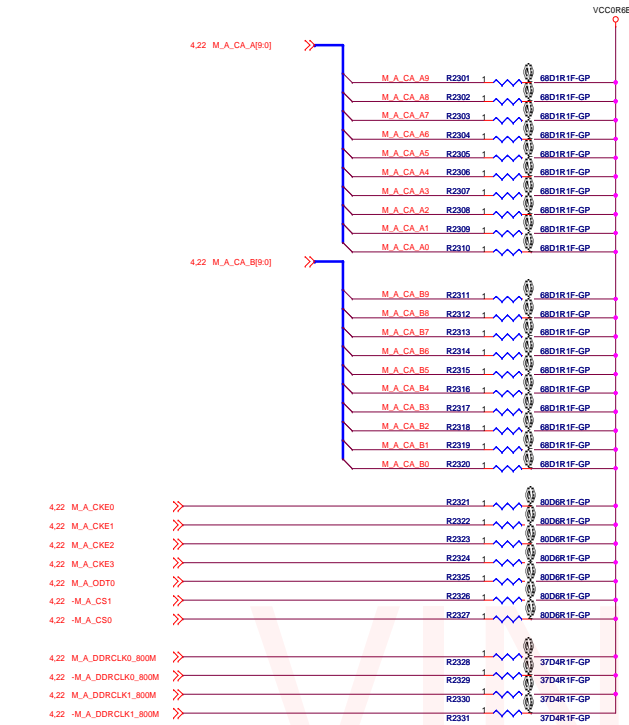


SPI ROM socket

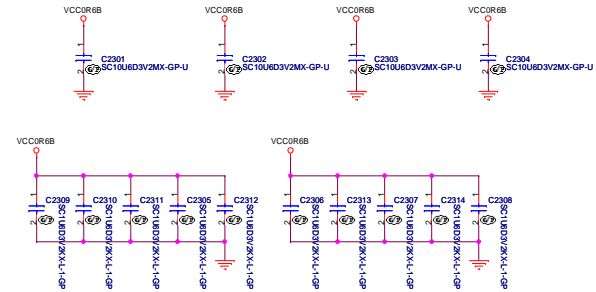


TABLE

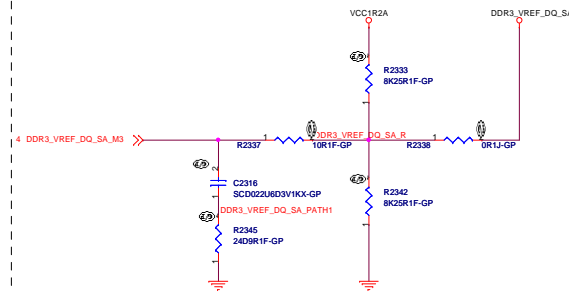
SF100 PIN HEADER INTERFACE (TOP VIEW)							
1	VCC	D2101.K	GND	GND	2		
3	CS#	R2104.2	R2106.2	CLK	4		
5	MISO	R2109.2	R2108.2	MOSI	6		
7	(KEY)	N/A	N/A	(RESET)	8		



LPDDR3 Vtt Decoupling

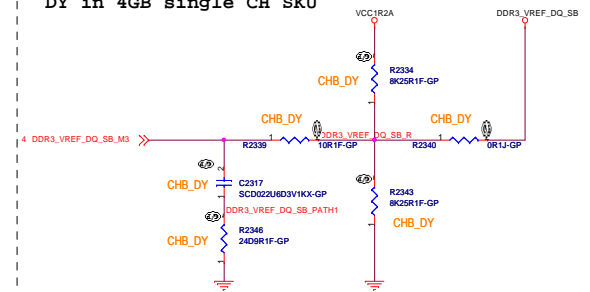


PLACE NEAR A Channel



PLACE NEAR B Channel

DY in 4GB single CH SKU




ULT

緯創資通 Wistron Corporation
21F, 8B, Sec.1, Hsin Tai Wu Rd., Hsichuan,
Taipei Hsien 221, Taiwan, R.O.C.

Title LPDDR3 CH-A (2/2)

Size A2	Document Number	Rev ~3
Date: Monday, July 20, 2015	Sheet 23 of 102	

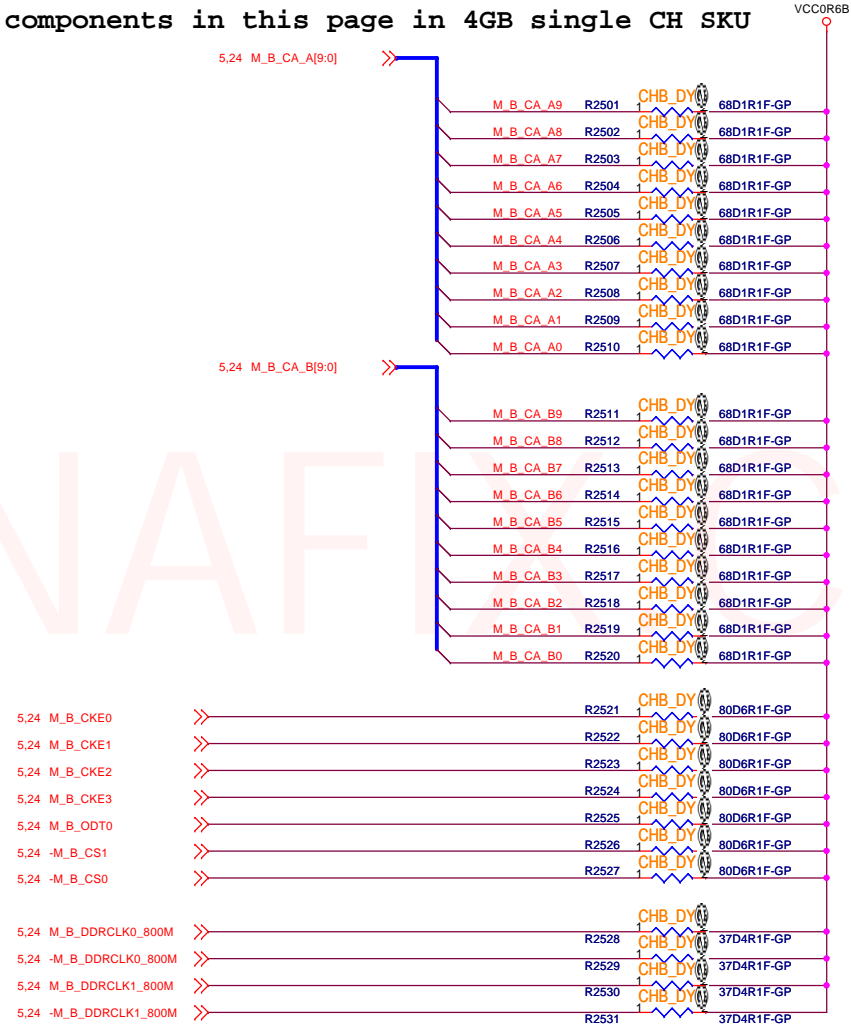
0:0] << >>

7:0] << >> 

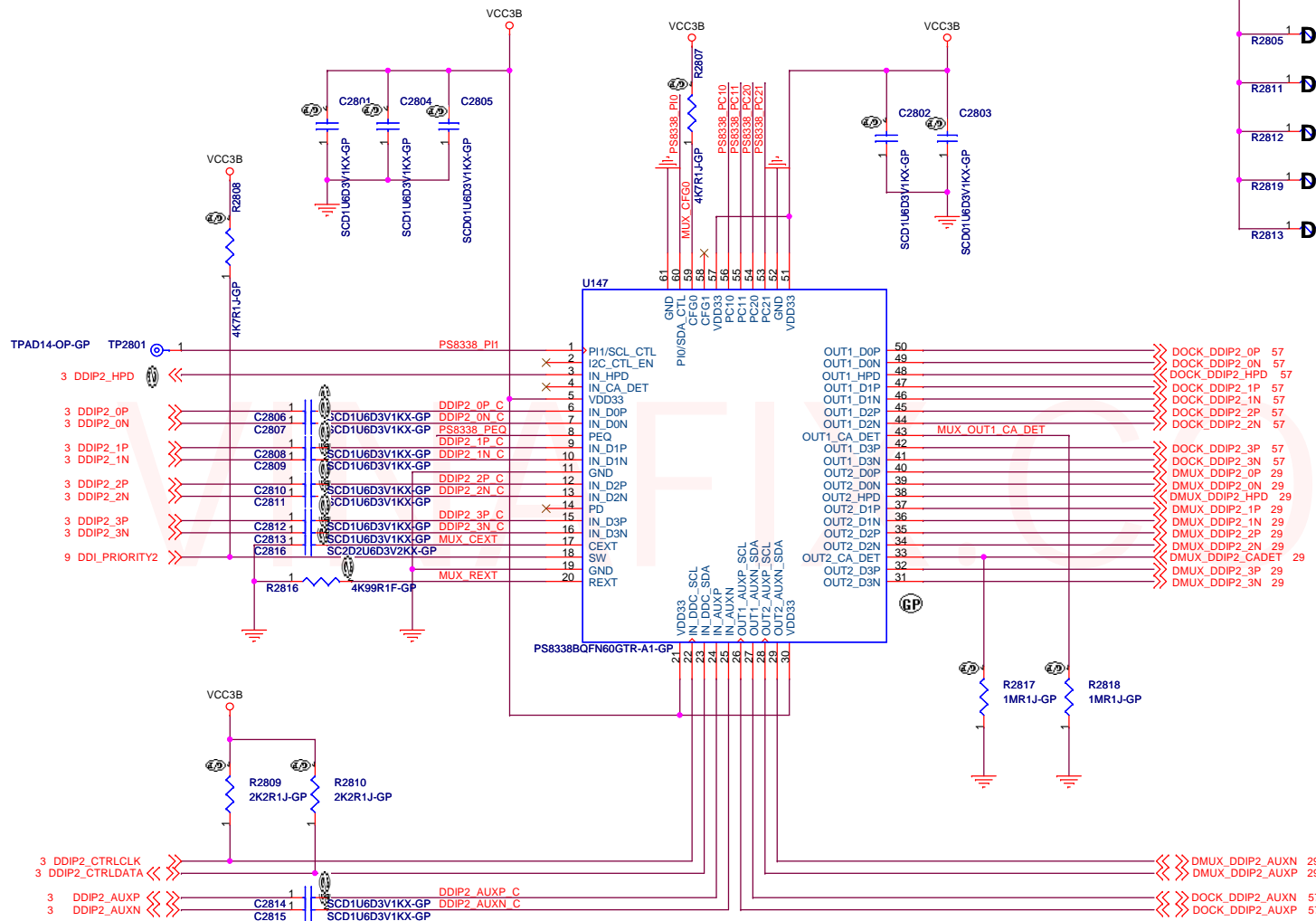
6:0] << >>



DY all components in this page in 4GB single CH SKU

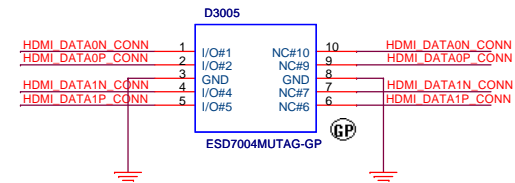
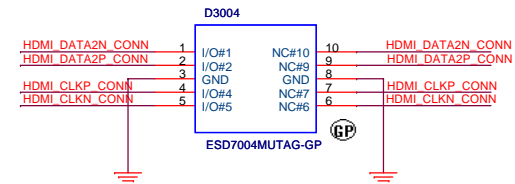
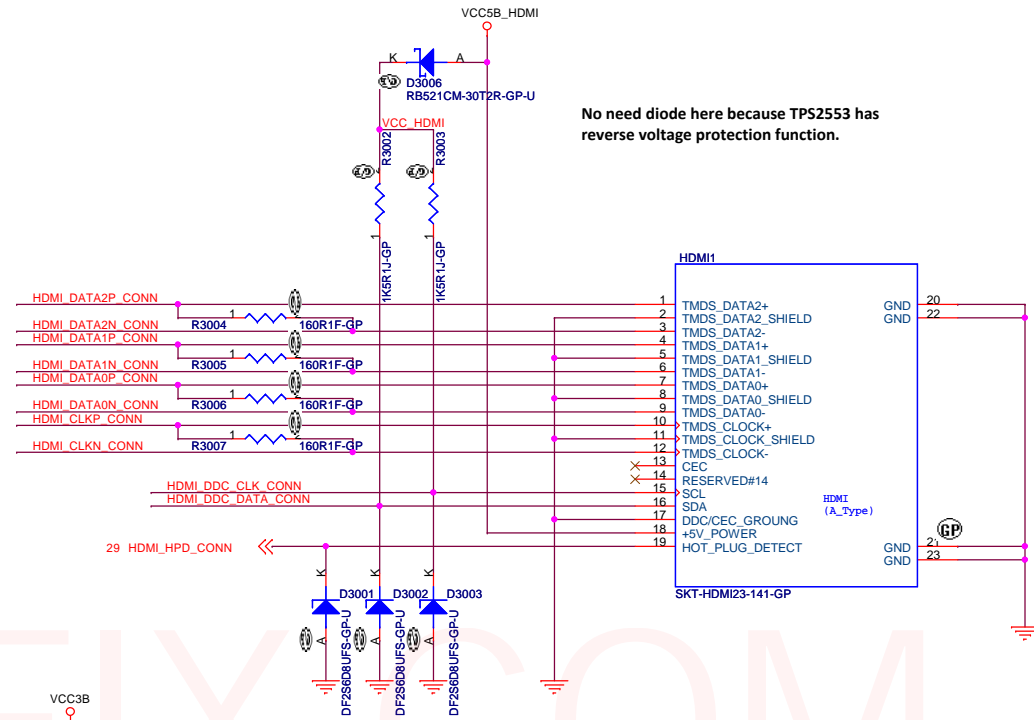
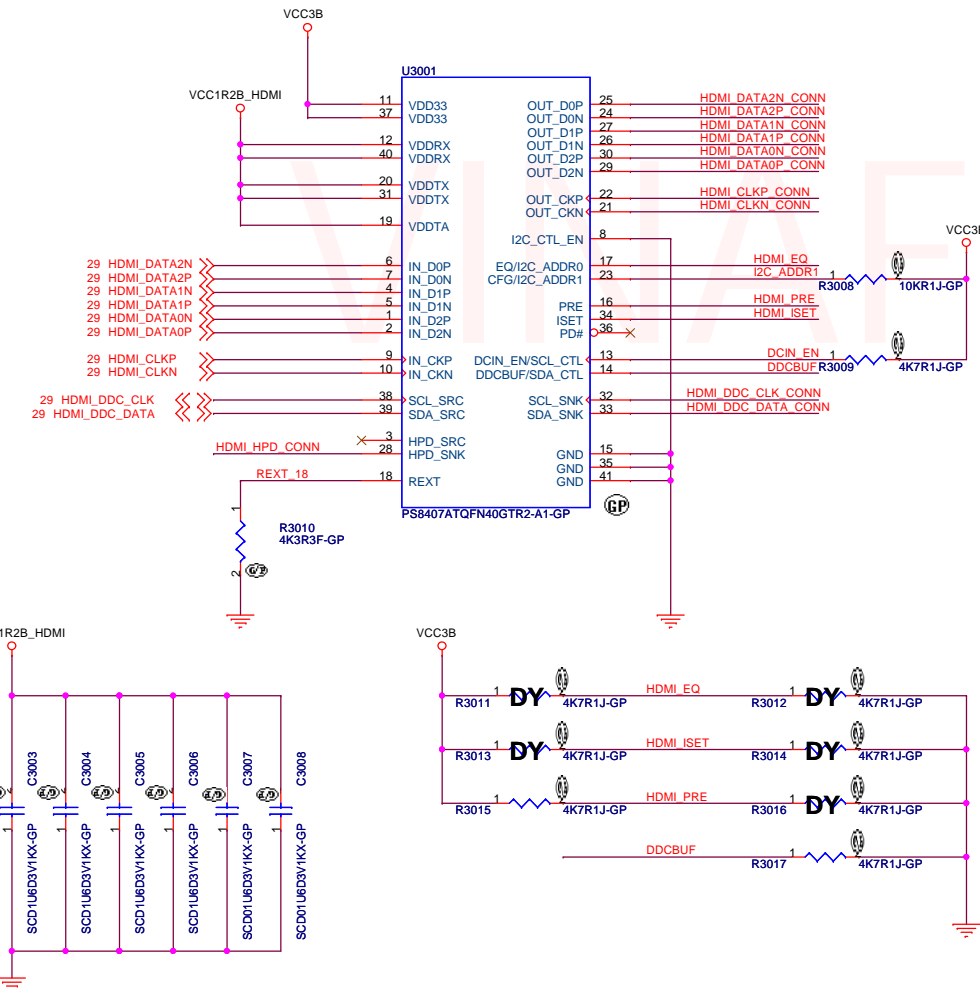


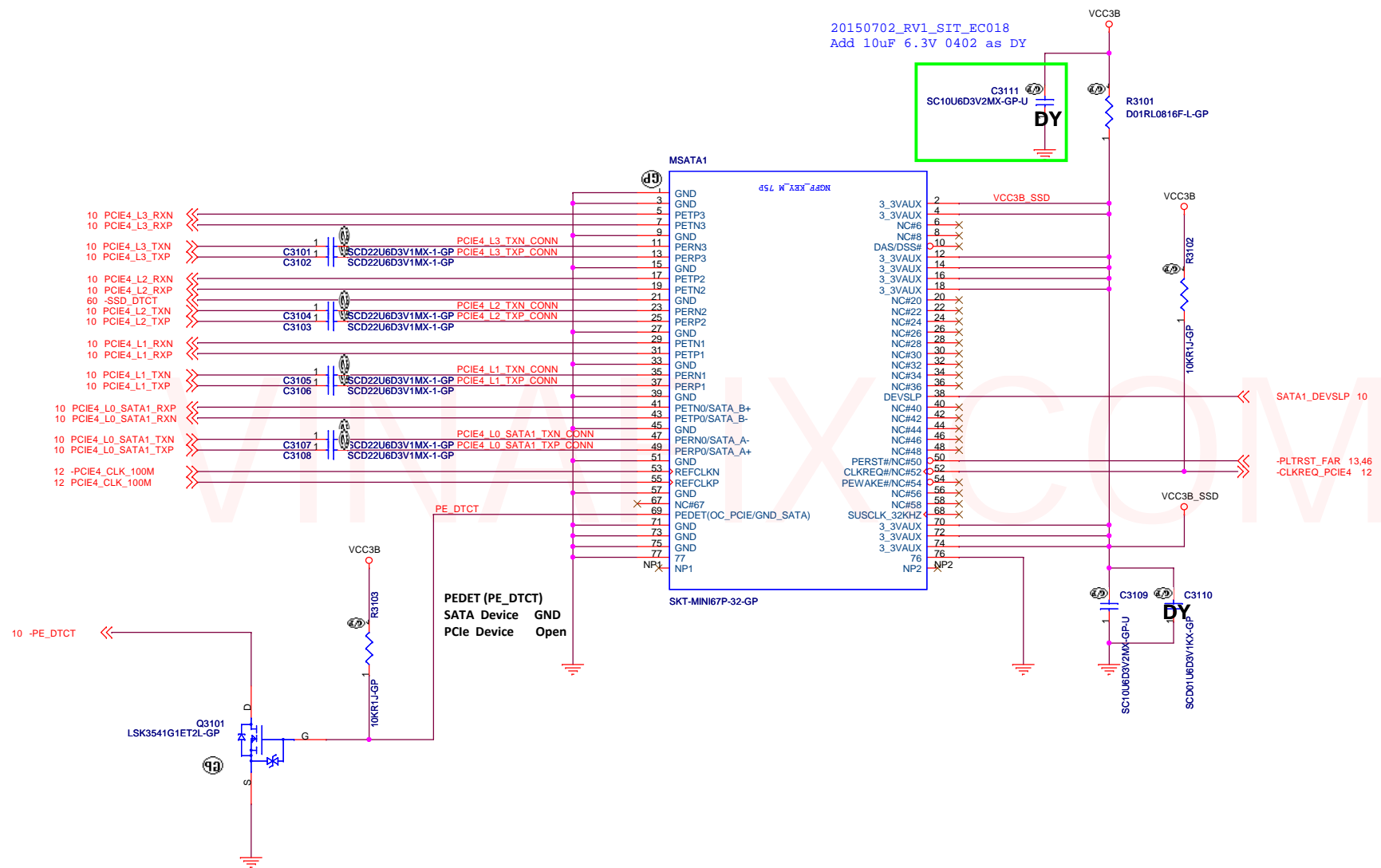
ULT



main	TI	TPS2253DBVR
2nd	GMT	G517AL1TB1U

The schematic diagram shows the TPS2553DVR-GP (U110) circuit. The input side includes a 100nF capacitor (C3001) and a 100k resistor (R3001) connected to the IN pin. The output side includes a 100nF capacitor (C3002) and a 100k resistor (R3001) connected to the OUT pin. The IC is also connected to GND and EN pins. The output is labeled HDMIPWR_ILIM.





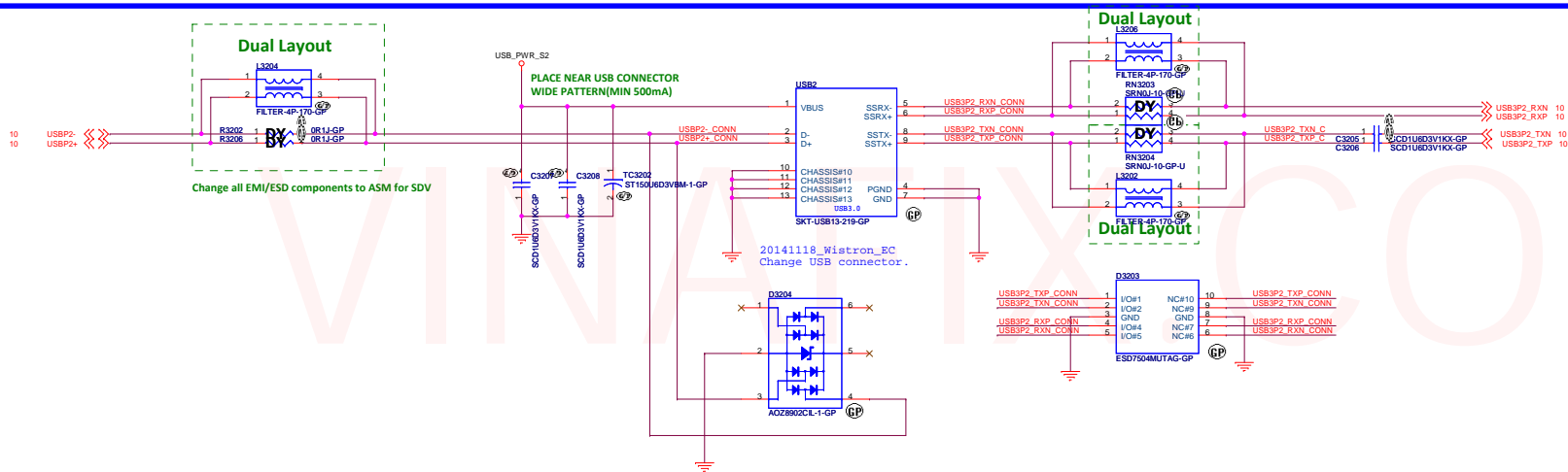
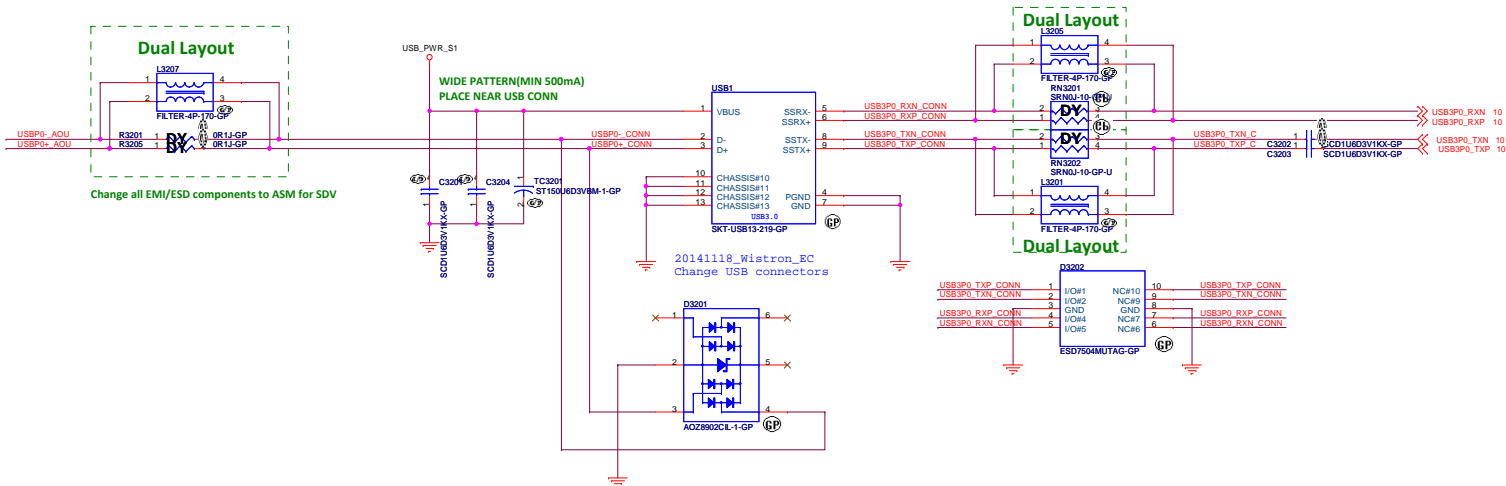
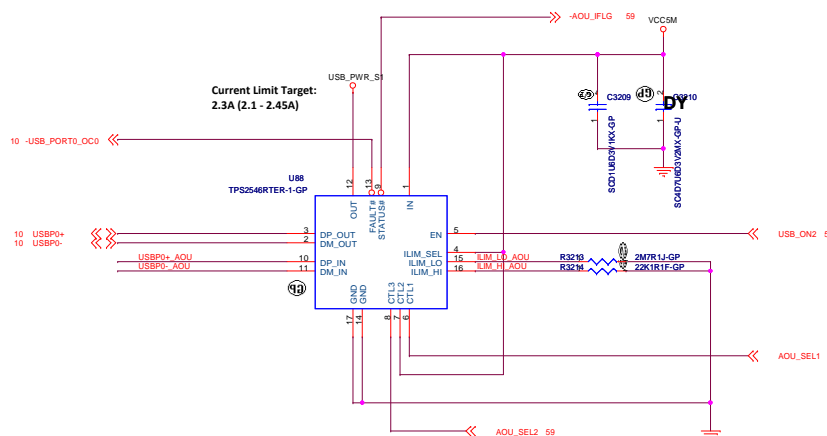
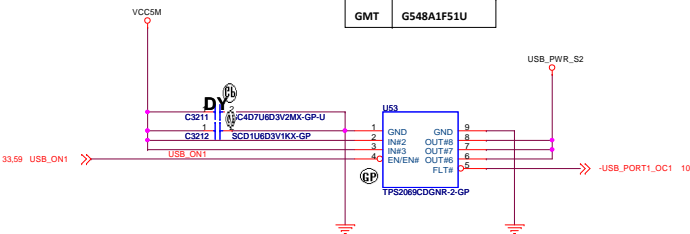


TABLE of USB3.0 Single	
TI	TPS2069CDGN-2
GMT	G548A1F51U



vPro Capability		
GbE PHY	Yes	No
U?	Jacksonville-LM	Jacksonville-V



VINAFTX.COM

BLANK

ULT

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 35 of	102

BLANK

VINAFTX.COM

ULT

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 36 of	102

BLANK

VINAFTX.COM

ULT

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 37 of	102

BLANK

VINAFTX.COM

ULT

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 38 of	102

BLANK

VINAFIX.COM

ULT

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 39 of	102

VINAFIX.COM

BLANK

ULT

<div>緯創資通</div>		<div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.</div>	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 40 of	102

BLANK

VINAFIX.COM


ULT

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 41 of	102

VINAFIX.COM

BLANK

ULT

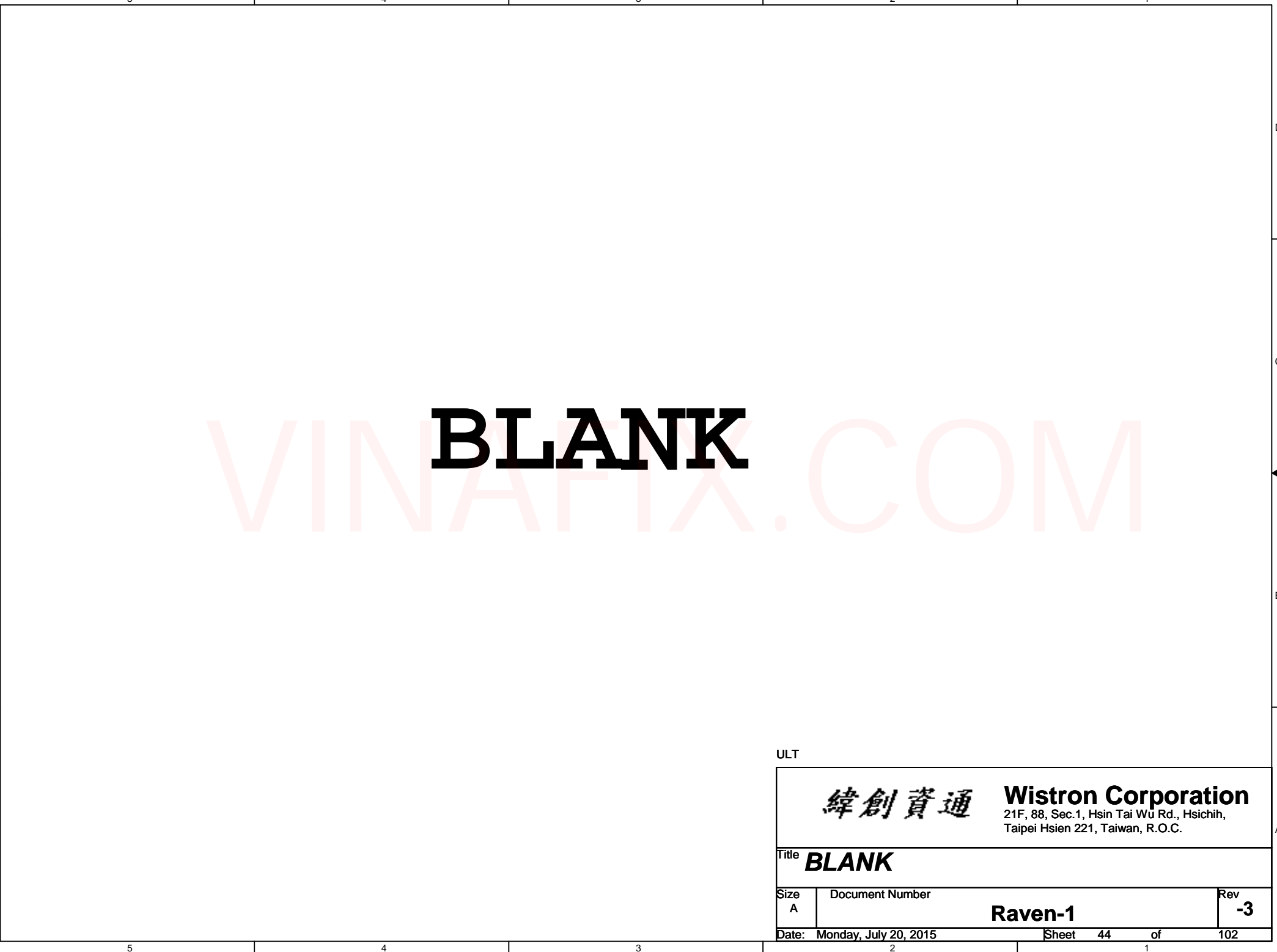
		Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015	Sheet 42	of 1	102

BLANK

VINAFIX.COM

ULT

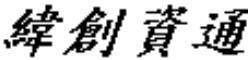
緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015	Sheet 43	of	102



VINAFTX.COM

BLANK

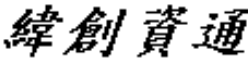
ULT

		Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 44 of	102

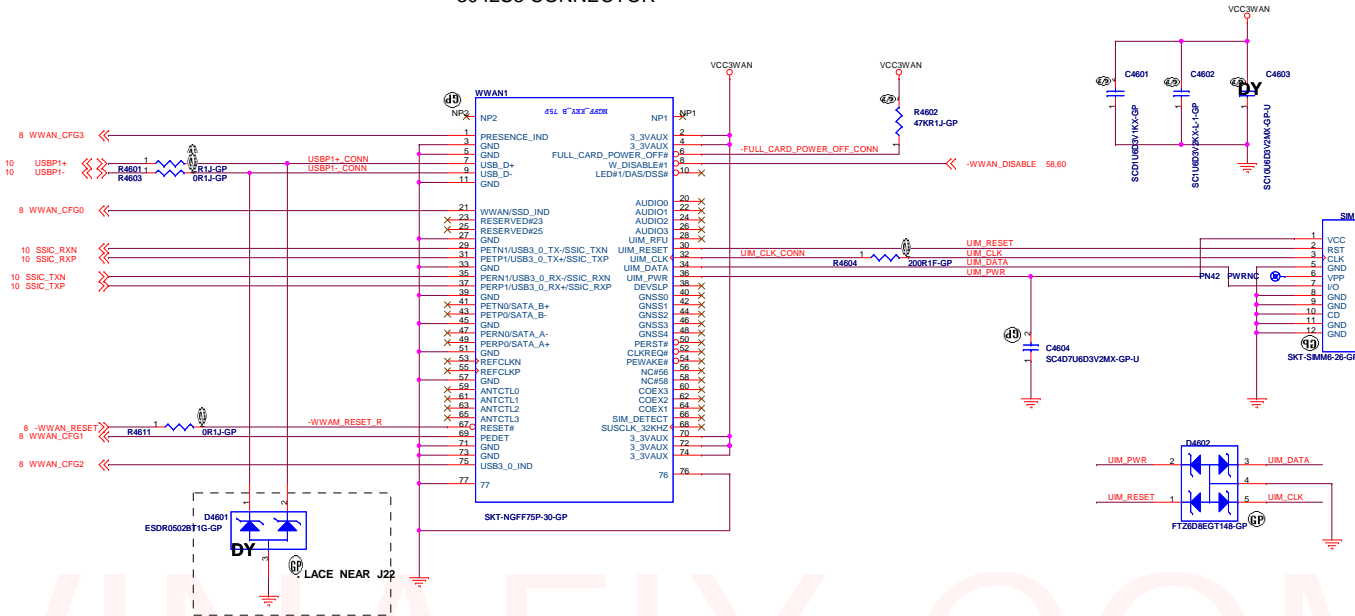
BLANK

VINAFTX.COM

ULT

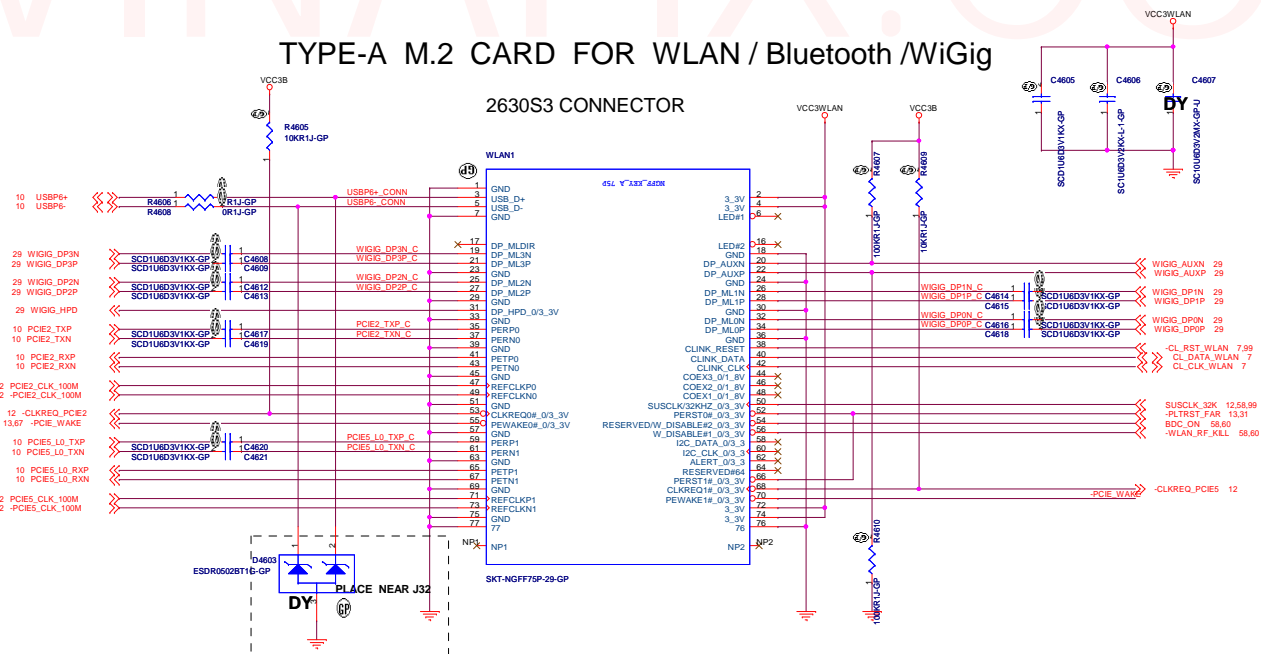
		Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 45 of	102

3042S3 CONNECTOR



TYPE-A M.2 CARD FOR WLAN / Bluetooth / WiGig

2630S3 CONNECTOR



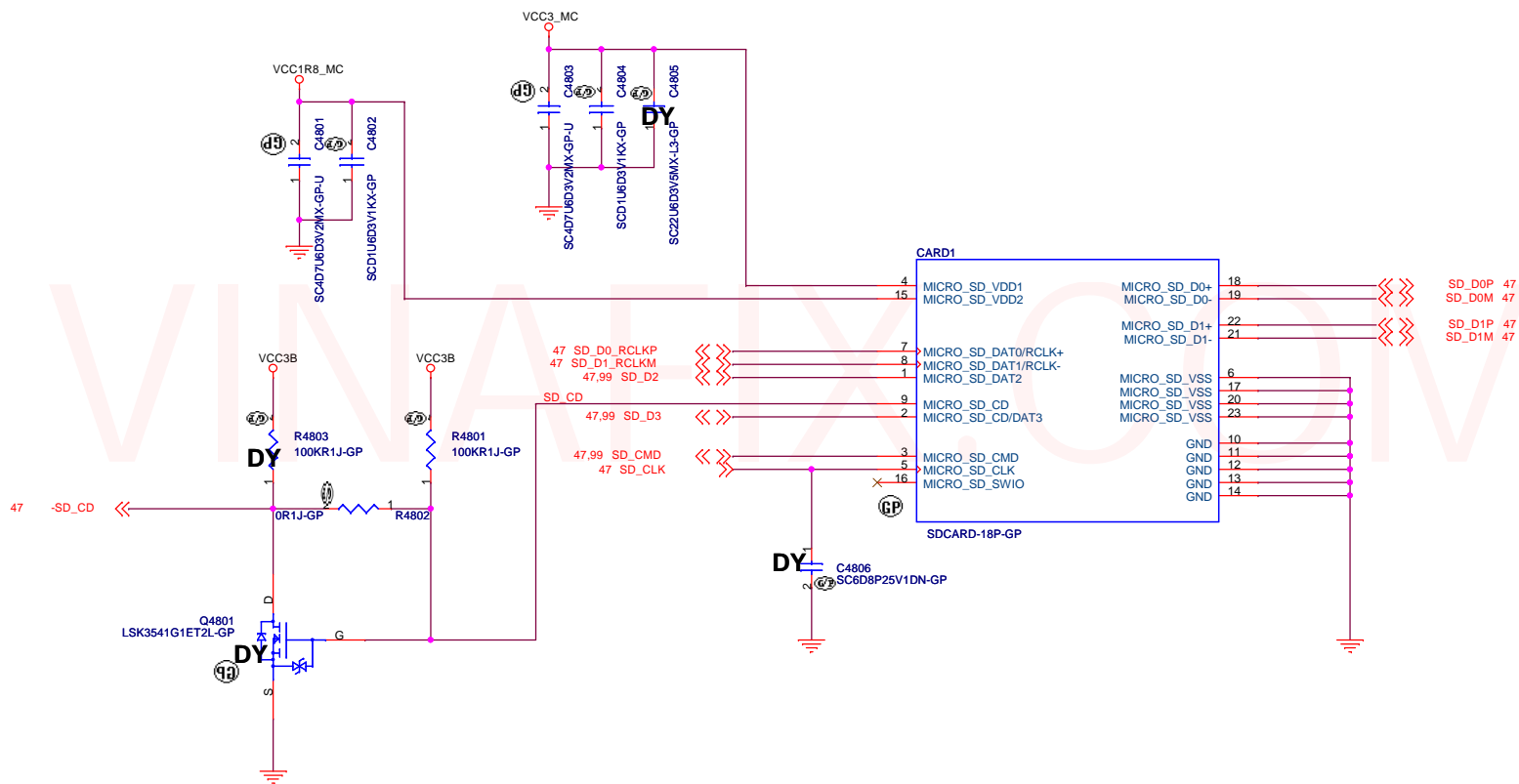
ULT

緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title	PCIE M.2 CARD SLOT
-------	---------------------------

Size A2	Document Number Raven-1	Rev -3
Date: Monday, July 20, 2015		Sheet 46 of 102

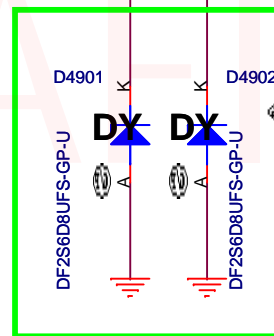
MicroSD Slot (UHS-II)



ULT

10 USBP8-
10 USBP8+

20150701_RV1_SIT_EC007
Add ESD diode DF2S6D8UFS at
USBP8+ and USBP8- as DY



8 -FPR_INT TP4901 TPAD14-OP-GP
8 FPR_SLEEP TP4902 TPAD14-OP-GP
8 GSPI0_CLK TP4903 TPAD14-OP-GP
8 GSPI0_MISO TP4904 TPAD14-OP-GP
8 GSPI0_MOSI TP4905 TPAD14-OP-GP
8 -GSPI0_CS TP4906 TPAD14-OP-GP
8 -FPR_DTCT TP4907 TPAD14-OP-GP

Reserved

20141023_Wistron_EC032 (Canceled)
Delete FPR SPI interface and reserved testpoints.

VCC3B

F8

1

FUSEVCC3FP

USBP8- CONN

USBP8+ CONN

FPR1

10

8

7

6

5

4

3

2

1

9

HRS-CON8-6-GP

For USB I/F FPR

C4901
SC2D2U6D3V2KX-GP

ULT

緯創資通

Wistron Corporation

21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title **FPR**

Size
A4

Document Number

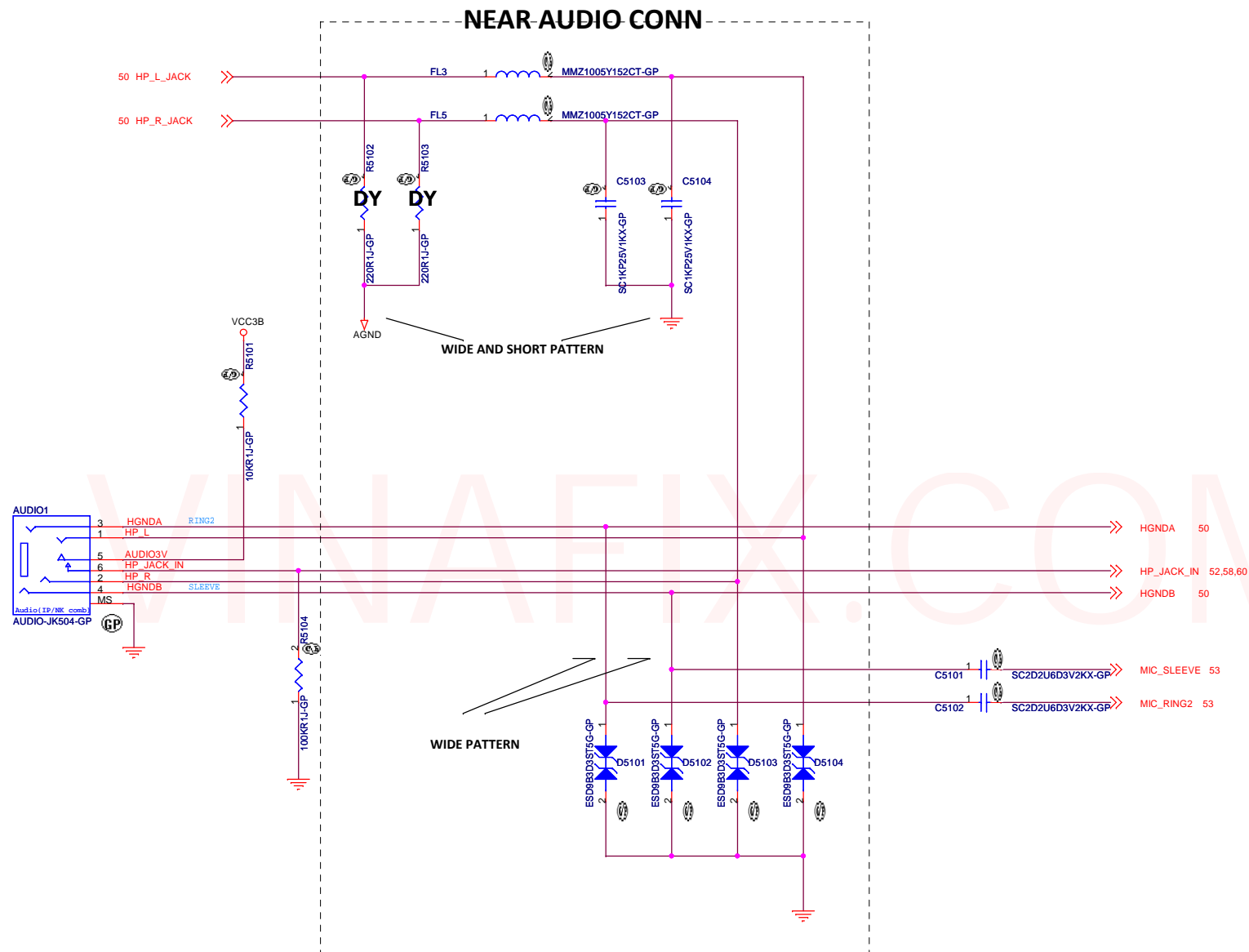
Raven-1

Rev
-3

Date: Monday, July 20, 2015

Sheet 49 of 102

Size A2	Document Number Raven-1	Rev -3
Date: Monday, July 27, 2015	Sheet 50 of 102	



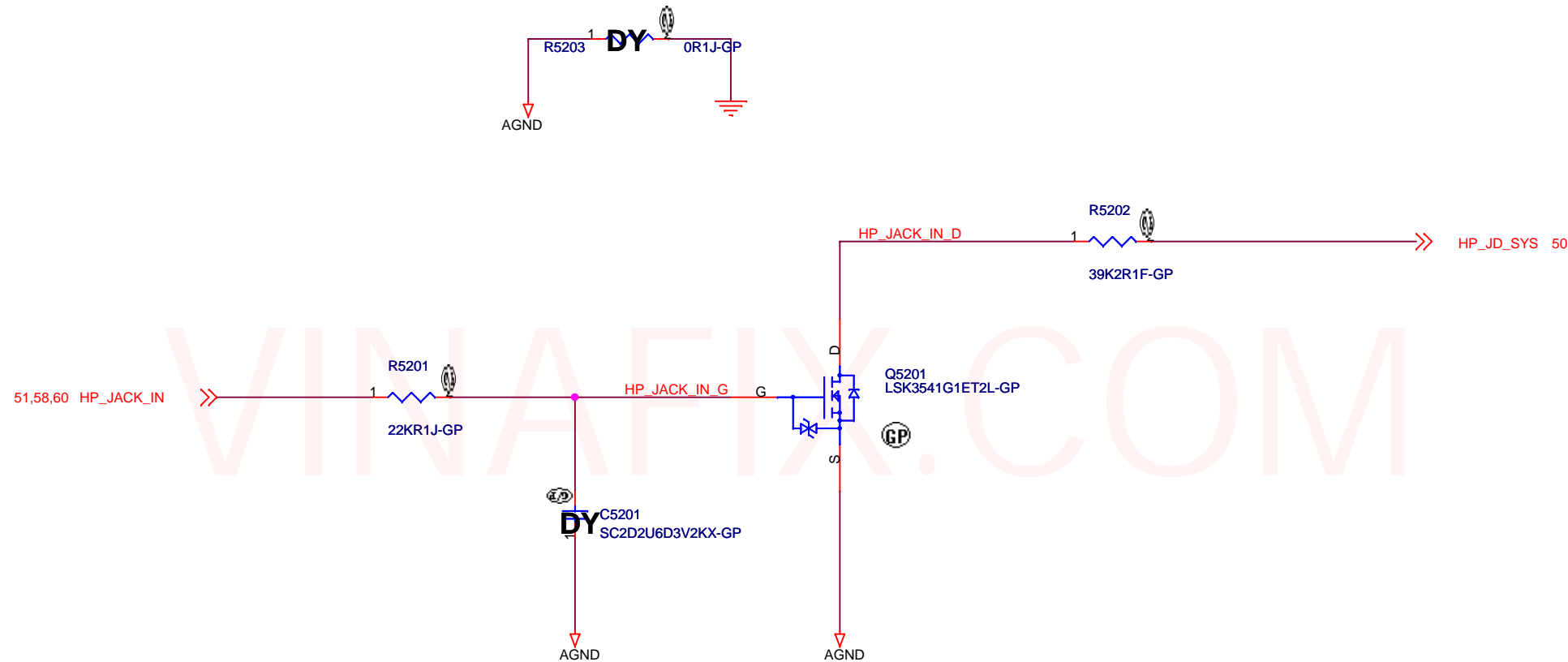
ULT

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title **AUDIO CONNECTOR**

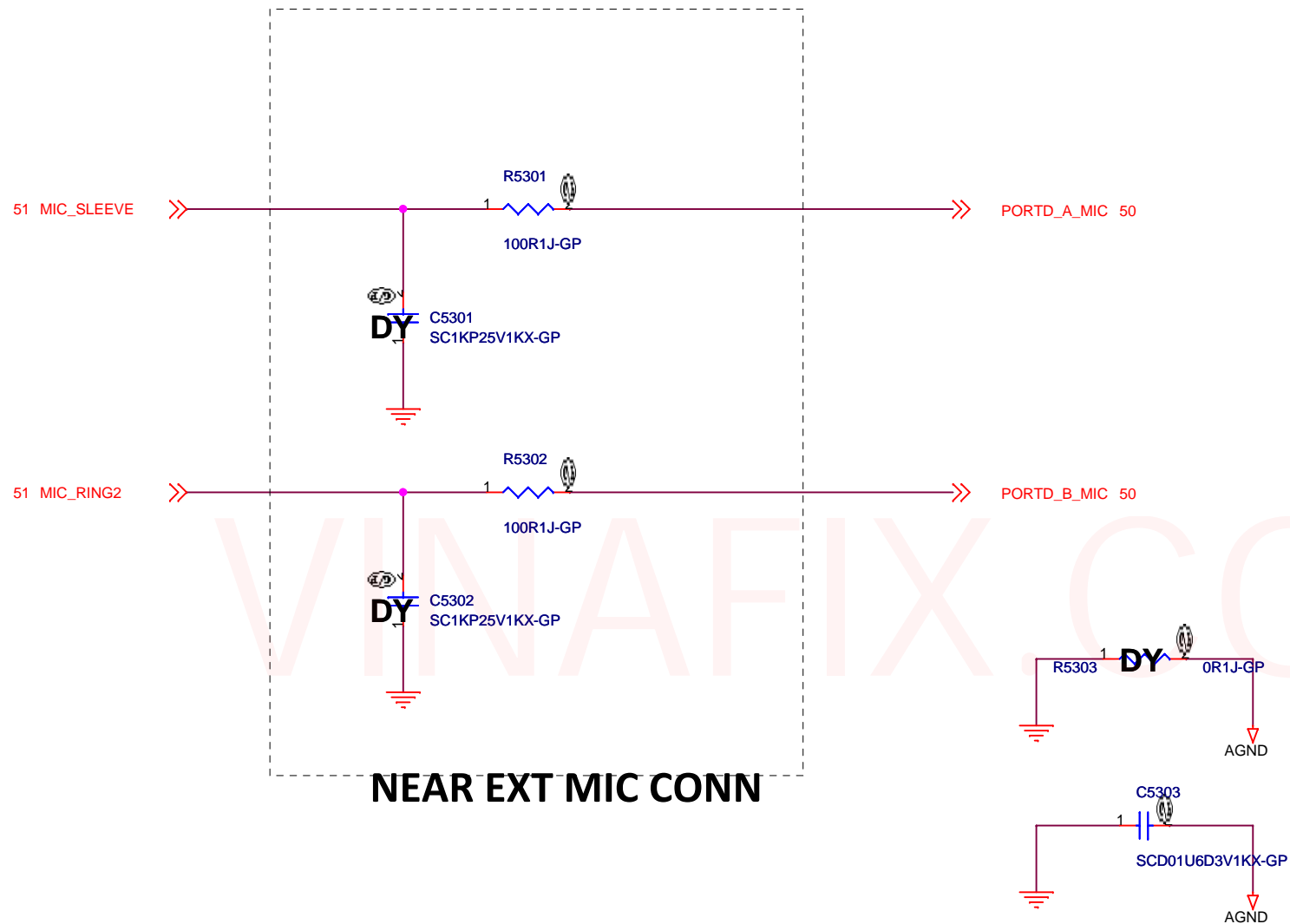
Size A3 Document Number **Raven-1** Rev **-3**

Date: Monday, July 20, 2015 Sheet 51 of 102



ULT

<div>緯創資通</div> <div>Wistron Corporation</div> <div>21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.</div>		
Title AUDIO JACK SENSE		
Size A4	Document Number Raven-1	Rev -3
Date: Monday, July 20, 2015		
Sheet 52 of 102		



ULT

緯創資通

Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title **AUDIO EXT MIC I/F**

Size
A4

Document Number

Raven-1

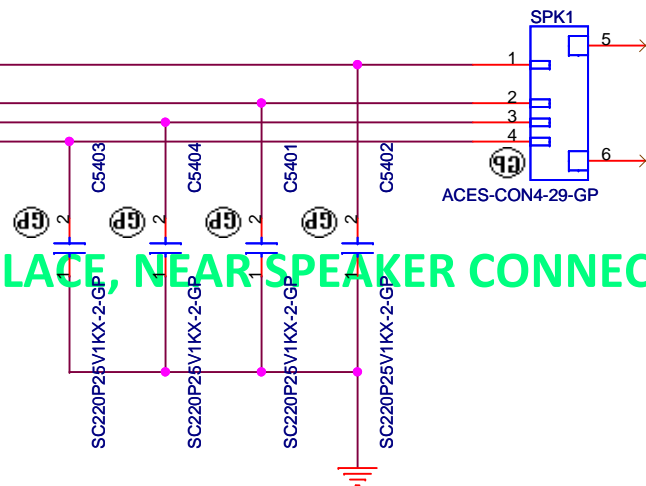
Rev
-3

Date: Monday, July 20, 2015

Sheet 53 of 102

50 SP_OUTL+
50 SP_OUTL-
50 SP_OUTR+
50 SP_OUTR-

PLACE, NEAR SPEAKER CONNECTOR SPK1



20150714_RV1_SIT_Wistron_EC005
Remove SPK2 related components

ULT

緯創資通

Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title **AUDIO SPEAKER**

Size
A4

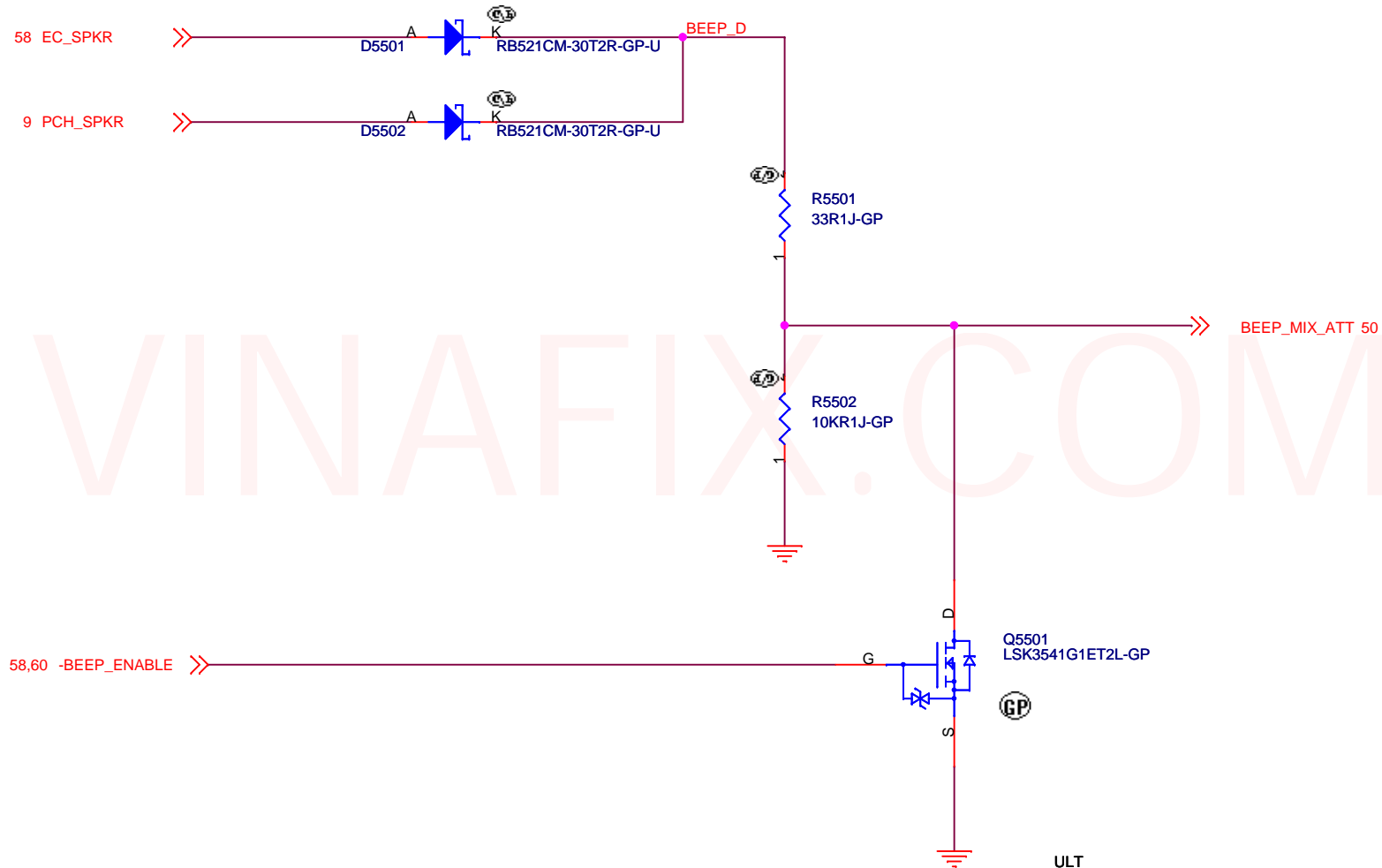
Document Number

Raven-1

Rev
-3

Date: Monday, July 20, 2015

Sheet 54 of 102



ULT

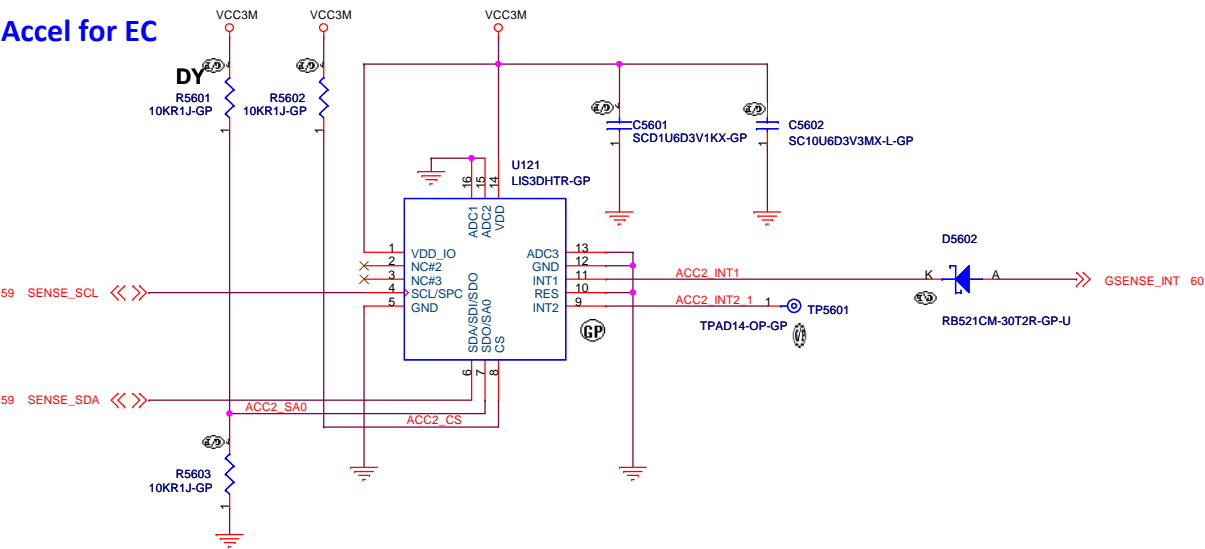
緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title **AUDIO BEEP/DAUGHTER CARD**

Size A4	Document Number Raven-1	Rev -3
------------	-----------------------------------	------------------

Date: Monday, July 20, 2015	Sheet 55 of 102
-----------------------------	-----------------

Accel for EC



TABLE

CS	Mode Selection
H	I2C Mode
L	SPI Mode

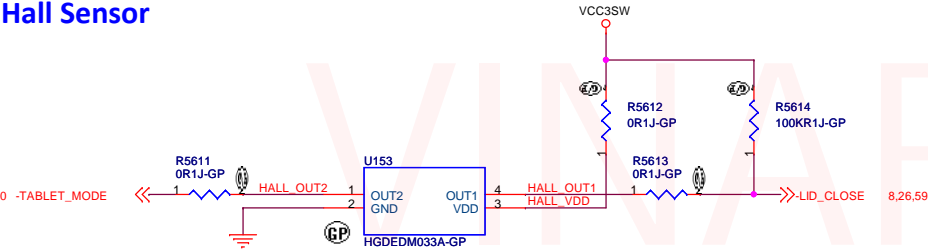
← Logic

TABLE

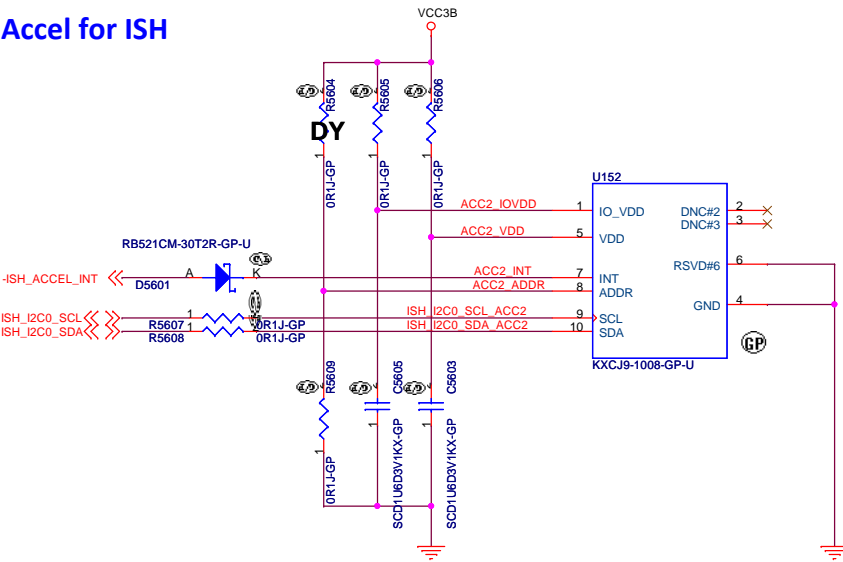
ACC2_SA0	Address Selection
H	32h (W) & 33h (R)
L	30h (W) & 31h (R)

← Logic

Hall Sensor



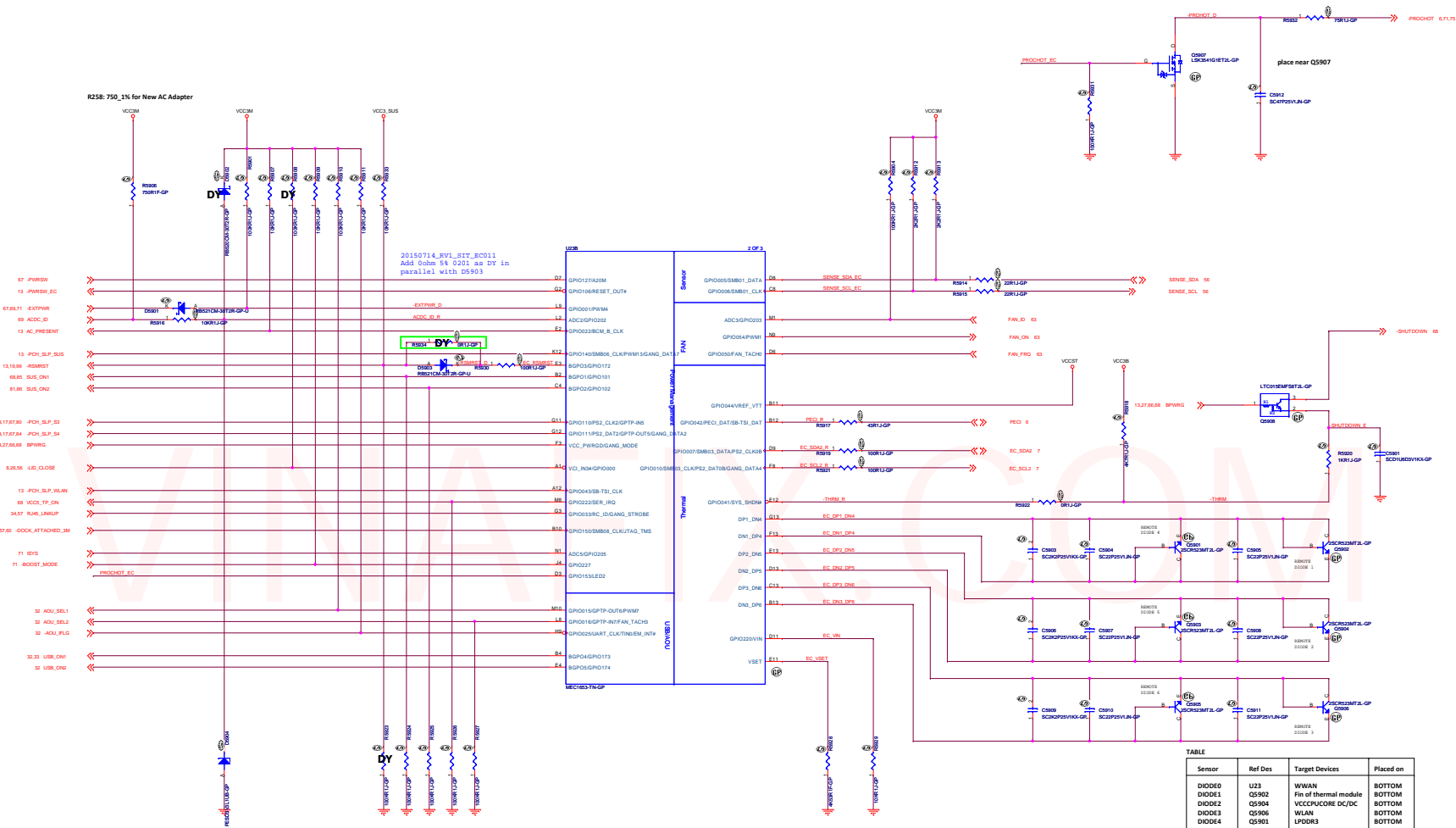
Accel for ISH



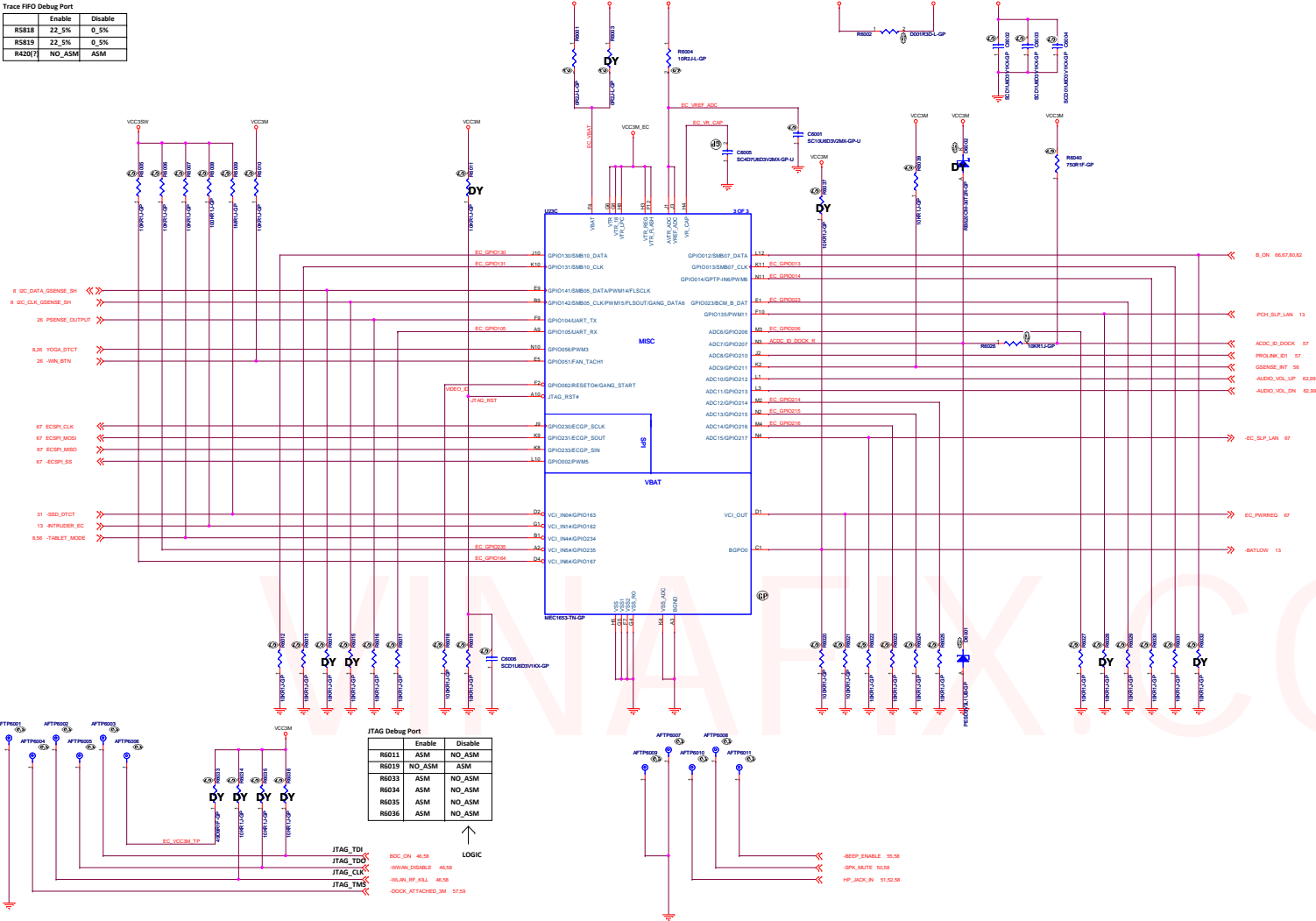
ULT

Design Target of max current on VCC5B_DOCK_FUSE
- 4A for pattern width
- 1.5A for fuse selection





Trace FIFO Debug Port			
	Enable	Disable	
RSR18	22_5%	0_5%	
RSR19	22_5%	0_5%	
R42D7	NO_ASM	ASM	

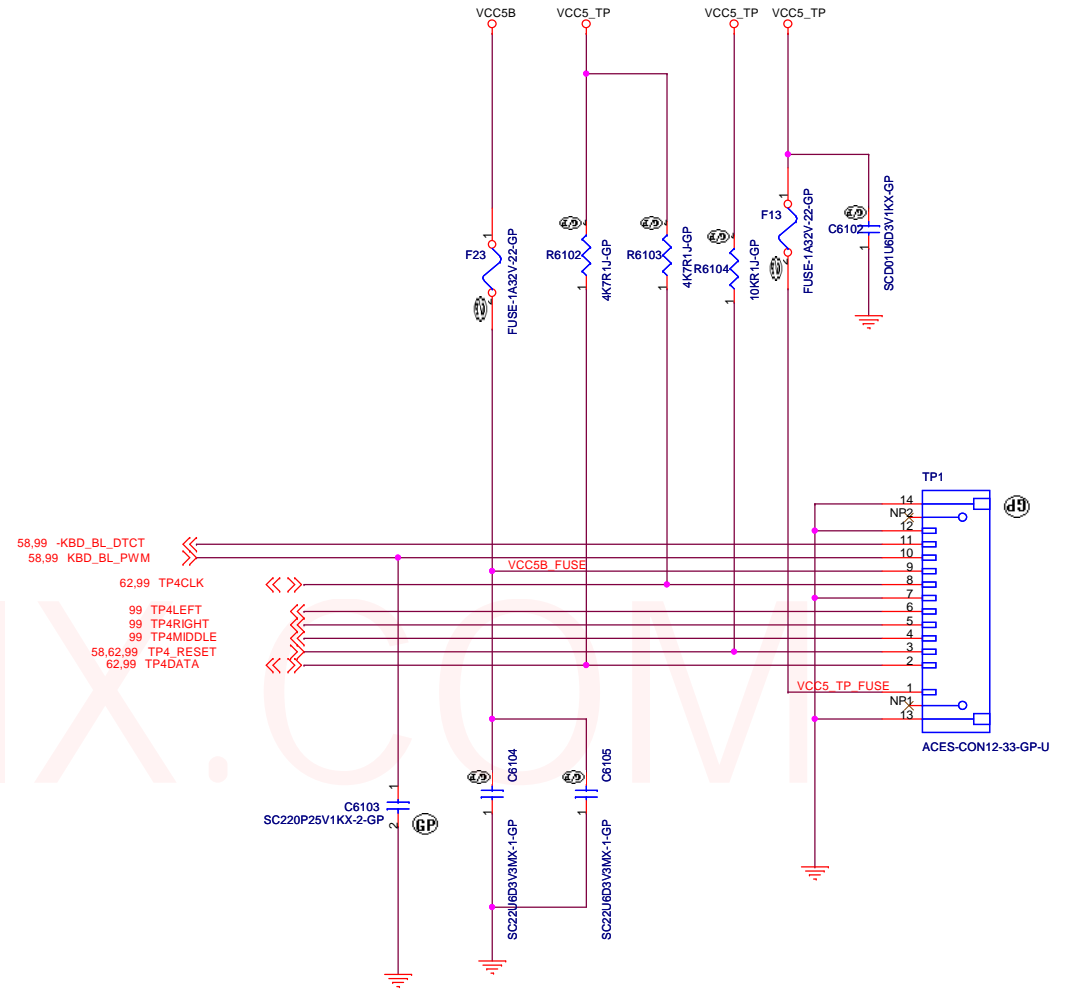
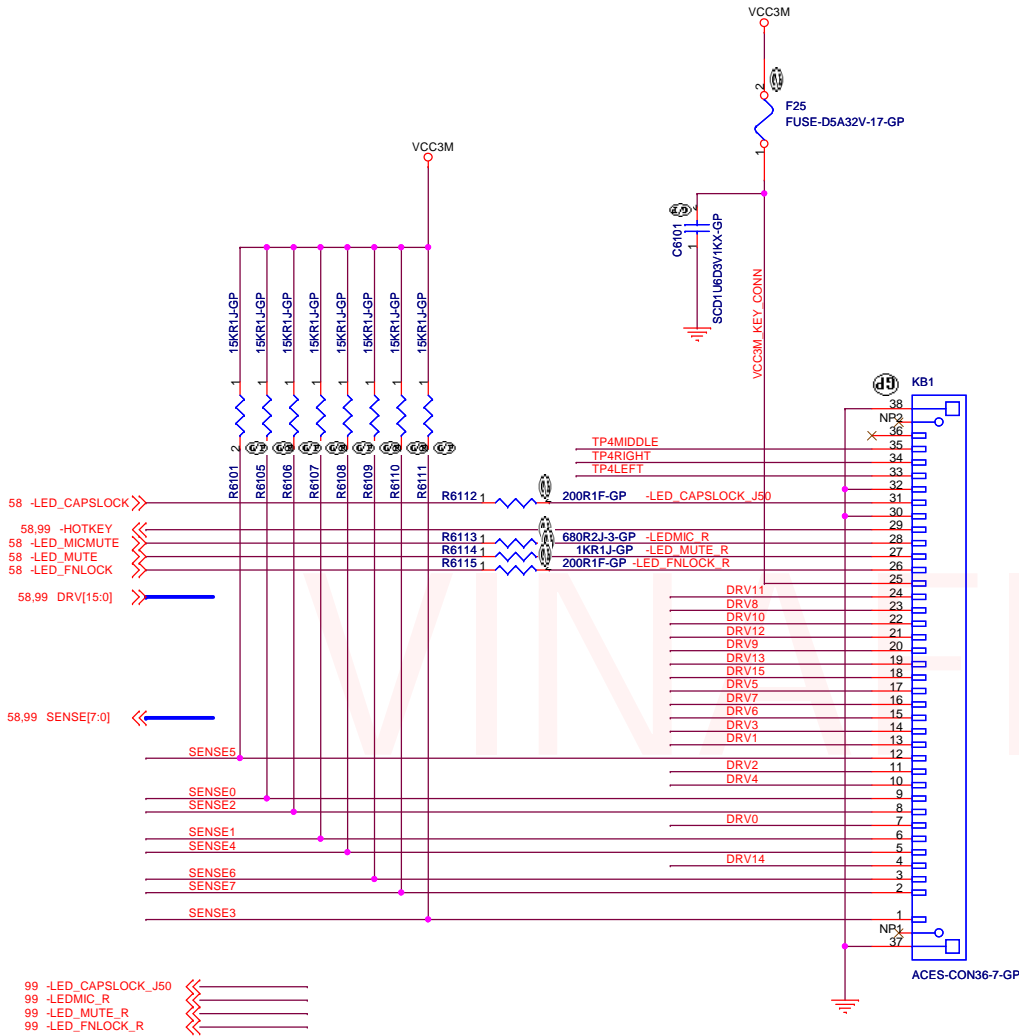


JTAG Debug Port			
	Enable	Disable	
R6011	ASM	NO_ASM	
R6019	NO_ASM	ASM	
R6033	ASM	NO_ASM	
R6034	ASM	NO_ASM	
R6035	ASM	NO_ASM	
R6036	ASM	NO_ASM	

JTAG_TDI
JTAG_TDO
JTAG_CLK
JTAG_TMS

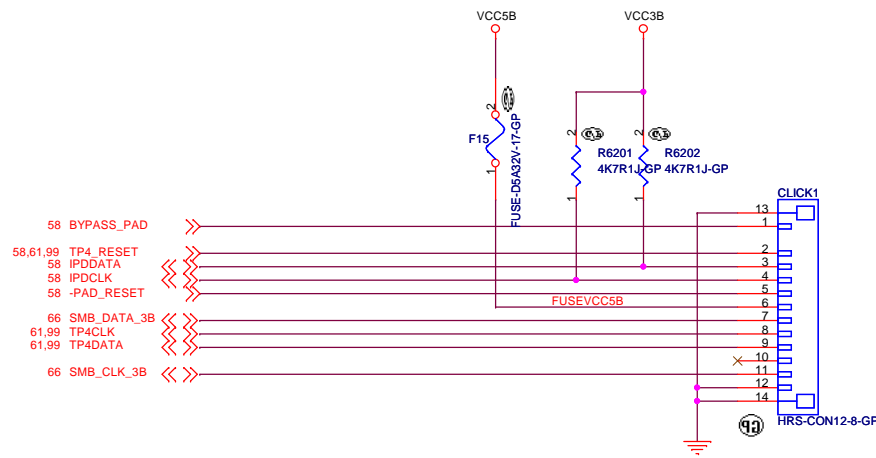
LOGIC

BOOT_DISABLE 46.58
WLAN_DISABLE 46.58
WLAN_SF_FAIL 46.58
DOCK_ATTACHED_3M 57.58

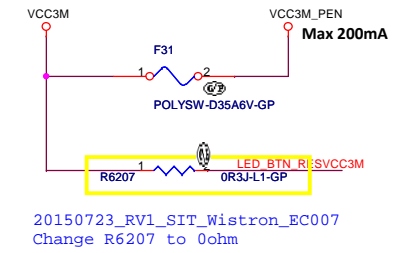


ULT

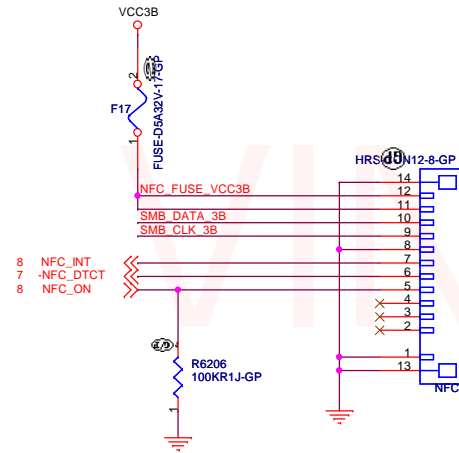
TO CLICK-PAD



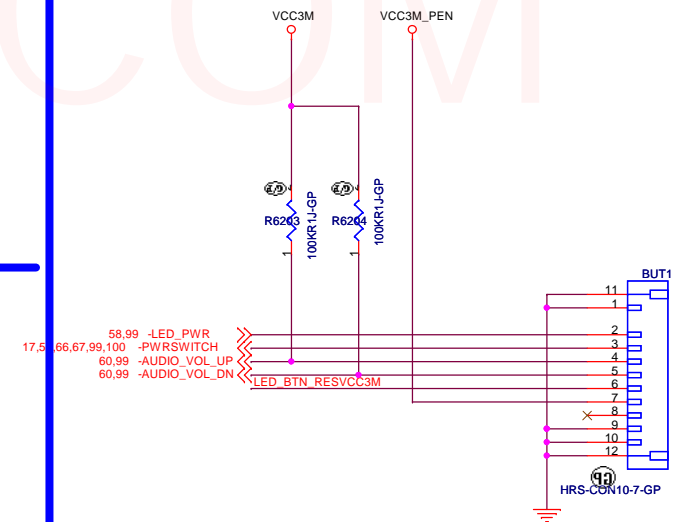
TO SUB BOARD



TO NFC



TO BUTTON BOARD



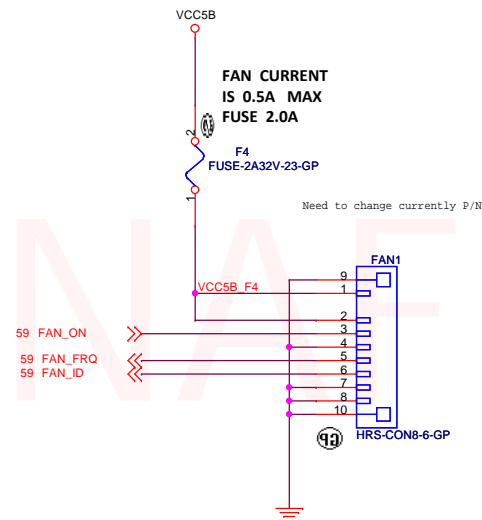
ULT

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title TOUCH PAD/NFC/BUTTON/PEN J

Size A3 Document Number Raven-1 Rev -3

Date: Thursday, July 23, 2015 Sheet 62 of 102



PIN# NET NAME

PIN1 VCC5B_F4
PIN2 (OPEN)
PIN3 FAN_ON
PIN4 GND
PIN5 FAN_FRQ
PIN6 FAN_ID
PIN7 GND
PIN8 GND

FAN ID		Inside of Thermal Module
HIGH	Secondary Source	Open
LOW	Primary Source	Tie down to GND

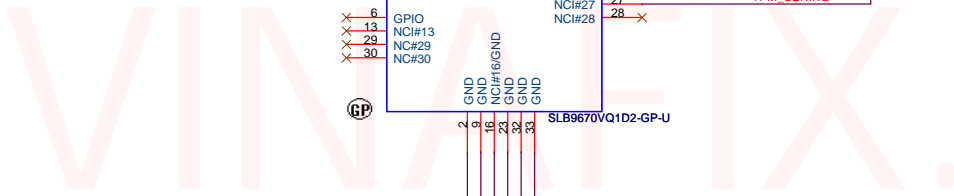
ULT

BLANK

VINAFIX.COM

ULT

		Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 64 of	102

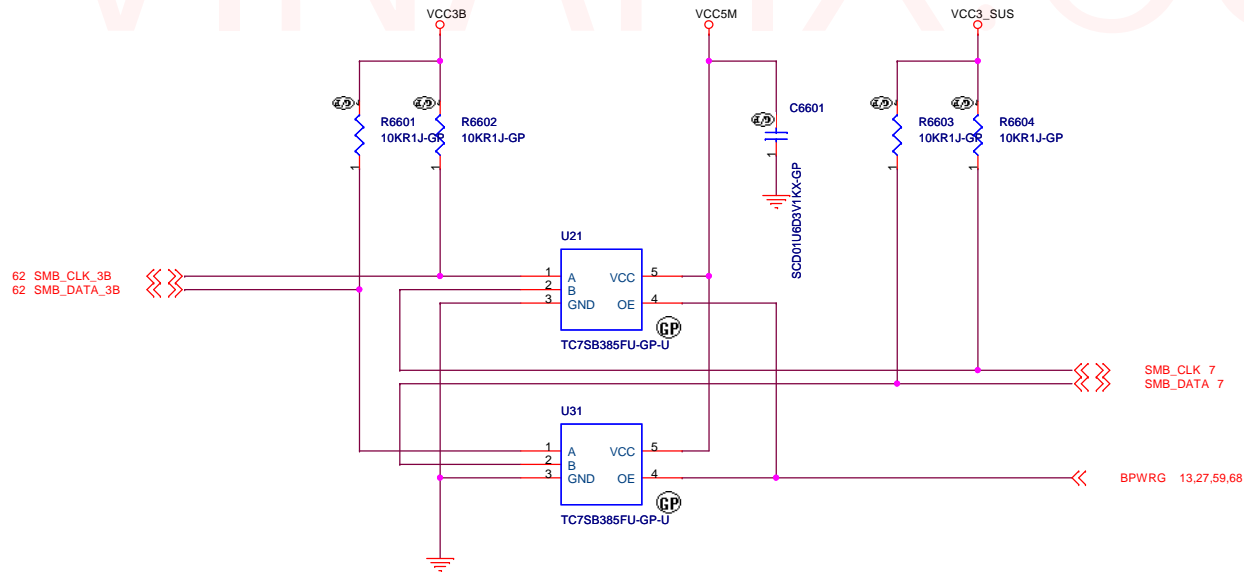
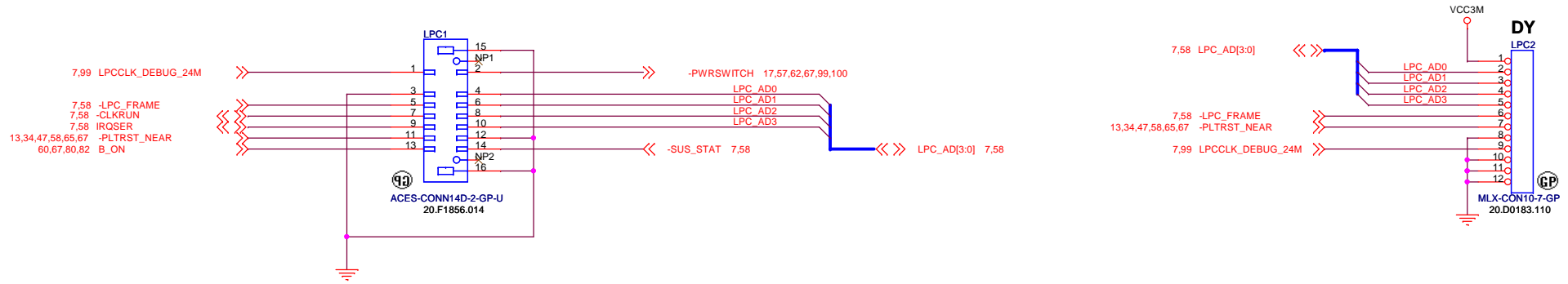


Pin No	TCG PTP Spec (v38)	Infineon SLB9670VQ1.2 FW 6.40	Nuvoton NPCT650LB0YX
1	VDD	VDD	VSB
2	GND	GND	NC
3	GPIO	NC	GPX/GPIO2
4	GPIO	NC	PP
5	NC	NC	TEST
6	VNC/GPIO	GPIO	GPIO3
7	GPIO/VDD	PP	NC
8	VDD	VDD	VDD
1	GND	GND	GND
2	VNC	NC	NC
3	NC	NC	NC
4	NC	NC	Reserved
5	VNC/GPIO	NC	GPIO4
6	VDD	NC	VDD
7	NC	NC	DNC
8	GND	NC	GND
17	SPI_RST#	RST#	SPI_RST#
18	SPI_PIRQ#	PIRQ#	SPI_IRQ#
19	SPI_CLK	SCLK	SCLK
20	SPI_CS#	CS#	SCS#
21	MOSI	MOSI	MOSI
22	VDD	VDD	VDD
23	GND	GND	GND
24	MISO	MISO	MISO
25	NC	NC	NC
26	NC	NC	NC
27	NC	NC	(SERIRQ)
28	NC	NC	DNC
29	VNC/GPIO	NC	GPIO0
30	VNC/GPIO	NC	GPIO1
31	VNC	NC	NC
32	GND	GND	GND

REF DES	ENABLE	DISABLE
J5	ASM	NO_ASM
R?	ASM	NO_ASM

↑
LOGIC

LPC for Debug Card Connector



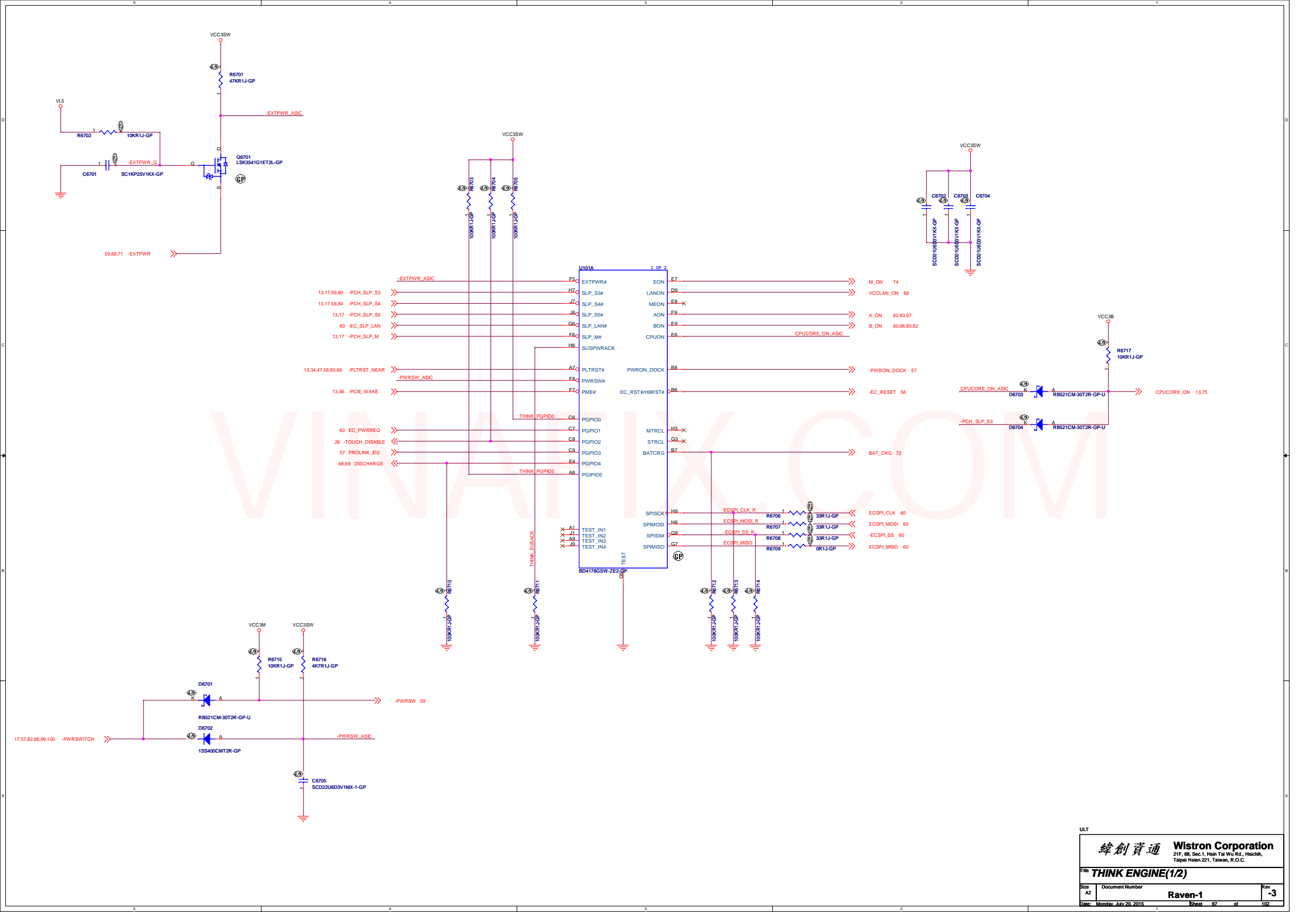
ULT

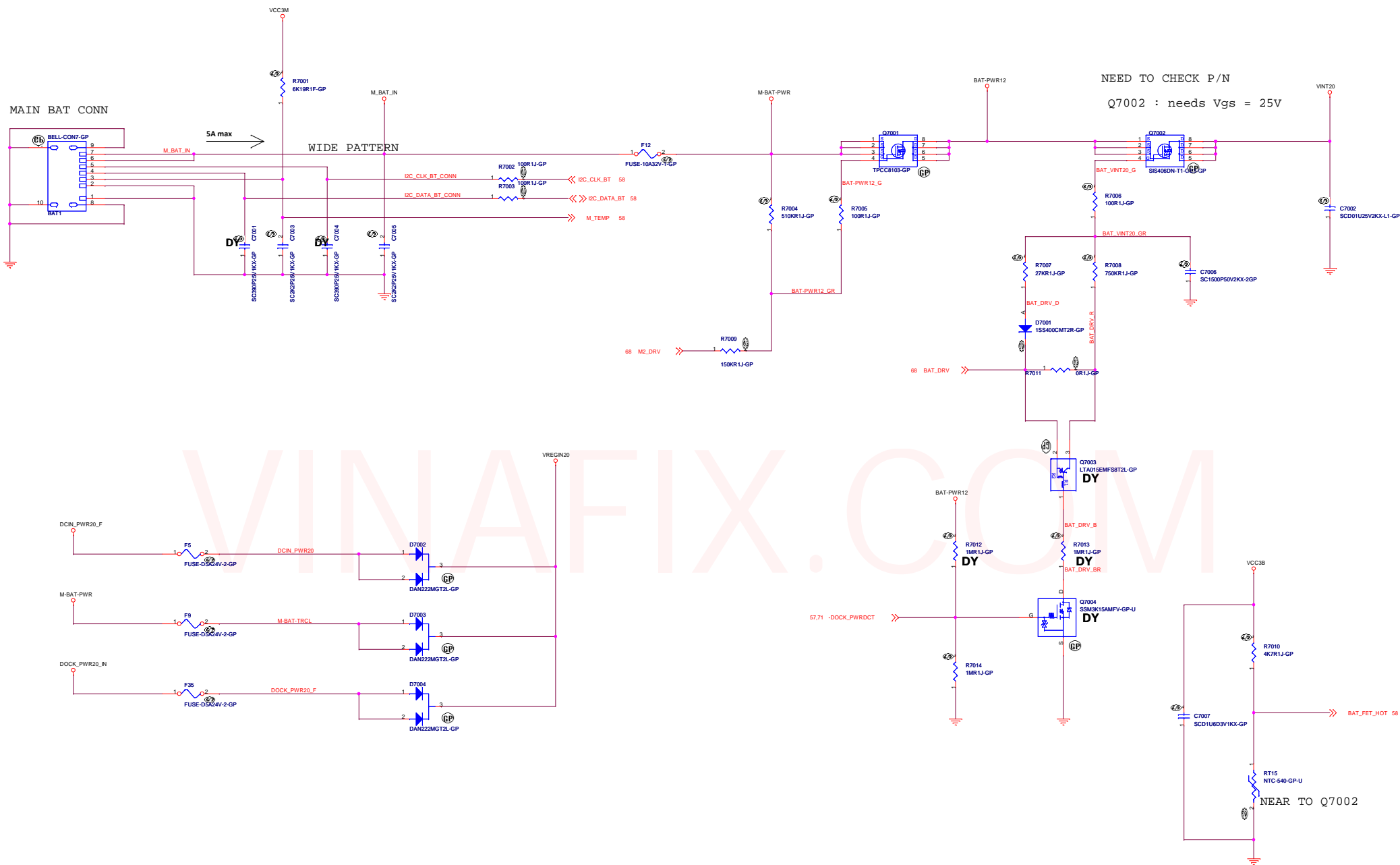
緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title **SMBUS SWITC/LPC DEBUG PORT**

Size A3 Document Number **Raven-1** Rev **-3**

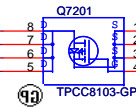
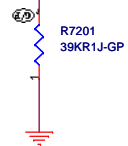
Date: Monday, July 20, 2015 Sheet 66 of 102





CHARGER_OUT12

5A max



BAT-PWR12_CRG_G



BAT-PWR12



BAT-PWR12_CRG_GRR

67 BAT_CRG

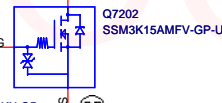
>>



BAT_CRG_R



BAT_CRG_D



ULT

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title **CHARGER SELECTOR**

Size A3 Document Number

Raven-1

Rev

-3

Date: Monday, July 20, 2015

Sheet 72 of 102

BLANK

VINAFIX.COM

ULT

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 73 of	102

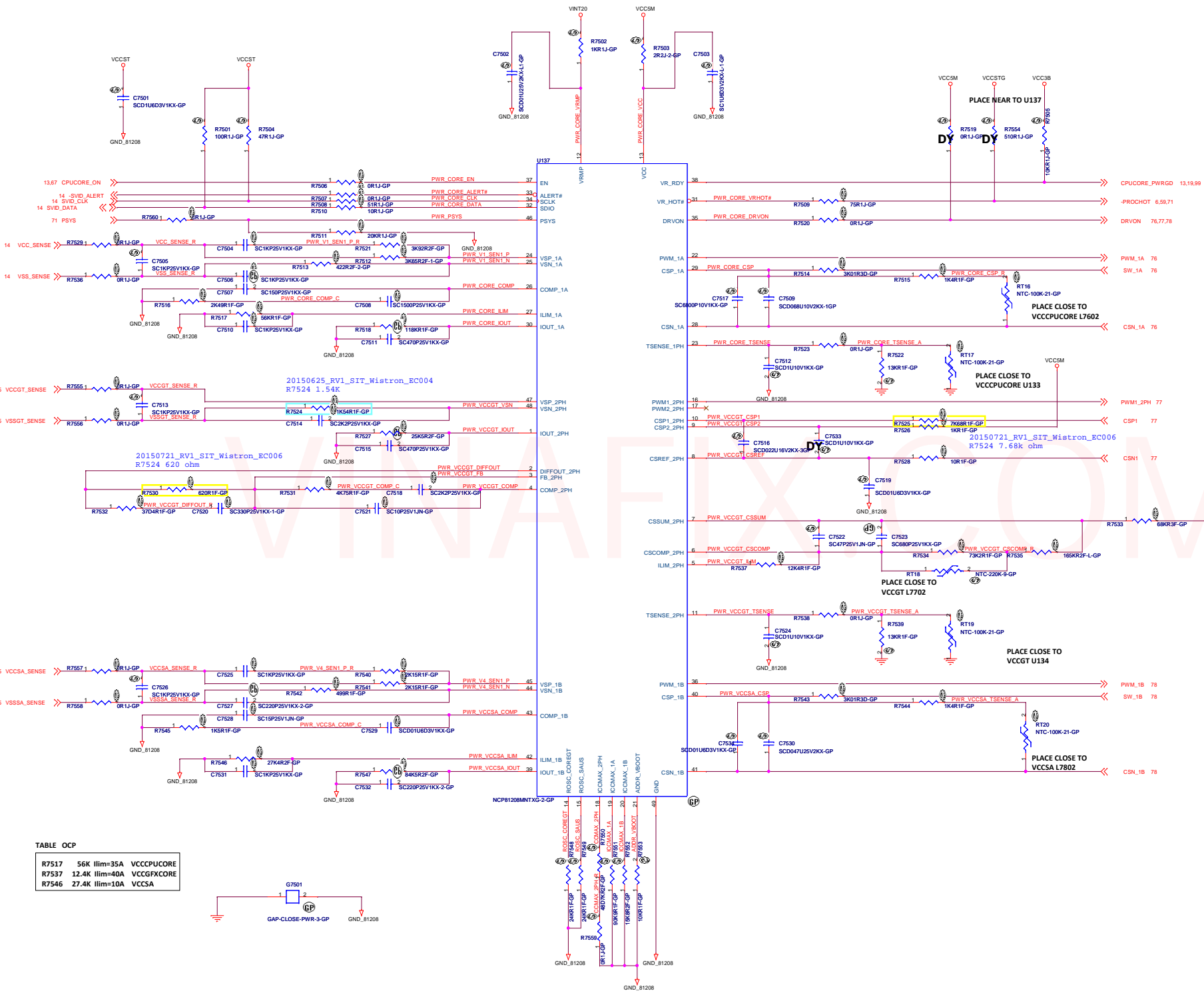
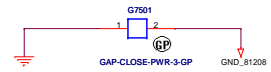


TABLE OCP

R7517	56K	Ilim=35A	VCCCPUCORE
R7537	12.4K	Ilim=40A	VCCGFXCORE
R7546	27.4K	Ilim=10A	VCCSA



keep more than 2.0mm height for
if acoustic noise suppression MLCC use

Co-Layout on C7602 ~ C7607 pads

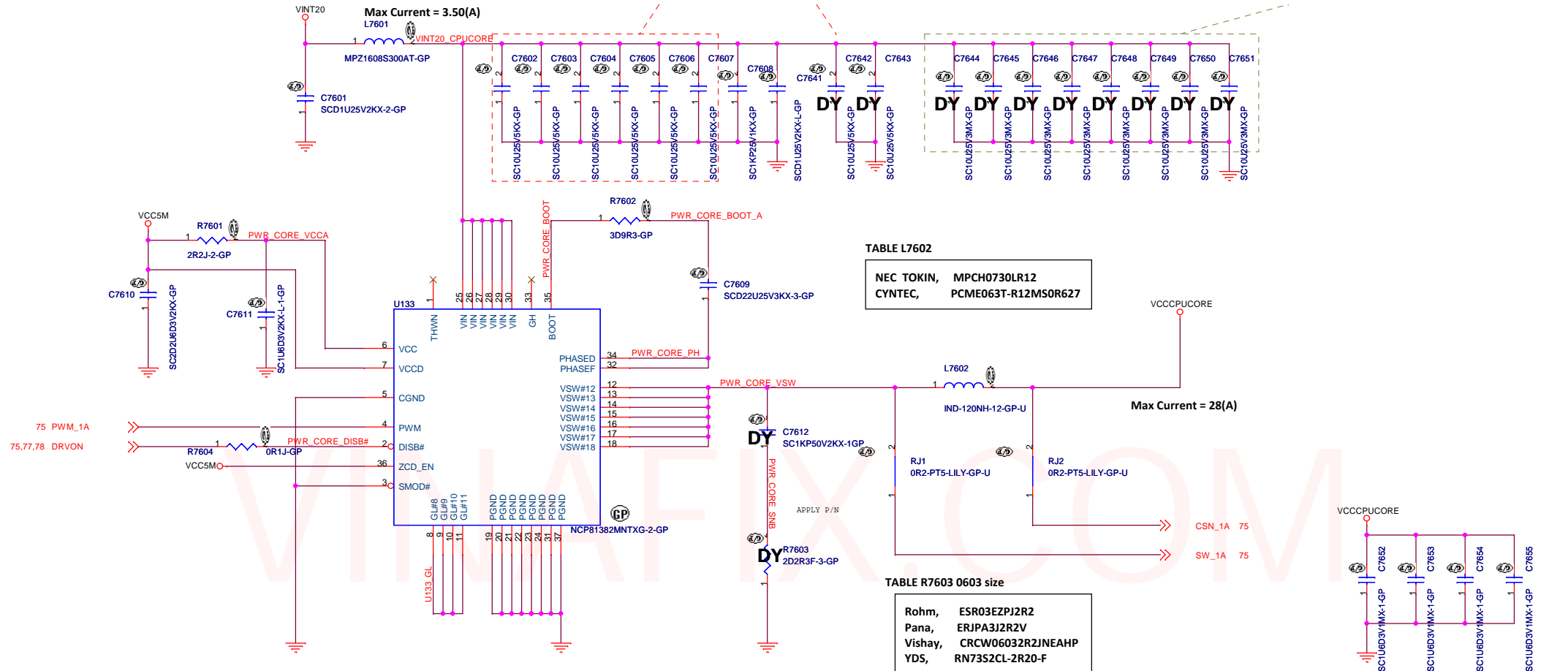


TABLE L7602

NEC TOKIN, MPCH0730LR12
CYNTEC, PCME063T-R12MS0R627

TABLE R7603 0603 size

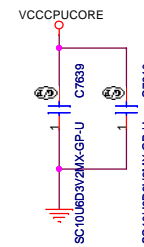
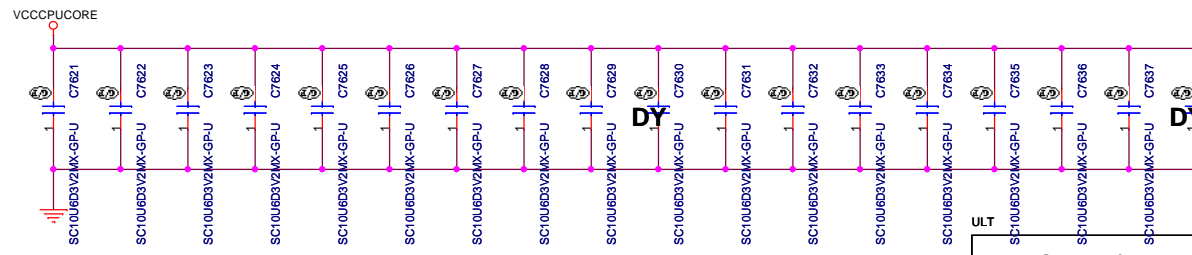
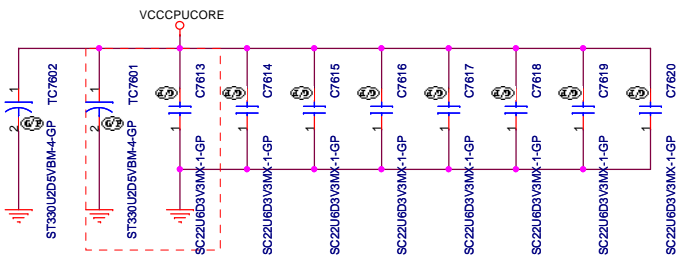
Rohm, ESR03EZPJ2R2
Pana, ERJPA3J2R2V
Vishay, CRCW06032R2JNEAHP
YDS, RN73S2CL-2R20-F

TABLE for TC7601, TC7602

Panasonic ETPE330MA9GB
NEC TOKIN PSGB20E337M9

8pcs 22uF for VCCCPUCORE

18pcs (+2pcs) 10uF for VCCCPUCORE

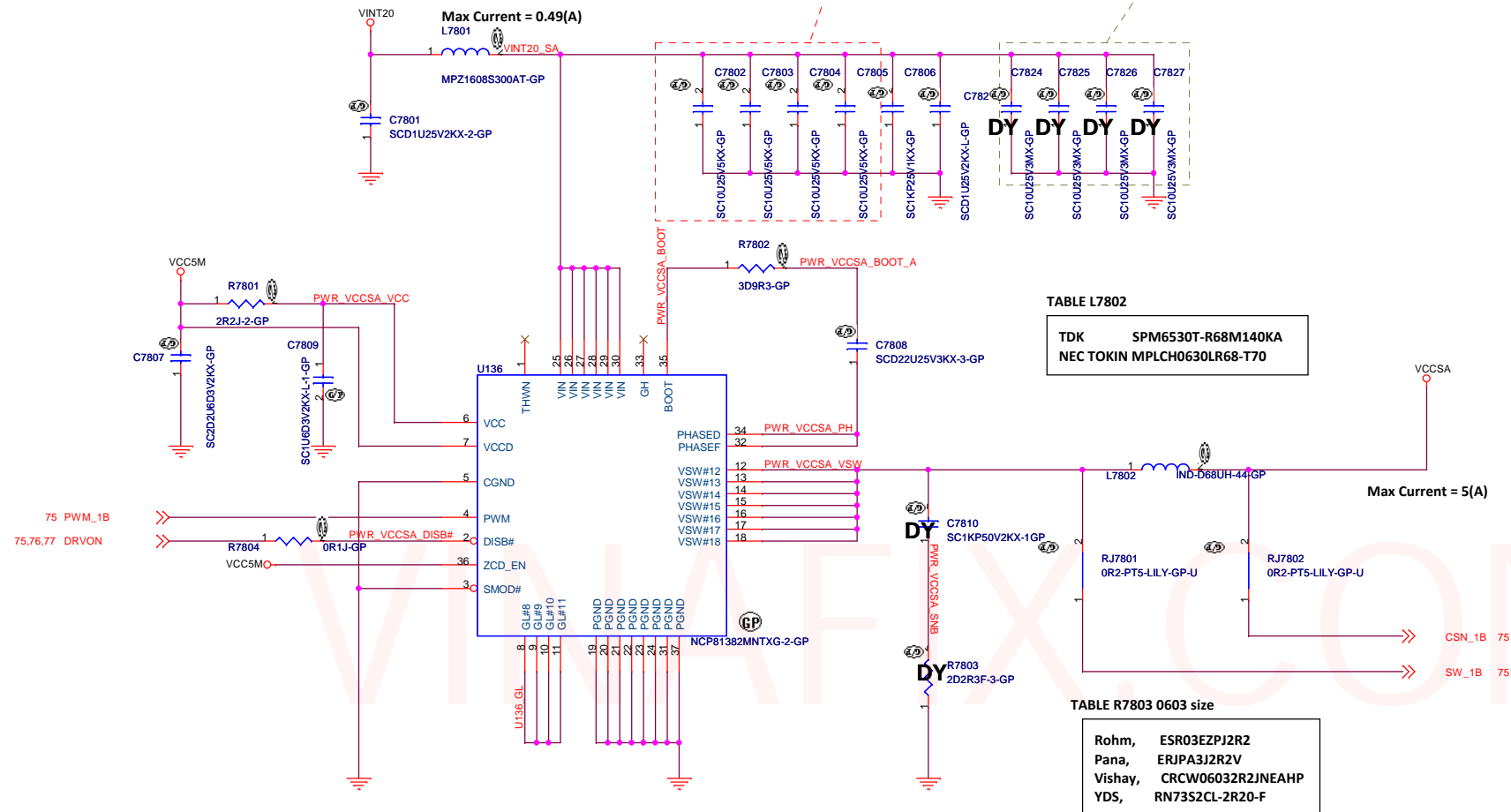


緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

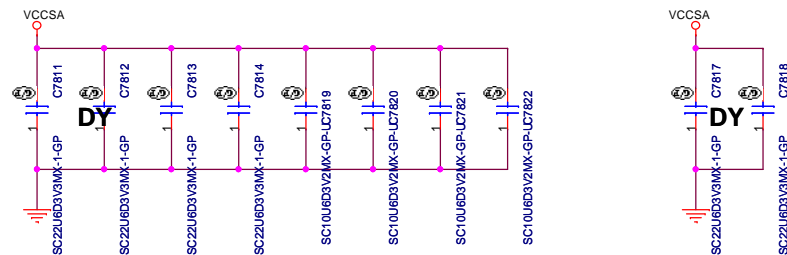
Title DC/DC VCCCPUCORE(NCP81382)

Size A3 Document Number Raven-1 Rev -3
Date: Monday, July 20, 2015 Sheet 76 of 100

keep more than 2.0mm height for Co-Layout on C7802 ~ C7805 pads
if acoustic noise suppression MLCC use

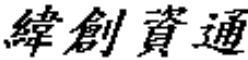


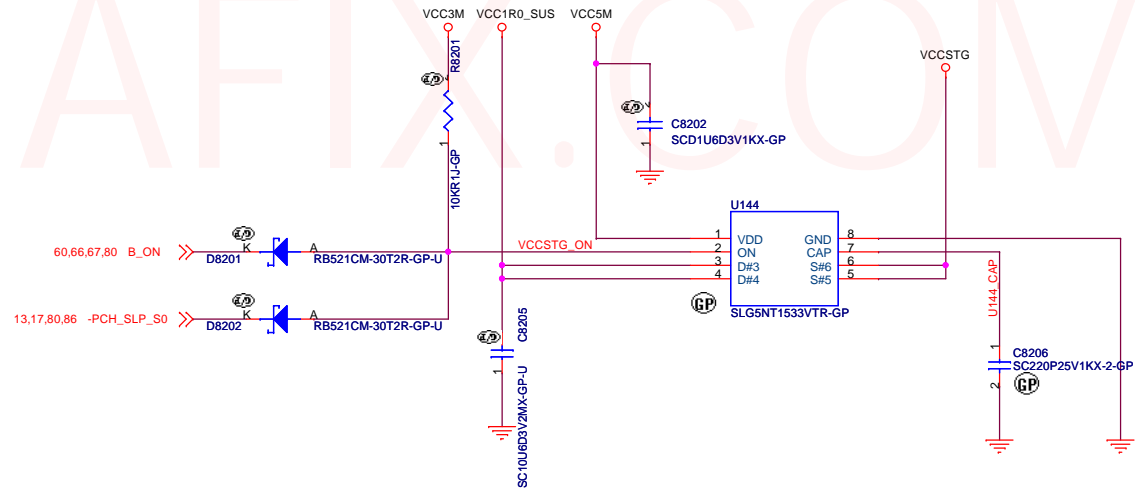
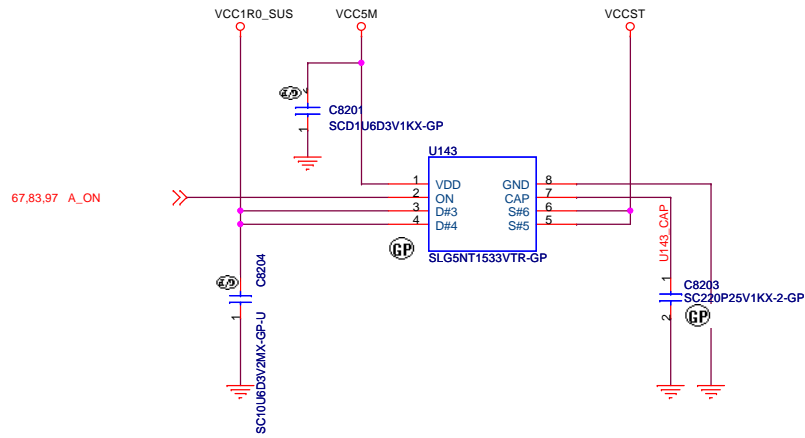
4pcs (+2pcs) 22uF and 4pcs 10uF for VCCSA



VINAFIX.COM

ULT

		Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 79 of	102

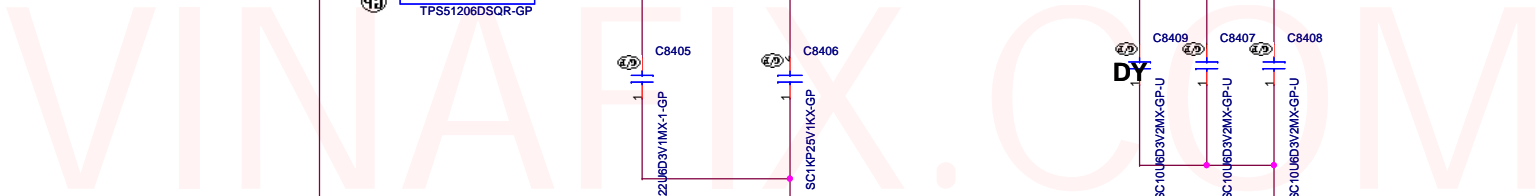


ULT

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title **LOAD SW VCCST & VCCSTG**

Size A3	Document Number Raven-1	Rev -3
Date: Monday, July 20, 2015	Sheet 82 of 102	



S3	S5	VTT	VTTREF
High	High	ON	ON
Low	High	OFF(High-Z)	ON
Low	Low	OFF(Discharge)	OFF(Discharge)

BLANK

VINAFFIX.COM

ULT

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 87 of	102

VINAFIX.COM

BLANK

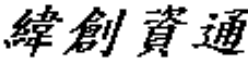
ULT

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 88 of	102

BLANK

VINAFIX.COM

ULT

		Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 89 of	102

BLANK

VINAFIX.COM

ULT

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015	Sheet 90	of	102

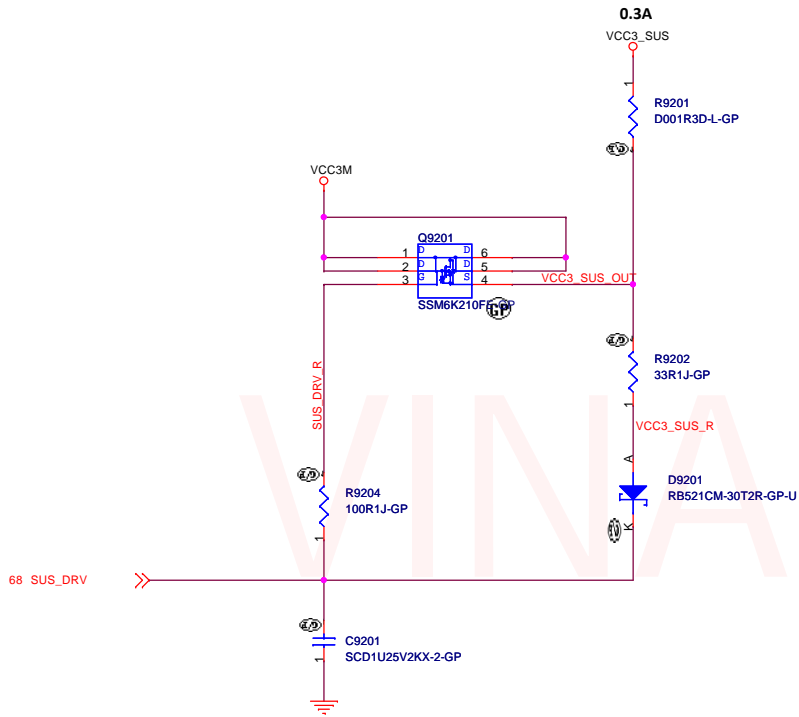
BLANK

VINAFIX.COM

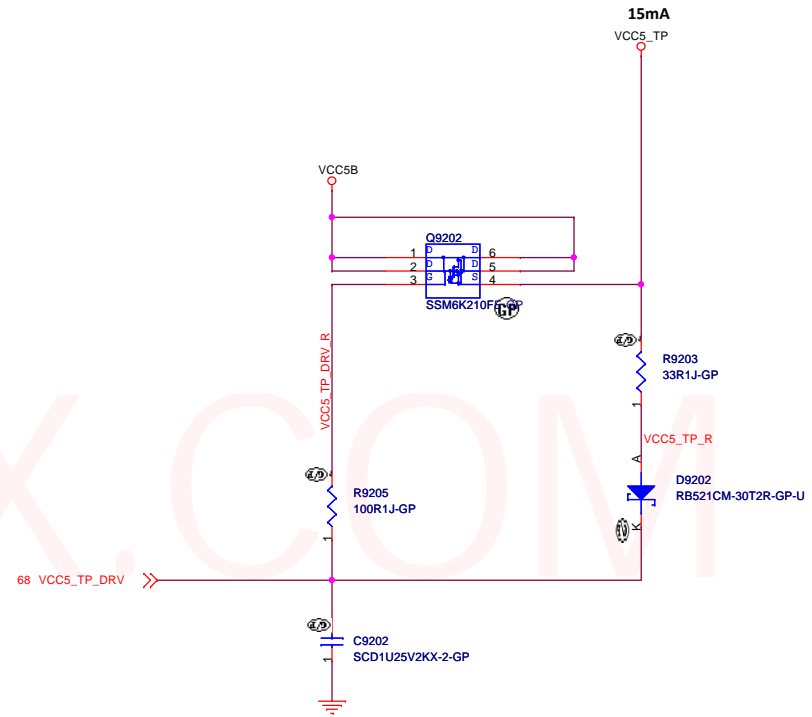
ULT

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title BLANK			
Size A	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015		Sheet 91 of	102

VCC3_SUS



VCC5_TP



ULT

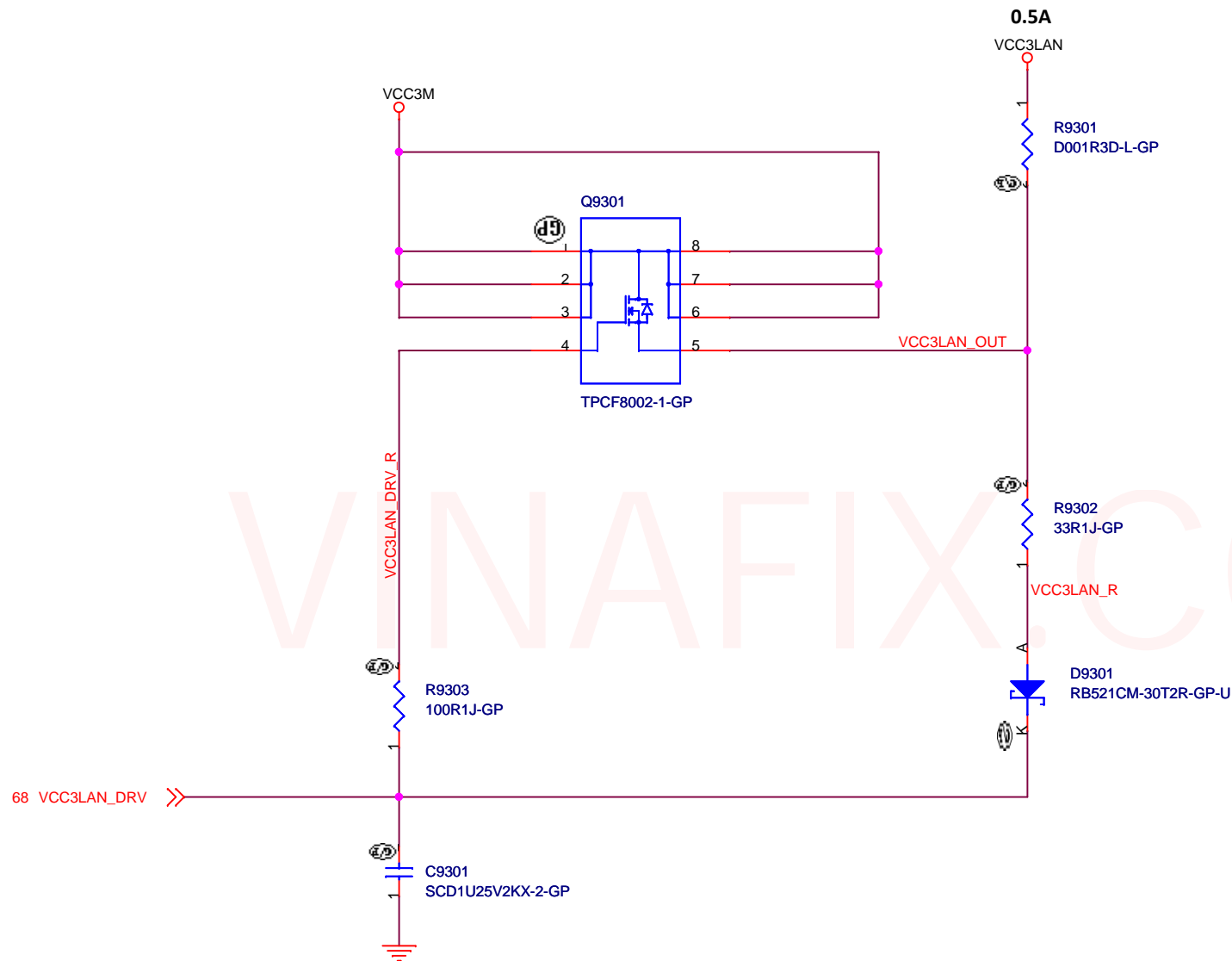
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title	LOAD SW PCH SUS/TRACK POINT
-------	------------------------------------

Size A3	Document Number Raven-1	Rev -3
------------	-----------------------------------	------------------

Date: Monday, July 20, 2015 Sheet 92 of 102

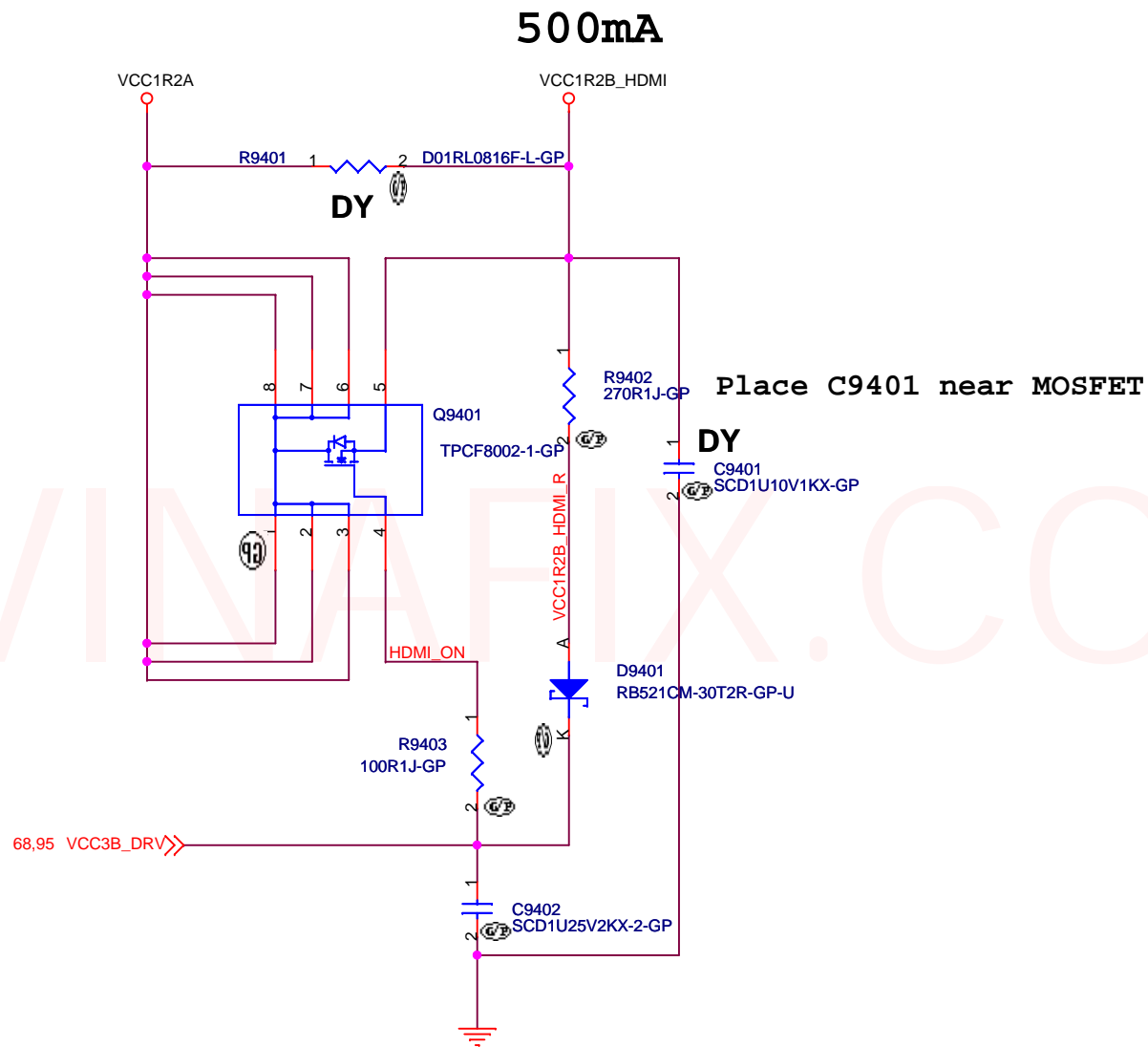
VCC3LAN



ULT

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title LOAD SW LAN			
Size A4	Document Number Raven-1		Rev -3
Date: Monday, July 20, 2015	Sheet 93	of	102

VINAFIX.COM



ULT

緯創資通

Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title **LOAD SW HDMI**

Size
A4

Document Number

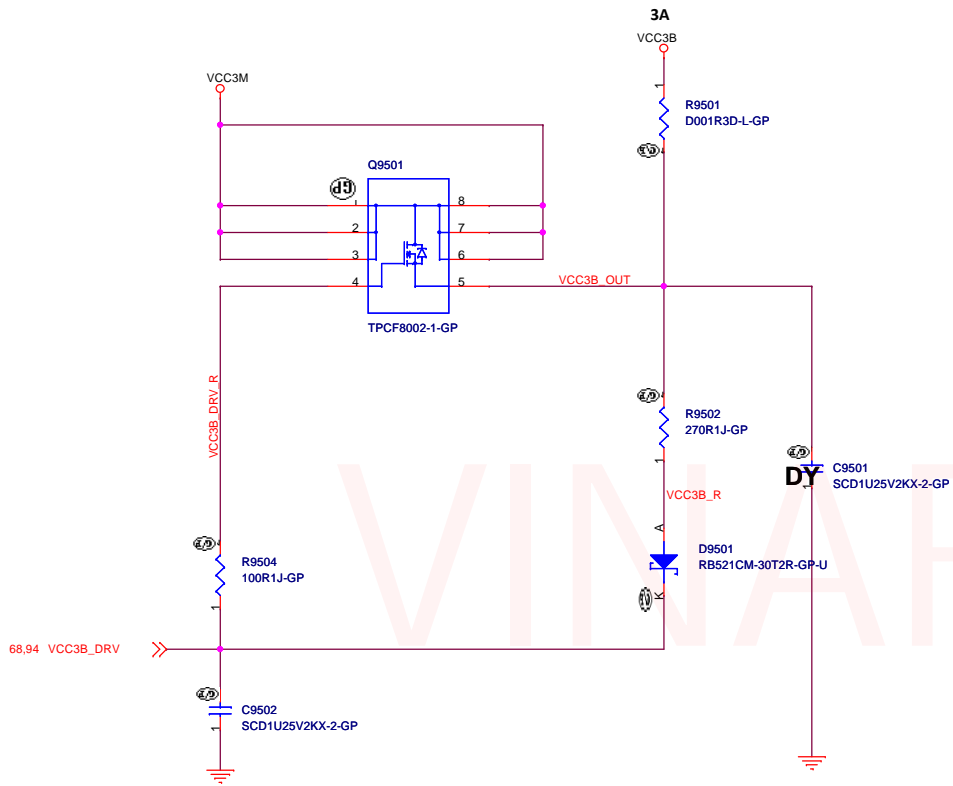
Raven-1

Rev
-3

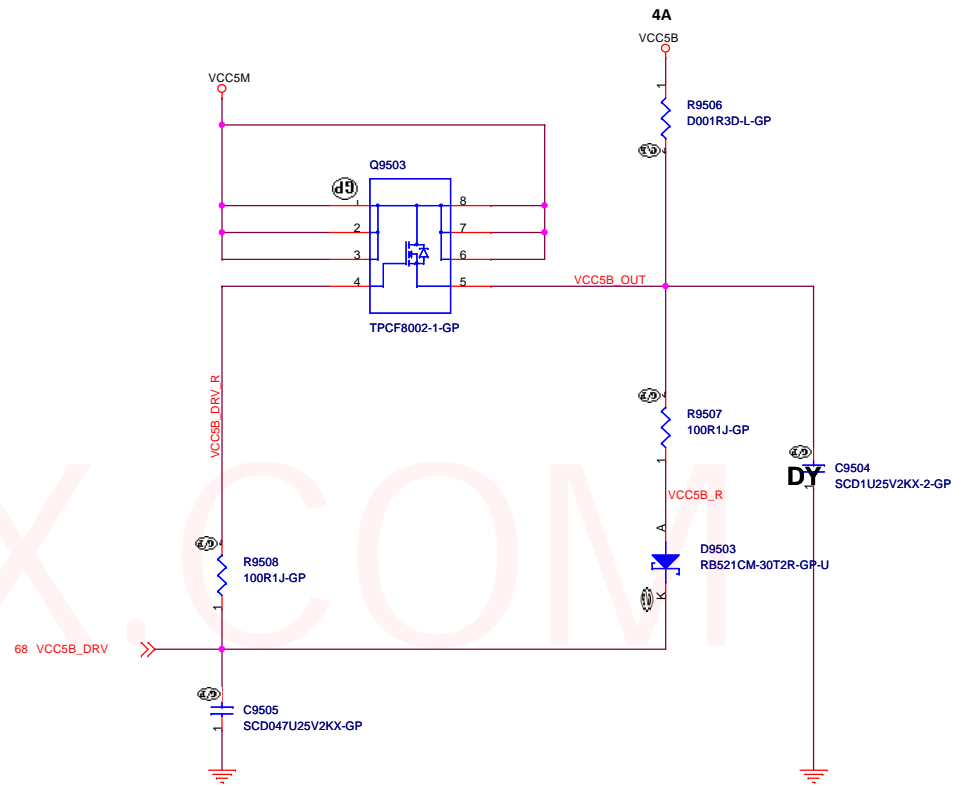
Date: Monday, July 20, 2015

Sheet 94 of 102

VCC3B



VCC5B



ULT

緯創資通

Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title **LOAD SW B**

Size A3	Document Number
------------	-----------------

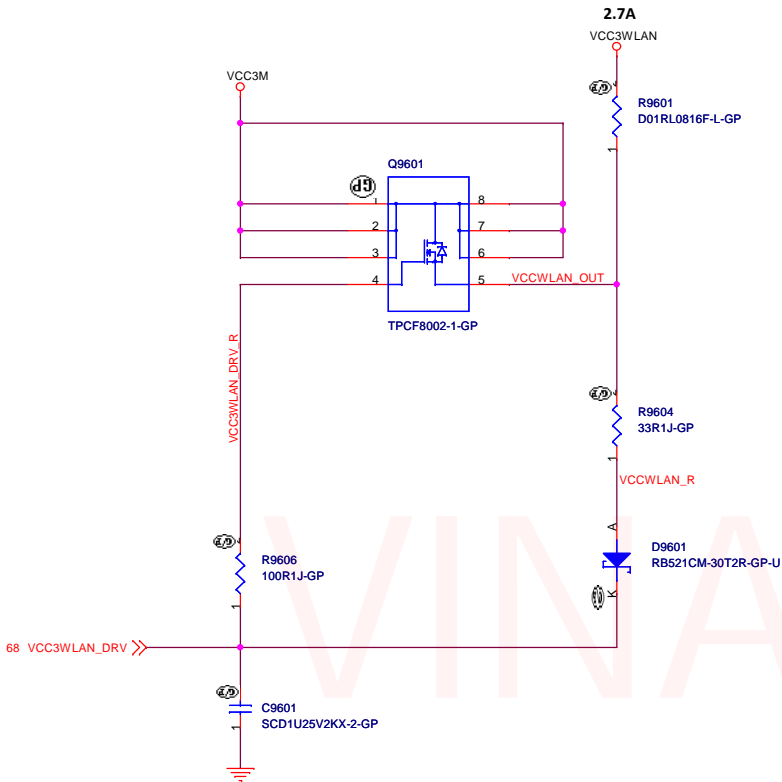
Raven-1

Rev
-3

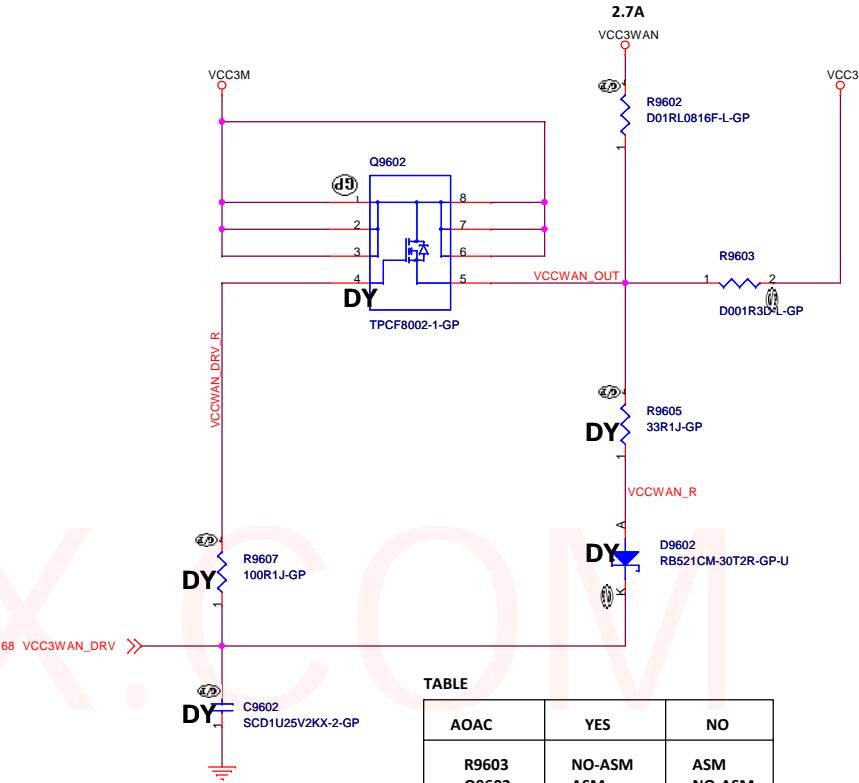
Date: Monday, July 20, 2015

Sheet 95 of 102

WLAN



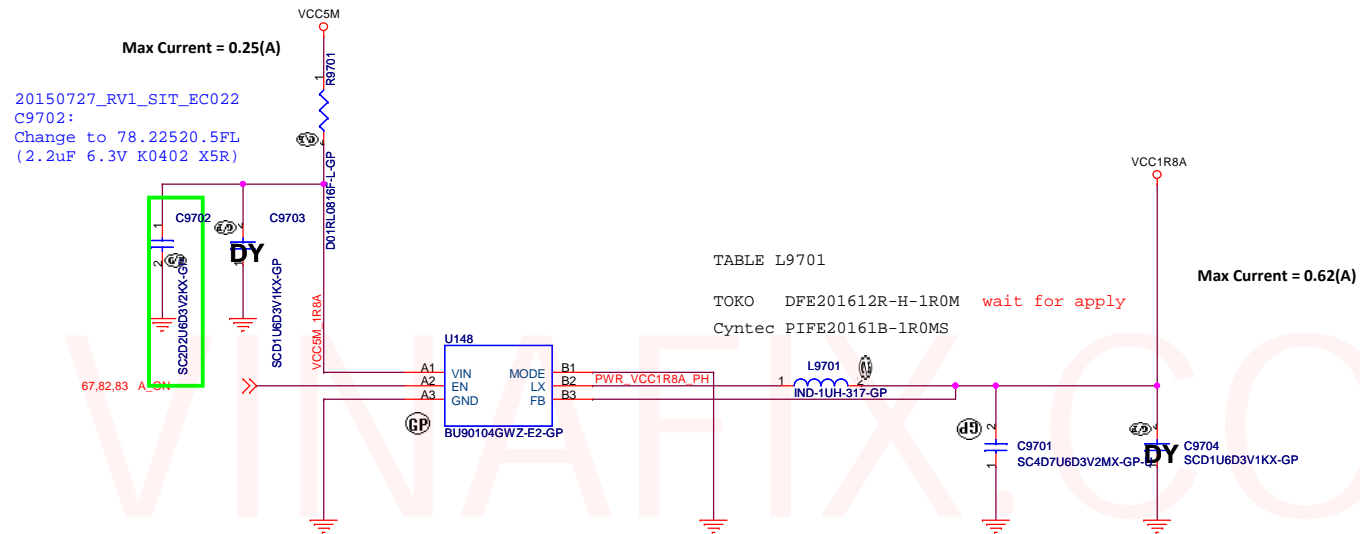
WWAN



TABLE

AOAC	YES	NO
R9603	NO-ASM	ASM
Q9602	ASM	NO-ASM
R9605	ASM	NO-ASM
C9602	ASM	NO-ASM
D9602	ASM	NO-ASM
R9607	ASM	NO-ASM

↑
LOGIC



ULT

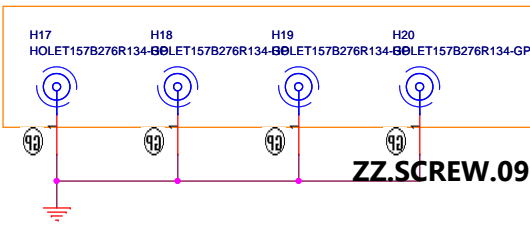
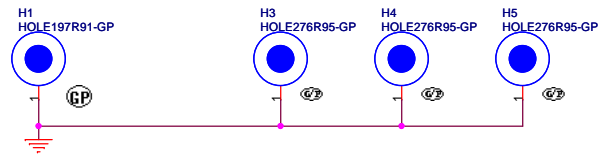
緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title **DC/DC VCC1R8A(BU90004GWZ)**

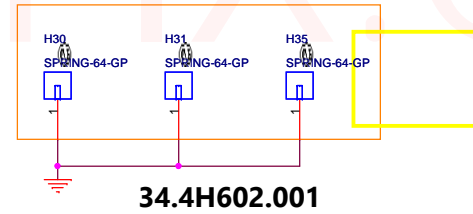
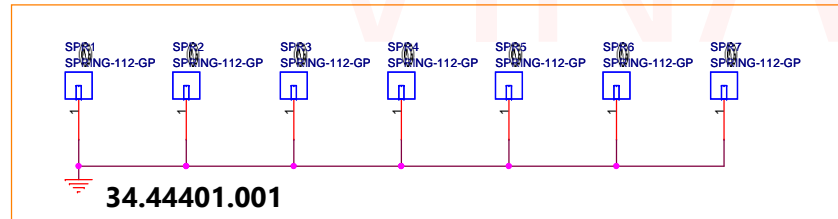
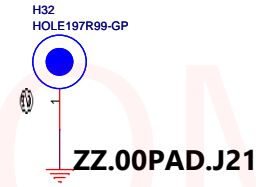
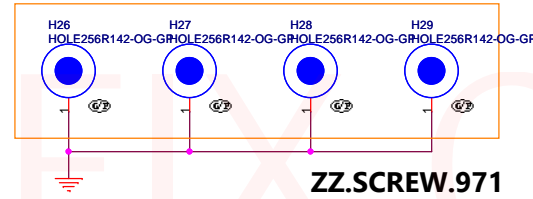
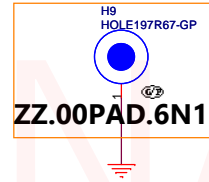
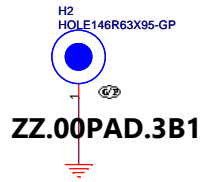
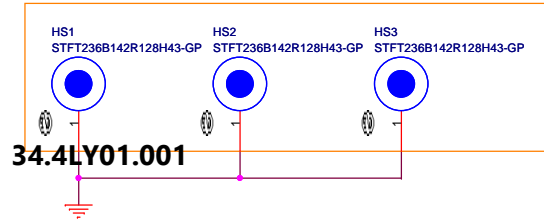
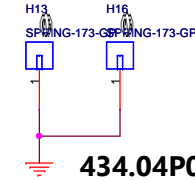
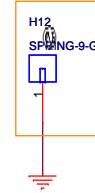
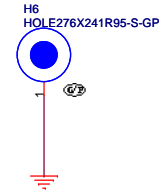
Size A3 Document Number **Raven-1** Rev **-3**

Date: Monday, July 27, 2015 Sheet 97 of 102

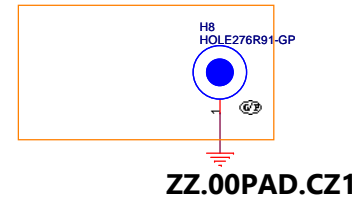
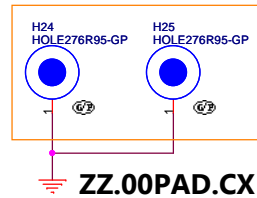
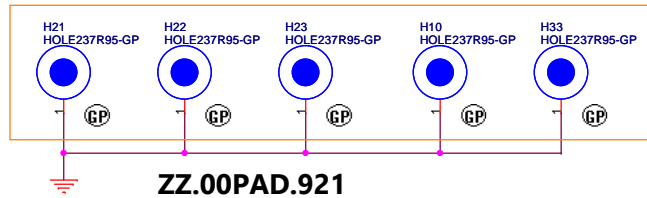
ZZ.SCREW.701



ZZ.00PAD.DK1



20150626_RV1_SIT_Wistron_EC002
Remove H36

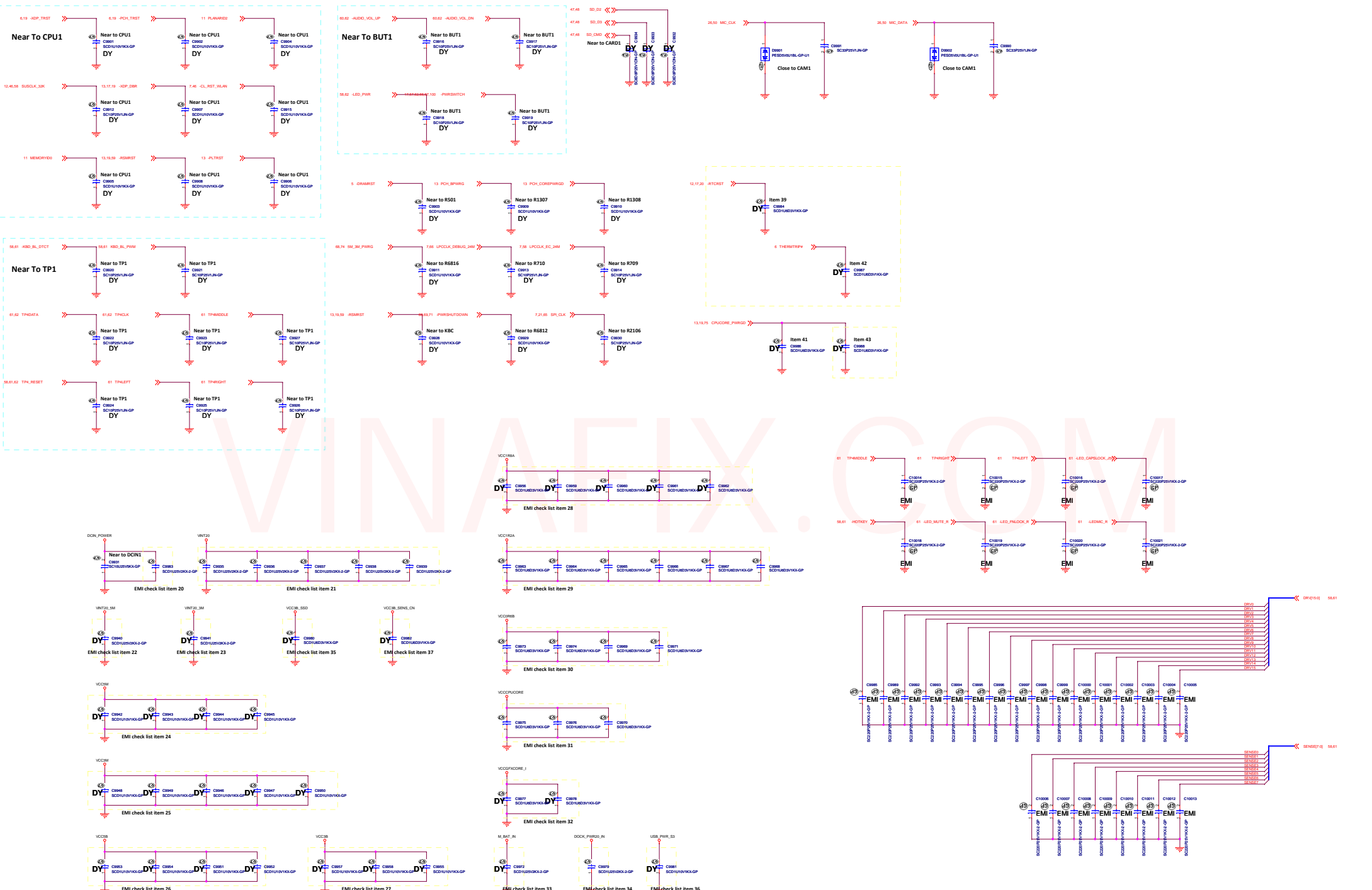


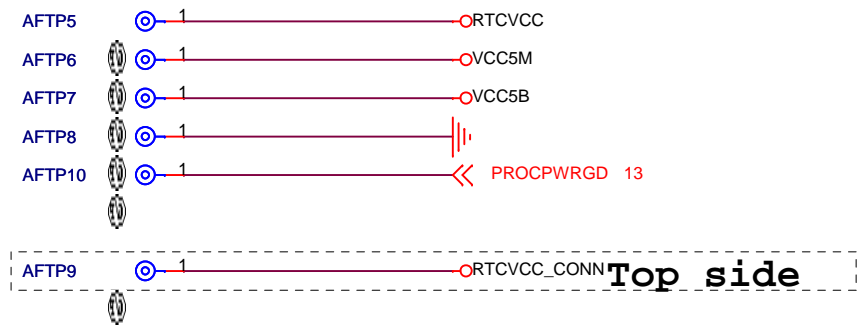
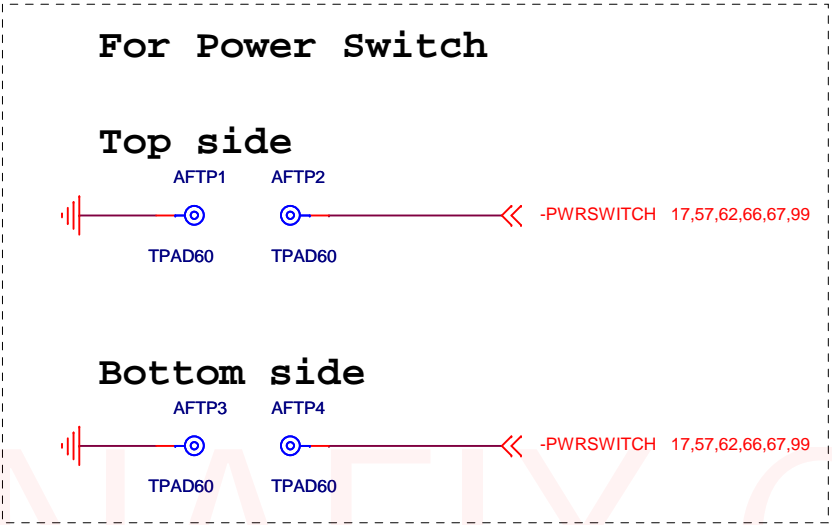
ULT

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title **PTH FOR SCREW HOLES**

Size A3	Document Number Raven-1	Rev -3
Date: Monday, July 20, 2015	Sheet 98 of 102	





ULT

緯創資通		Wistron Corporation	
		21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title EMI DECOUPLING			
Size A4	Document Number Raven-1		Rev -3
Date:	Monday, July 20, 2015	Sheet 100 of	100