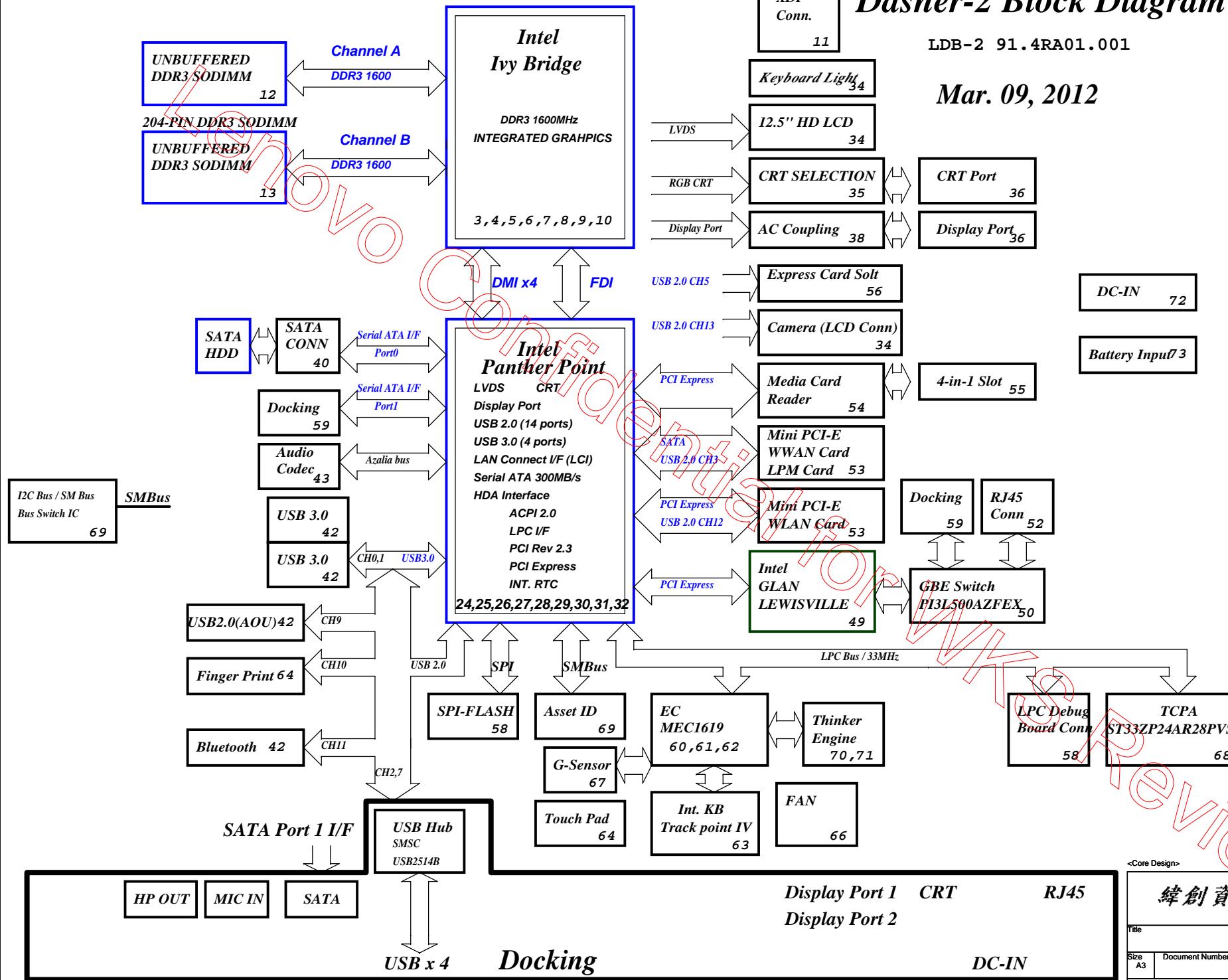


## *Dasher-2 Block Diagram*

LDB-2 91.4RA01.001

Mar. 09, 2012



<b>PCB Layer Stackup</b>	
<b>L1:Component</b>	
<b>L2:GND</b>	
<b>L3:Signal 1</b>	
<b>L4:VCC</b>	
<b>L5:Signal 2</b>	
<b>L6:Signal 3</b>	
<b>L7:GND</b>	
<b>L8:Component</b>	
<b>Battery Charger/Selector</b>	
<i>BQ24760</i>	<b>74</b>
<b>INPUTS</b>	<b>OUTPUTS</b>
<i>DOCK_PWR20</i>	<i>CHARGER_OUT12</i>
<b>System DC/DC</b>	
<i>TPS51220ARSN</i>	<b>78</b>
<i>VINT20</i>	<i>VCC5M</i> <i>VCC3M</i>
<b>CPU DC/DC</b>	
<i>VT1318M/VT1324S</i>	<b>79</b>
<i>VCC5M_OUT</i>	<i>VCCCPUCORE</i>
<b>GMCH GFX CORE</b>	
<i>VT1324S</i>	<b>80</b>
<i>VCC5M_OUT</i>	<i>VCCGFXCORE</i>
<b>VCC1R5A</b>	
<i>VT357FCX</i>	<b>85</b>
<i>VCC5M_OUT</i>	<i>VCC1R5A</i>
<b>VCC0R75B</b>	
<i>TPS51200DRCR</i>	<b>86</b>
<i>VCC1R5A</i>	<i>VCC0R75B</i>
<b>VCC1R8B</b>	
<i>BD9139</i>	<b>89</b>
<i>VCC5M_OUT</i>	<i>VCC1R8B</i>
<b>VCC1R05AMT</b>	
<i>VT356FCX</i>	<b>84</b>
<i>VCC5M_OUT</i>	<i>VCC1R05LAN</i>
<b>VCC1R05B_VTT</b>	
<i>VT356</i>	<b>83</b>
<i>VCC5M_OUT</i>	<i>VCC1R05B_VTT</i>
<b>VCCSA</b>	
<i>VT370</i>	<b>90</b>
<i>VCC5M_OUT</i>	<i>VCCSA</i>

## RESISTOR

Maintenance and Service Guide, Service Manual, Motherboard Schematics for Laptop/notebook <http://faqp.ru/>

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

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

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

PLANAR ID[3..0]

IBEXPEAK-M	39	38	48	49	Planar ID Version	Planar PCB Version
PLANAR_IDN	3	2	1	0		
	0	0	0	0	Dasher-2 initial	N/A
	0	0	0	1	Dasher-2 PreDV	SA
	0	0	1	0	Dasher-2 SDV	SA
	0	0	1	1	Dasher-2 FVT	SB
	0	1	0	0	Dasher-2 PreSIT	SC
	0	1	0	1	Dasher-2 SIT	SD
	0	1	1	0	Dasher-2 SVT	-1
	0	1	1	1		
	1	0	0	0		
	1	0	0	1		
	1	0	1	0		

EC HISTORY

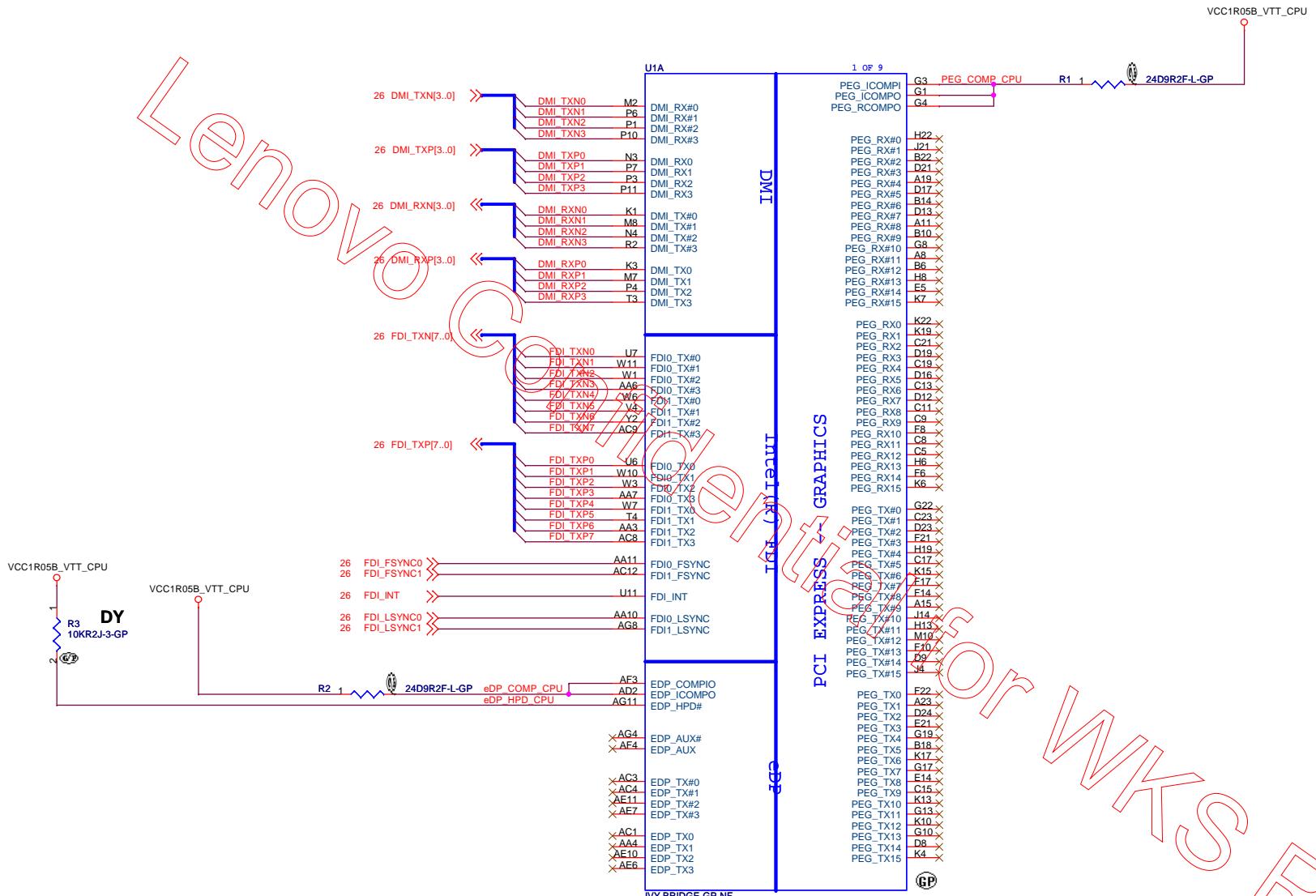
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**緯創資通** **Wistron Corporation**  
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Taipei Hsien 221, Taiwan, R.O.C.

B-6

# Reference

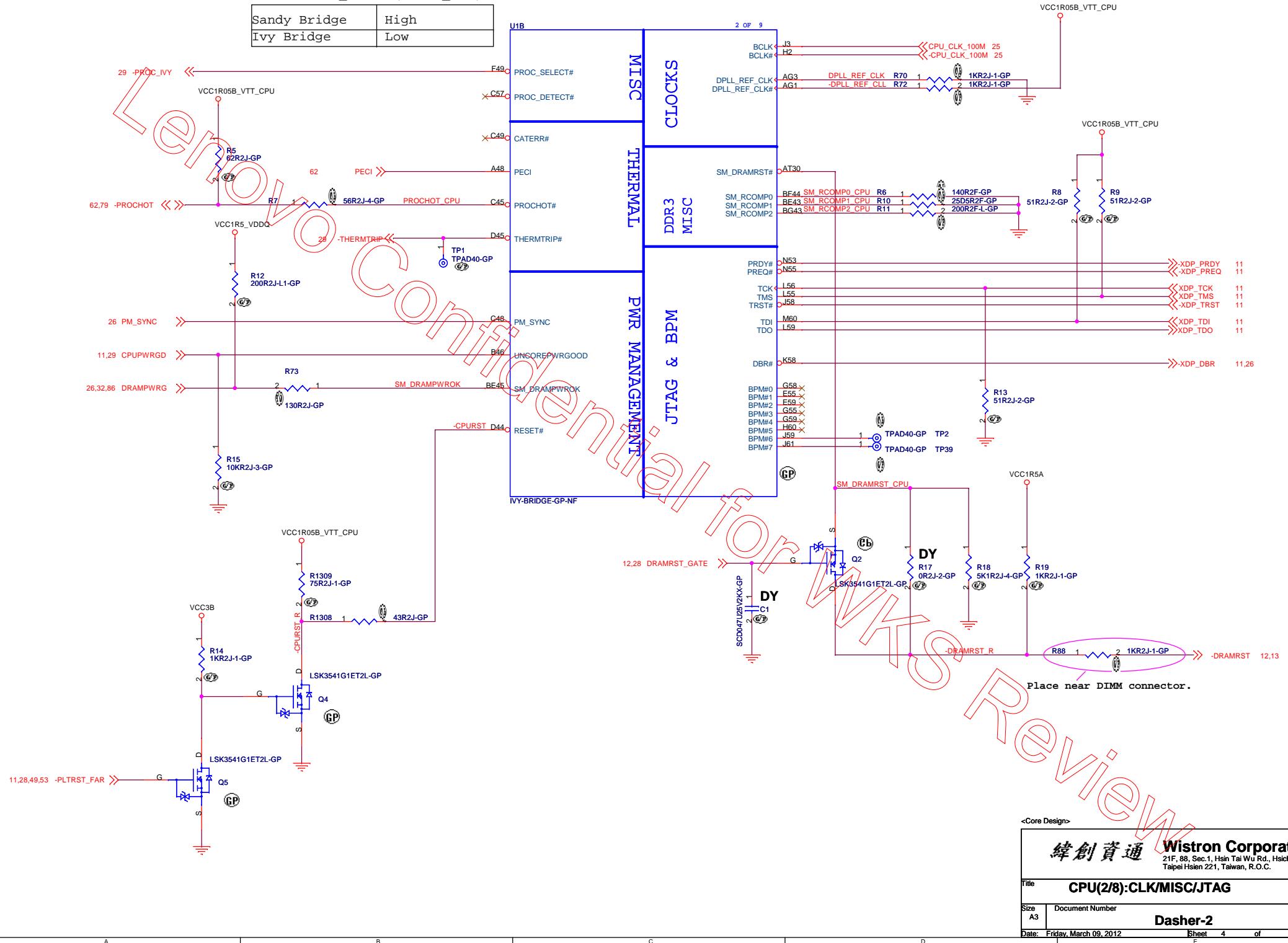
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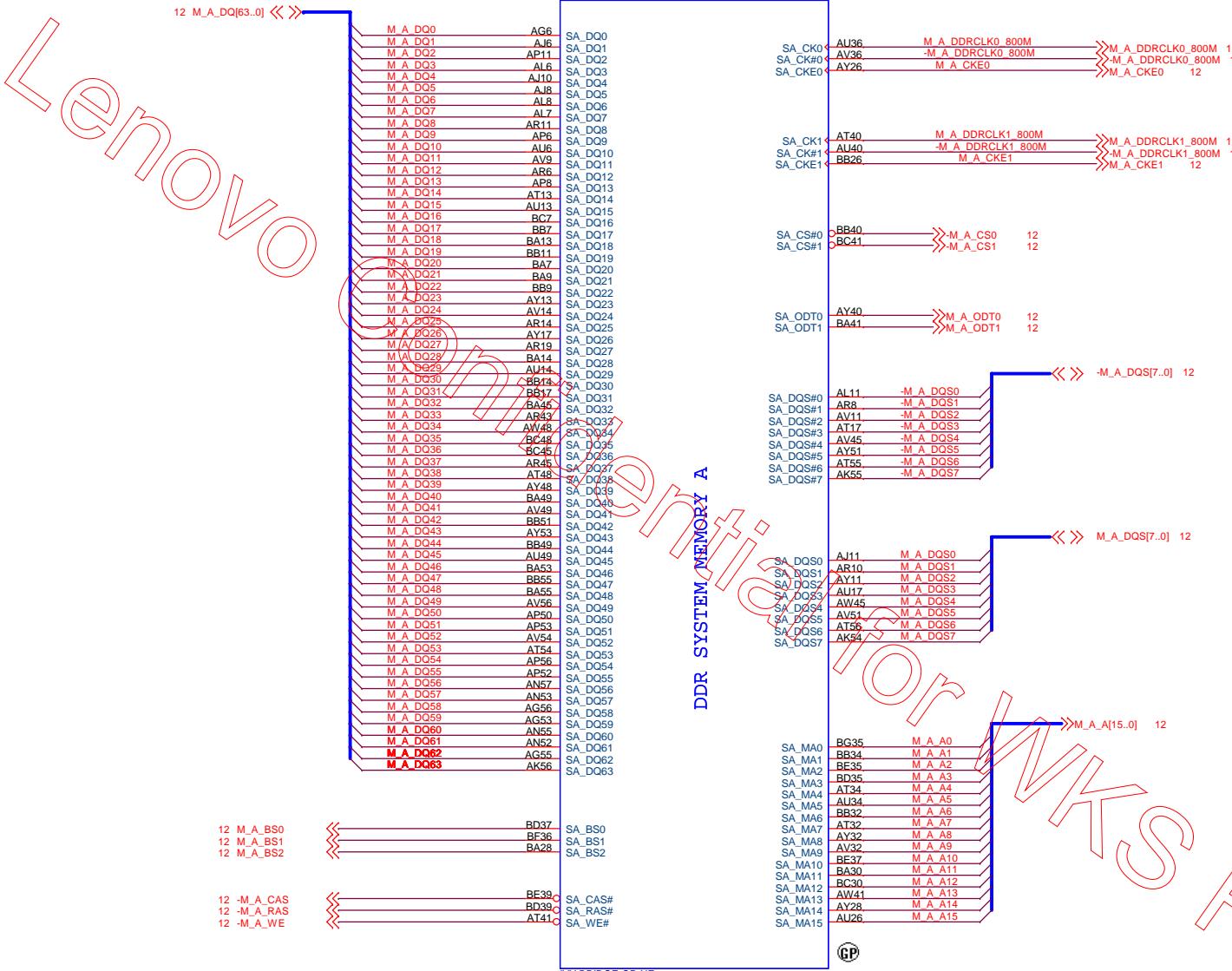


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21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title <b>CPU(1/8):DMI/EDP/PEG/FDI</b>		
Size A3	Document Number	Rev -1
Dasher-2		
Date: Friday, March 09, 2012	Sheet 3 of 101	E

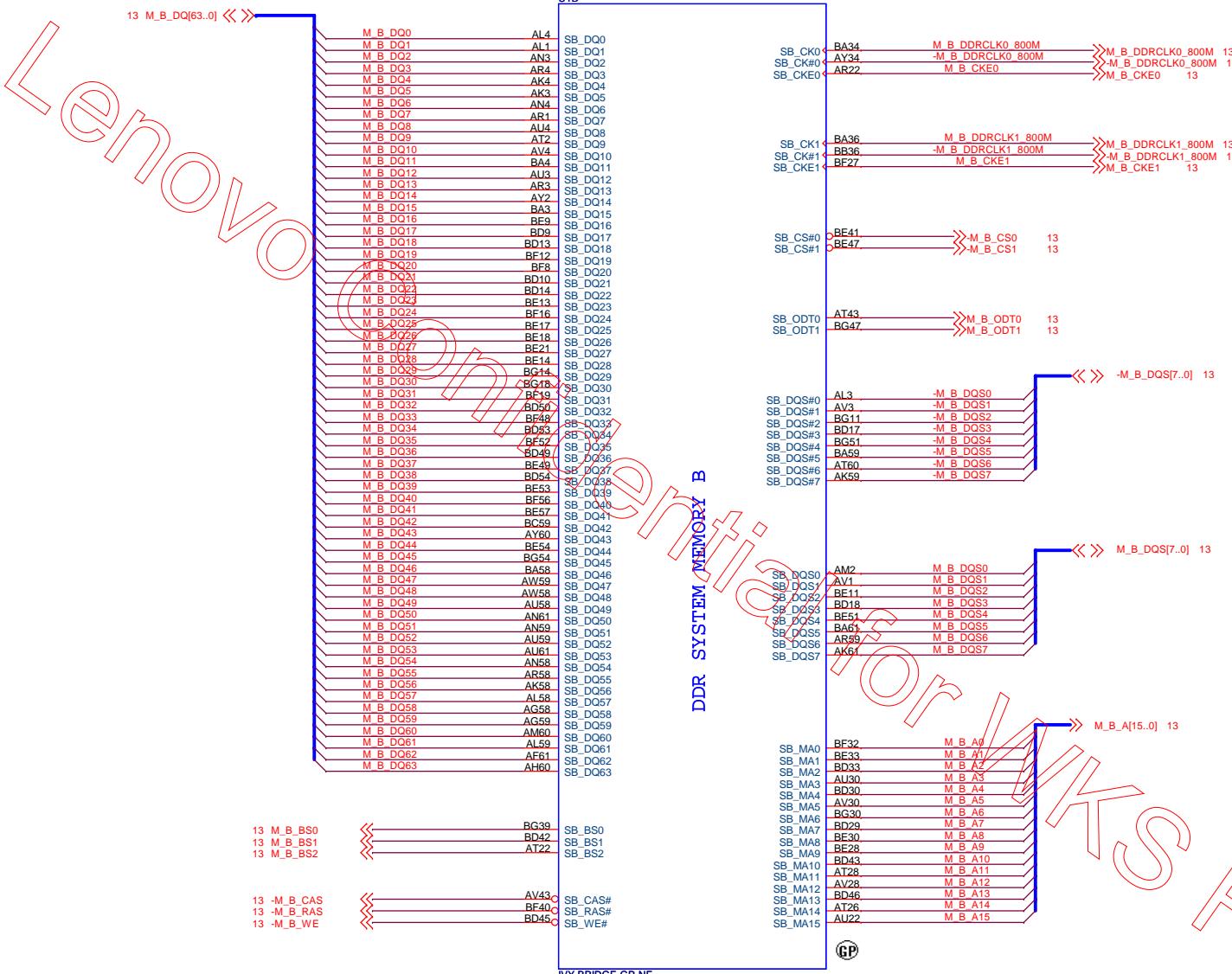
Sandy Bridge	High
Ivy Bridge	Low





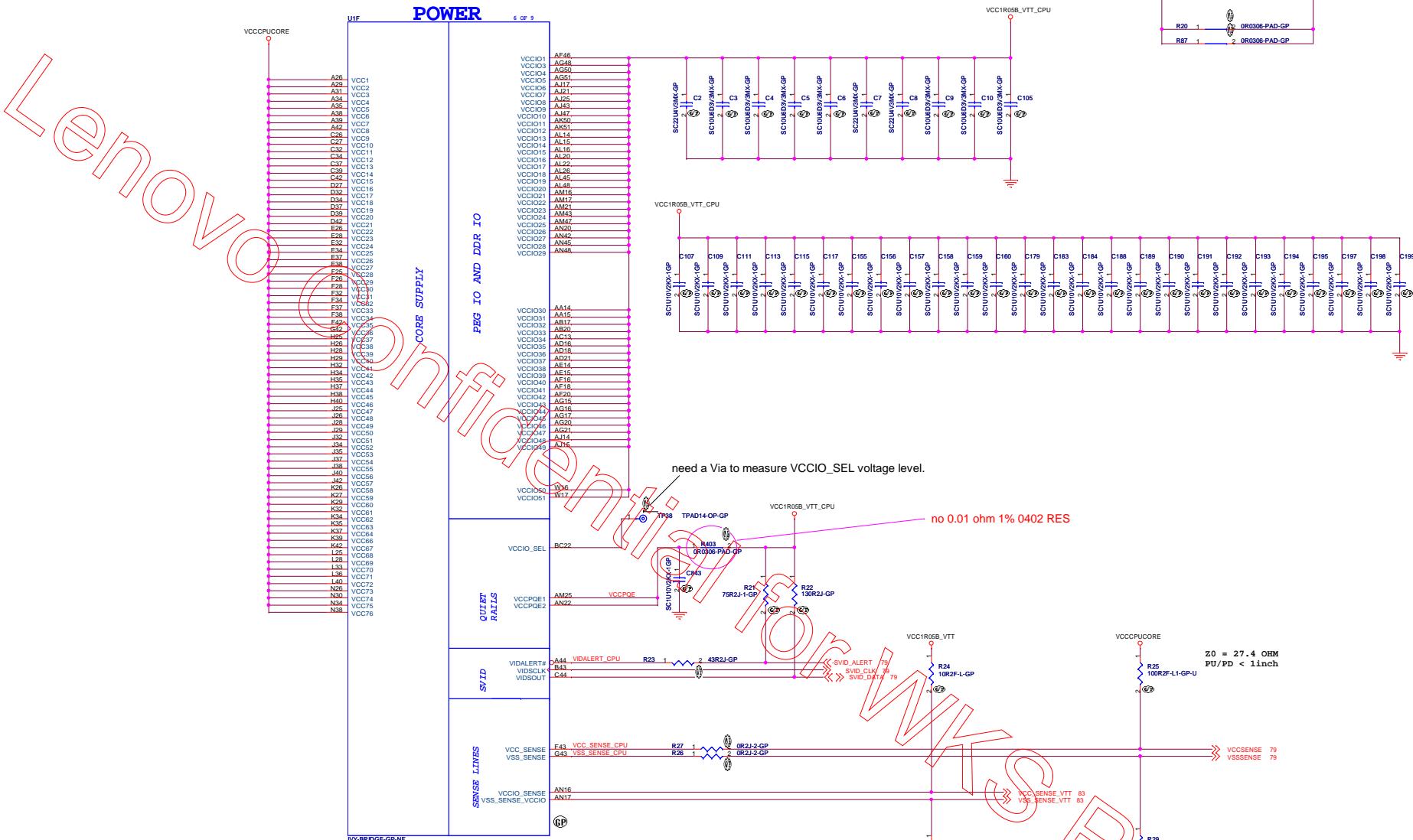
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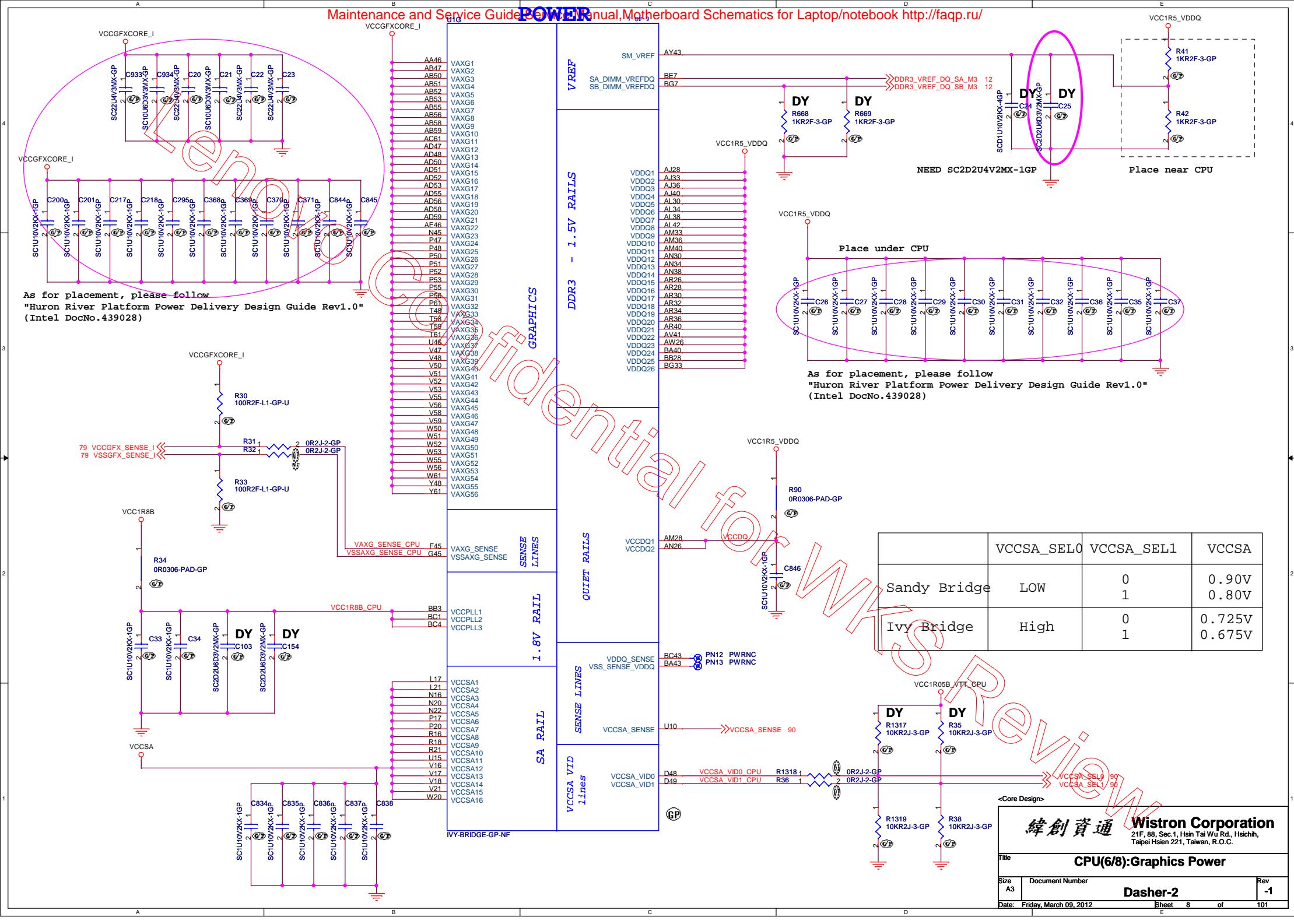
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21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
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Size	Document Number	Dasher-2
A3		
Date: Friday, March 09, 2012	Sheet	5 of 101

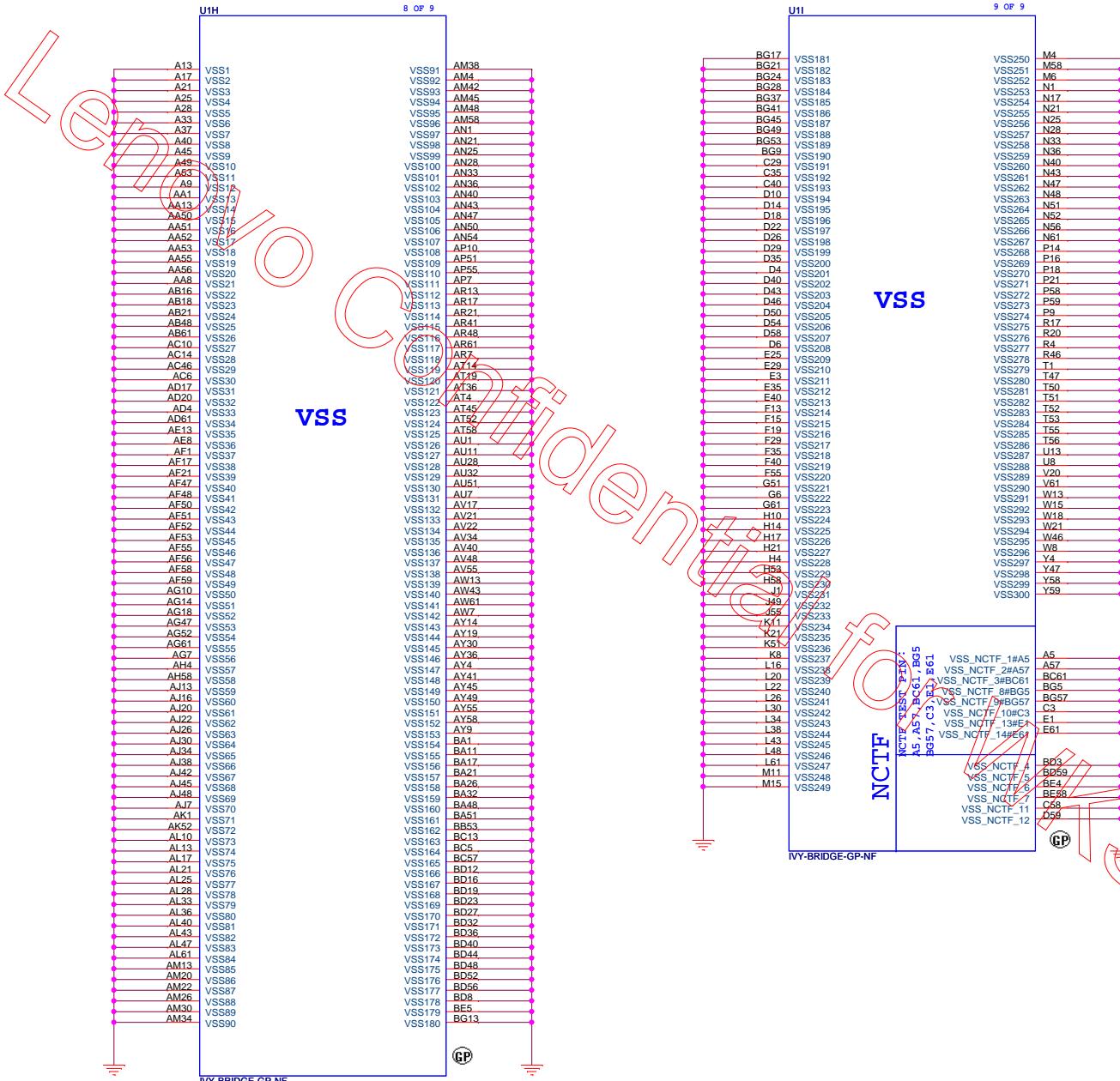


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<b>Wistron Corporation</b> 21F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
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Size A3	Document Number Dasher-2	Rev -1
Date: Friday, March 09, 2012	Sheet 6	of 101



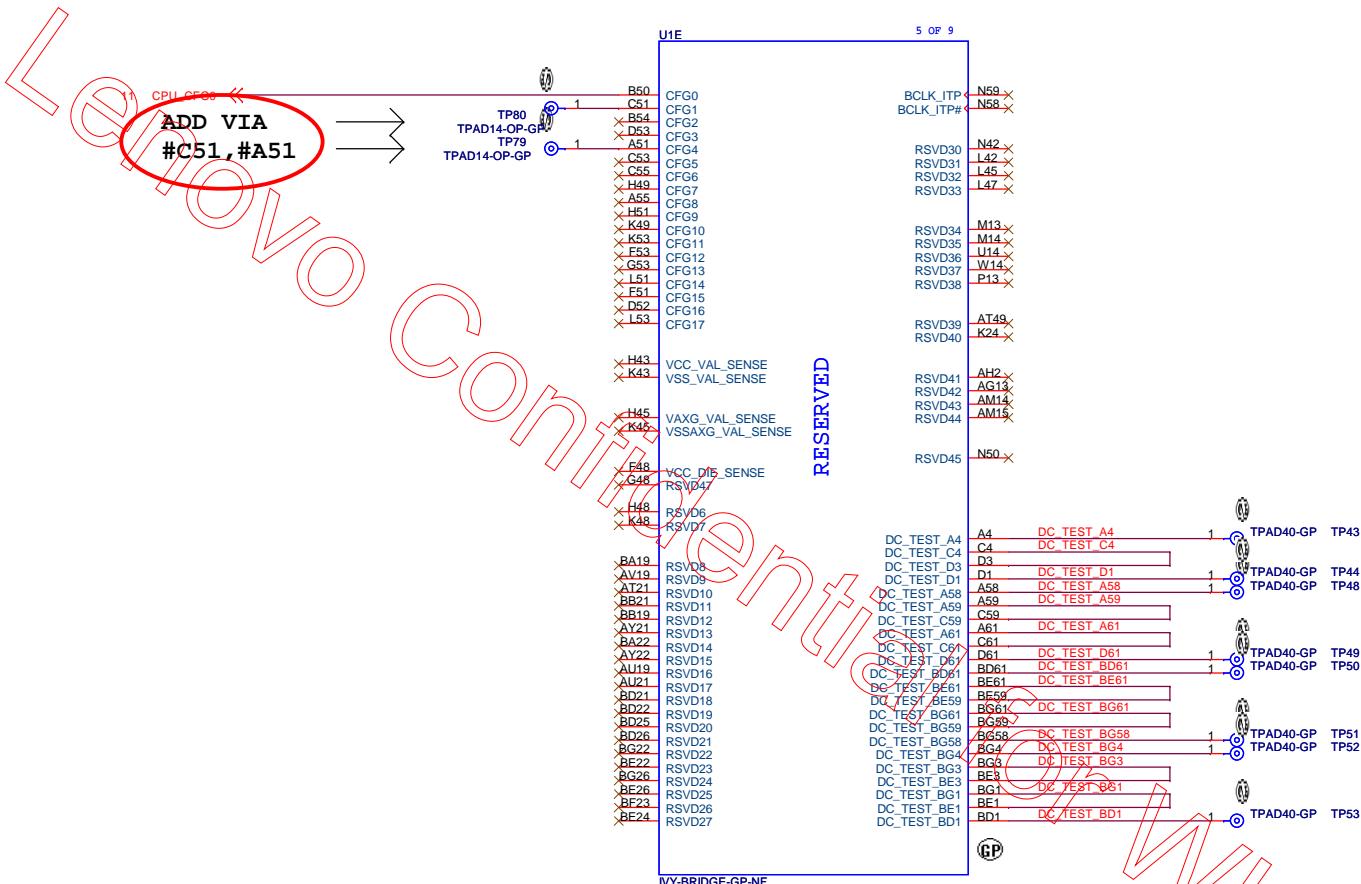




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**緯創資通 Wistron Corporation**  
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Taipei Hsien 221, Taiwan, R.O.C.

Title **CPU(7/8):GND**Size **Custom** Document Number **Dasher-2**Rev **-1**Date: Tuesday, February 21, 2012 Sheet **9** of **101**

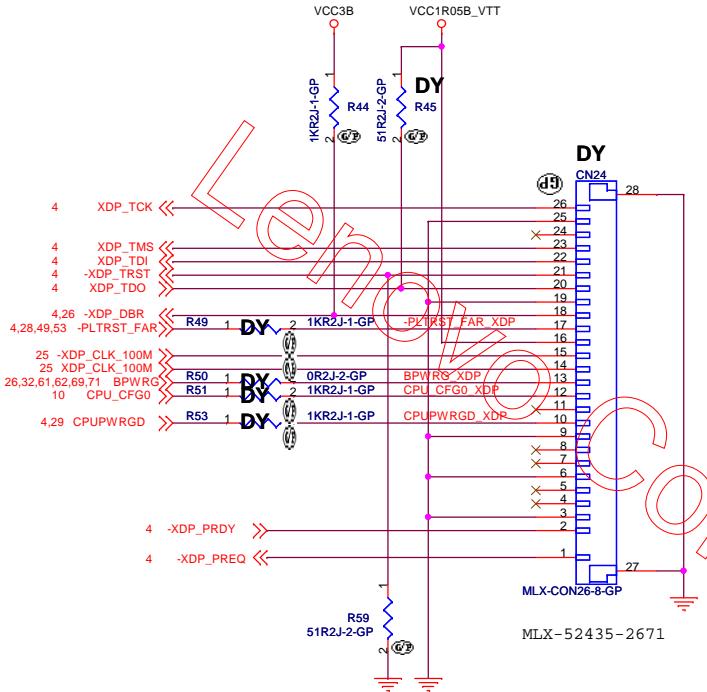


Core Design

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

CPU(8/8)-CEC/Reserved

<b>CPU(68):CFG/Reserved</b>		
<b>Size</b> <b>A3</b>	<b>Document Number</b>	<b>Rev</b> <b>-1</b>
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Date: Friday, March 09, 2012		Sheet 10 of 101

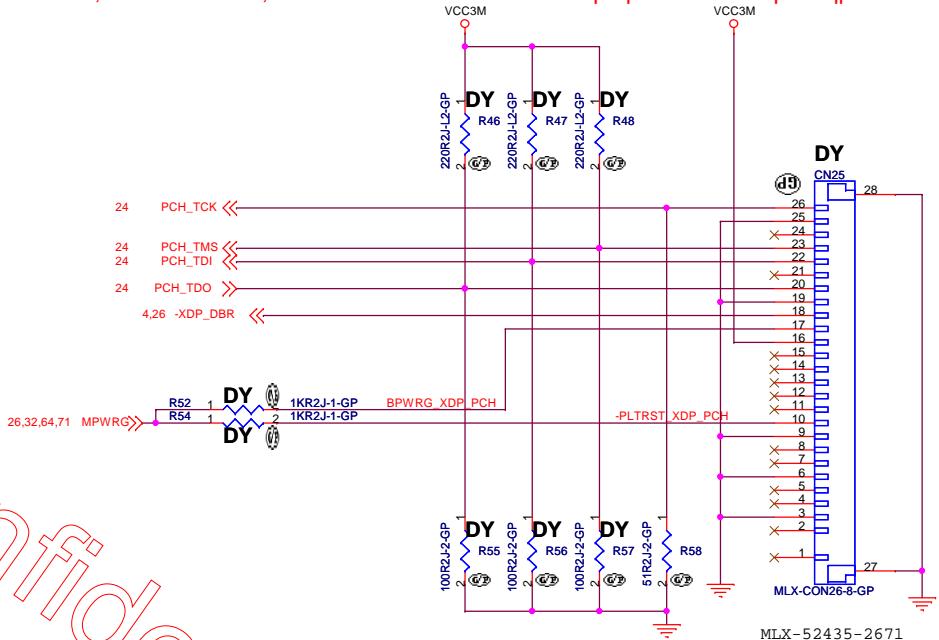


DEBUG Interface for Processor.

XDP1 NOTE:"ASM" FOR PDV/SDV ONLY

		ENABLE	DISABLE
TDO	R45	ASM	DY
TRST#	R59	ASM	ASM
DBRST#	R44	ASM	ASM
RESET#	R49	ASM	DY
CFG0	R51	ASM	DY
PWRGD	R53	ASM	DY
BPWRG	R50	ASM	DY
	CN24	ASM	DY

↑  
FVT Logic



DEBUG Interface for PCH.

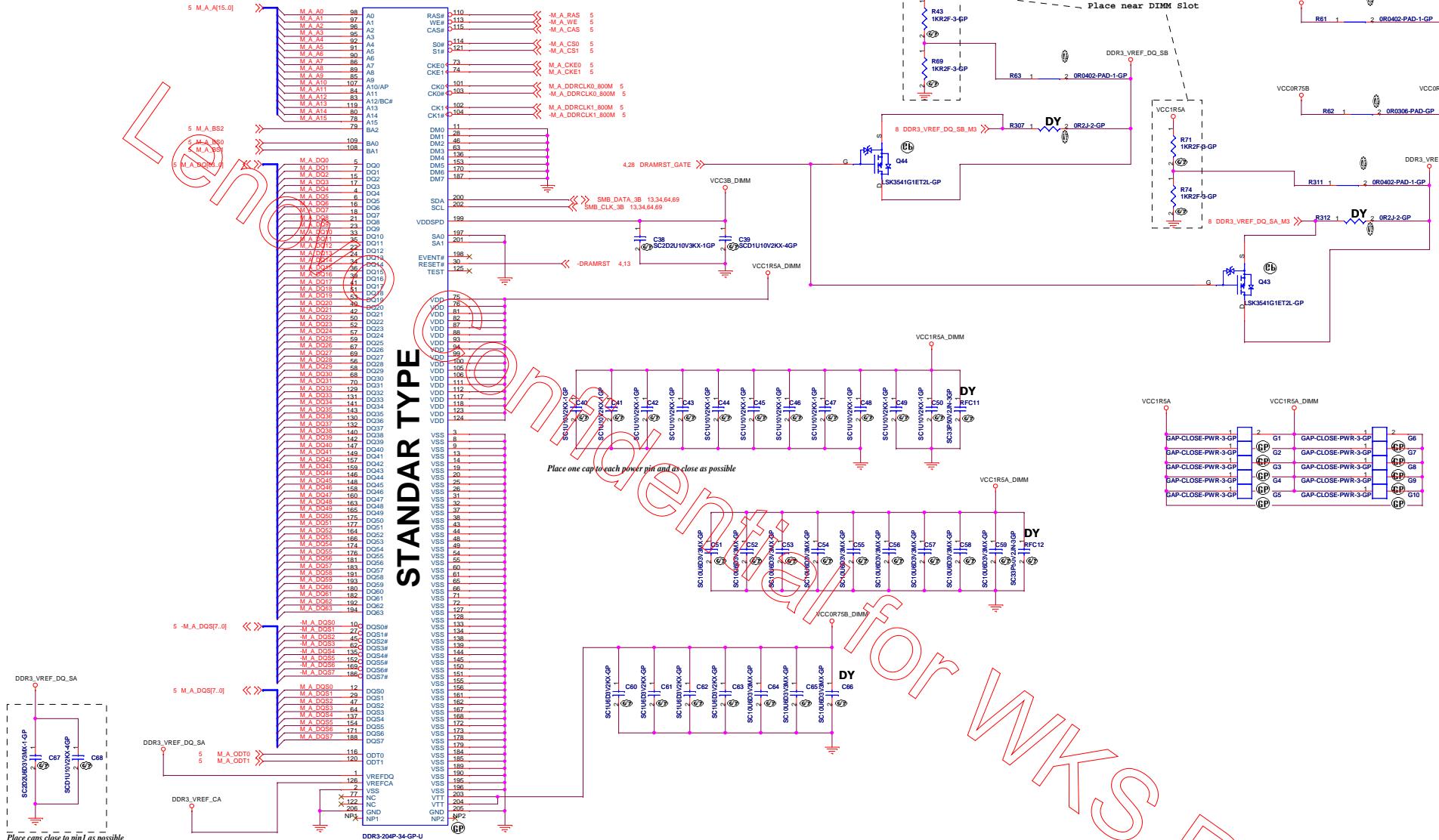
XDP2 NOTE:"ASM" FOR PDV/SDV ONLY

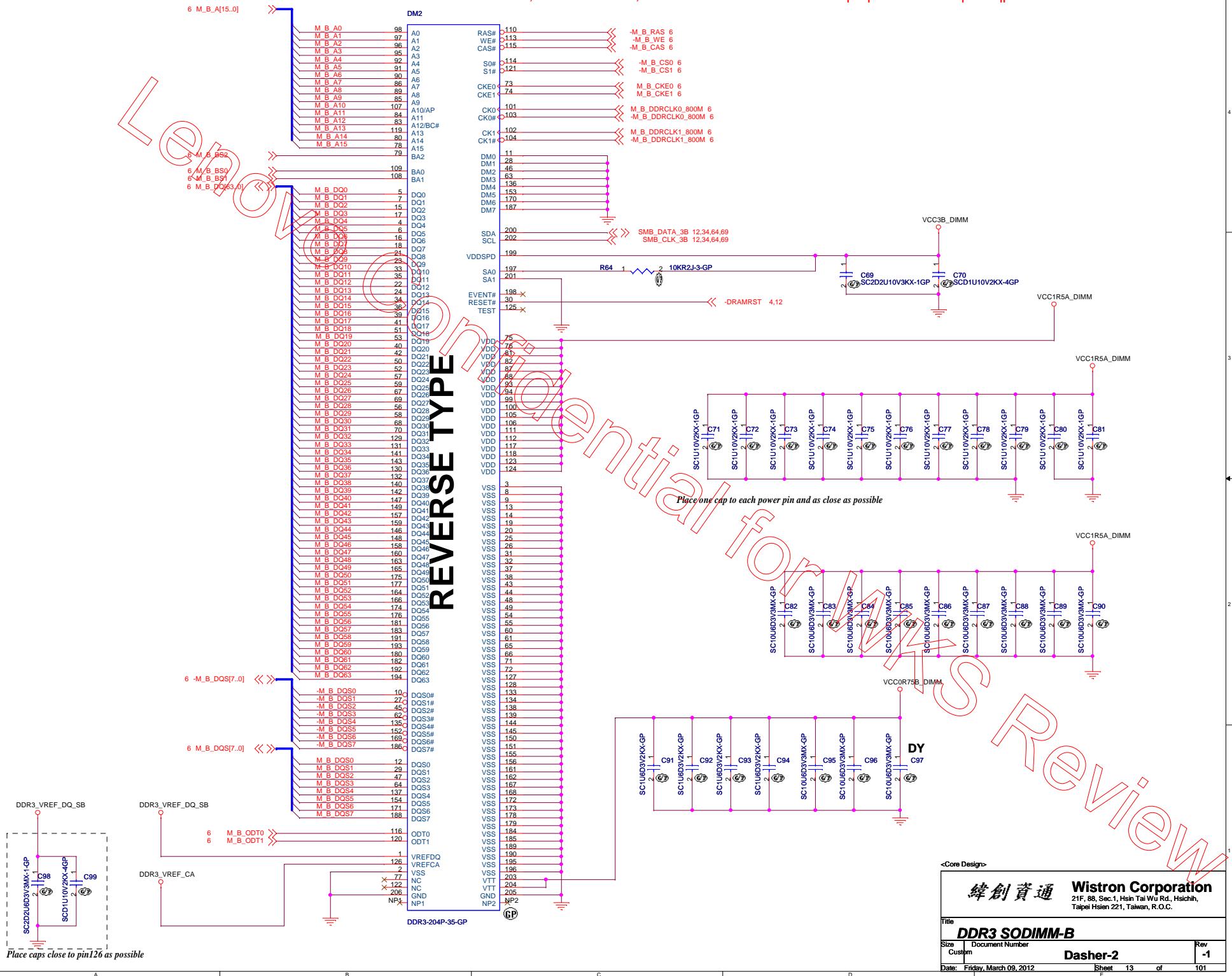
		ENABLE	DISABLE
TDO	R46	220	DY
	R55	100	DY
TMS	R48	220	DY
	R57	100	DY
TDI	R47	220	DY
	R56	100	DY
TCK	R58	51	51
	R51	51	51
MPWRG	R52	ASM	DY
	R54	ASM	DY
	CN25	ASM	DY

↑  
FVT Logic

&lt;Core Design&gt;

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Size A3 Document Number _____ Rev -1		
Date: Friday, March 09, 2012 Sheet 11 of 101		
XDP Connector Dasher-2		





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Date: Tuesday, February 21, 2012	Sheet 15 of 101	1

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Date: Tuesday, February 21, 2012	Sheet 18 of 101	1

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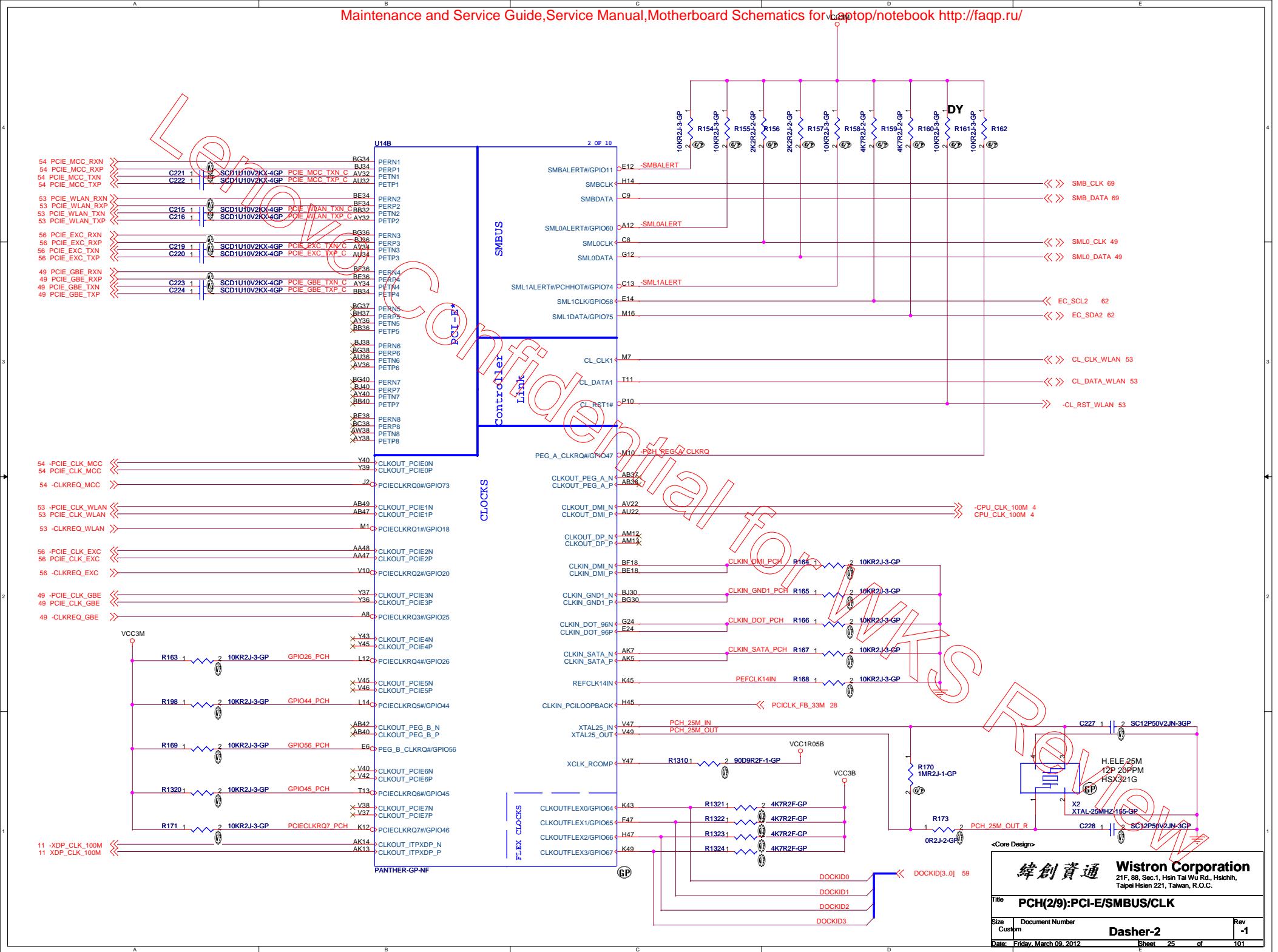
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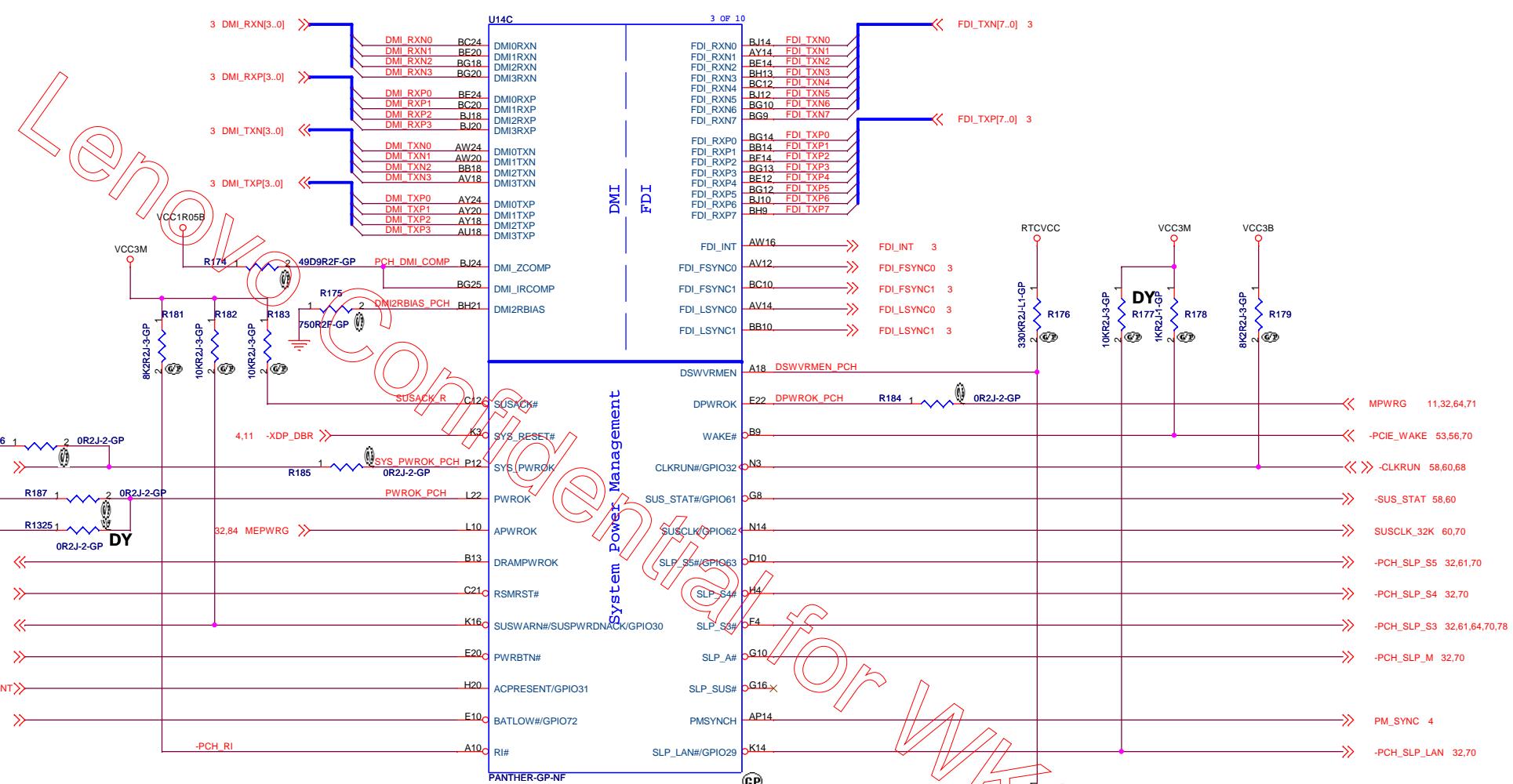
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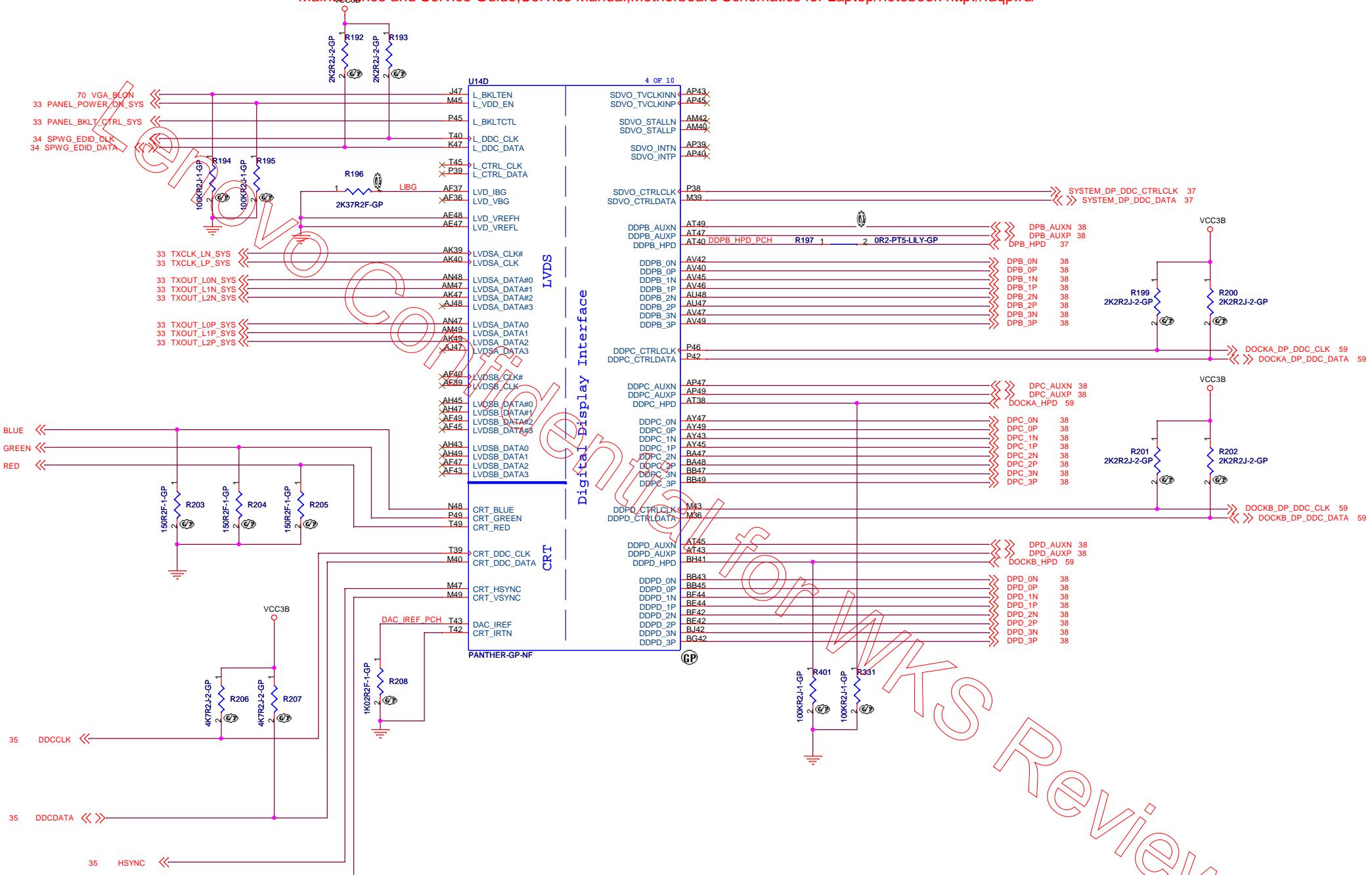






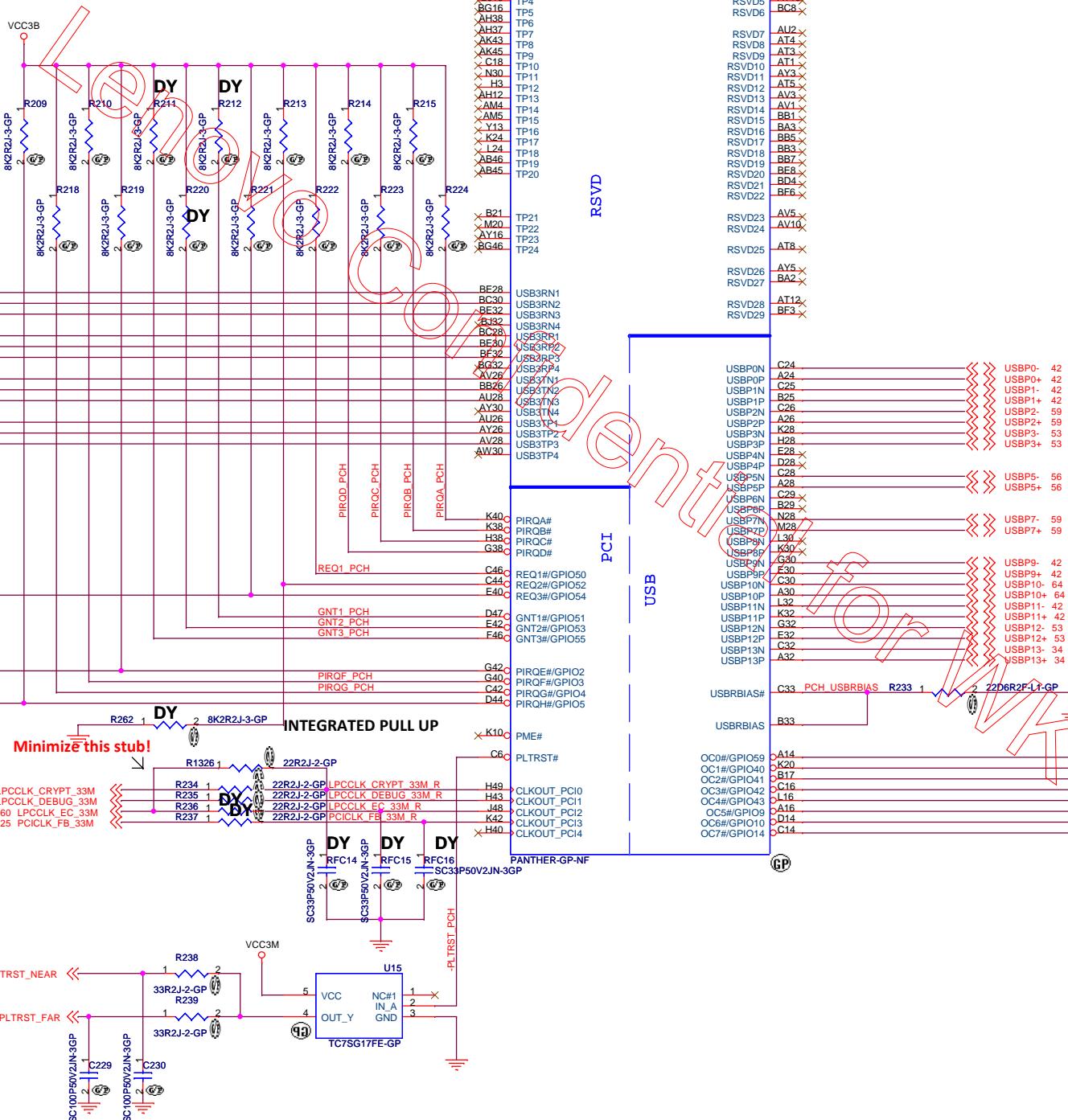
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<b>Wistron Corporation</b>		
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
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Size A3	Document Number	Rev -1
Dasher-2		
Date: Friday, March 09, 2012	Sheet 26 of	101



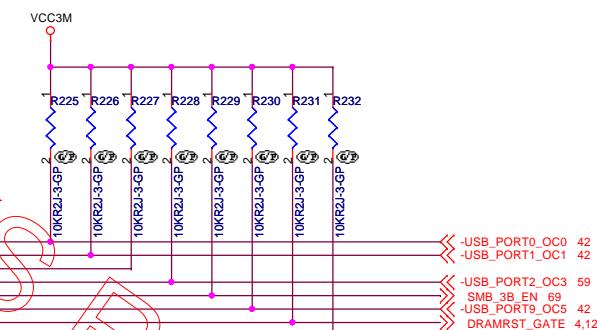
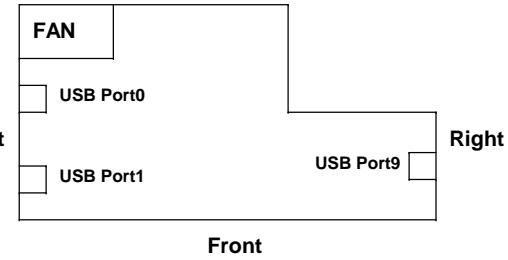
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Wistron Corporation		
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title PCH(4/9):LVDS/CRT/DDI		
Size A3	Document Number	Rev -1
Dasher-2		
Date: Friday, March 09, 2012	Sheet 27 of 101	E



Dasher2	
USB0	System Port 0 (USB3.0)
USB1	System Port 1 (USB3.0)
USB2	since Dock USB3.0
USB3	WWAN
USB4	Reserved
USB5	Express Card
USB6	Reserved
USB7	USB2.0 DOCKING
USB8	Reserved
USB9	System Port 9 (iPod)
USB10	FPR/TOUCH PAD
USB11	Bluetooth
USB12	WLAN
USB13	Camera

## USB Port Figure(Top View)



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

PCH(5/8) ·PCI/USB/NVM

Document Num

**Document Number**

## **asher-2**

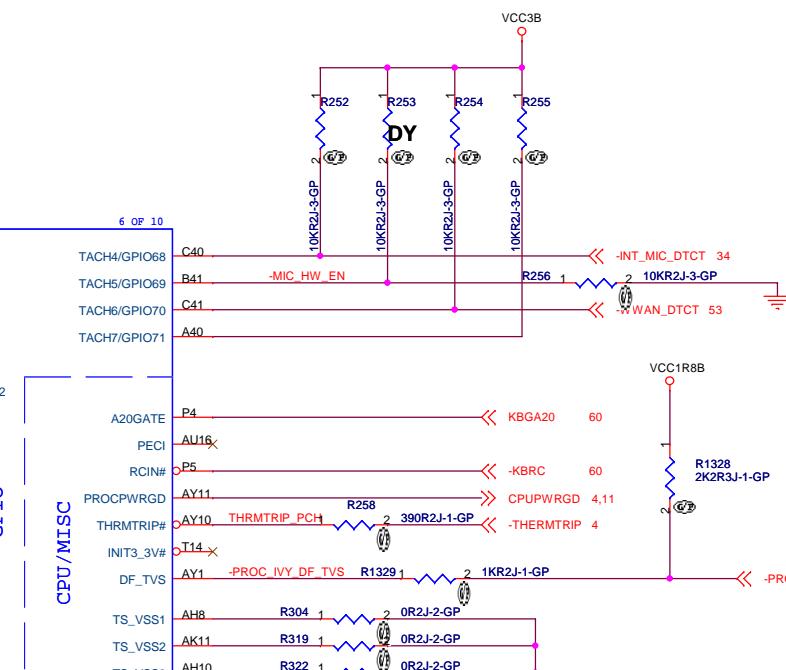
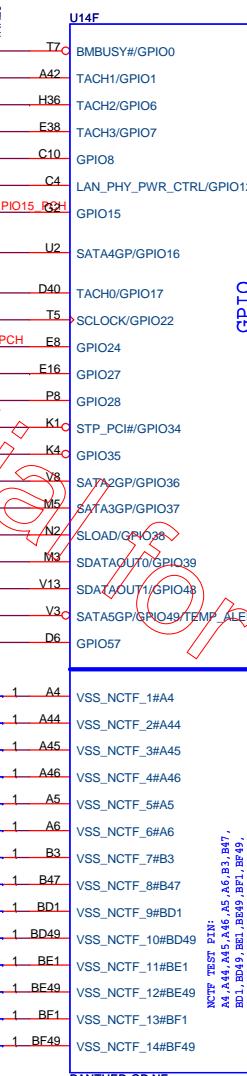
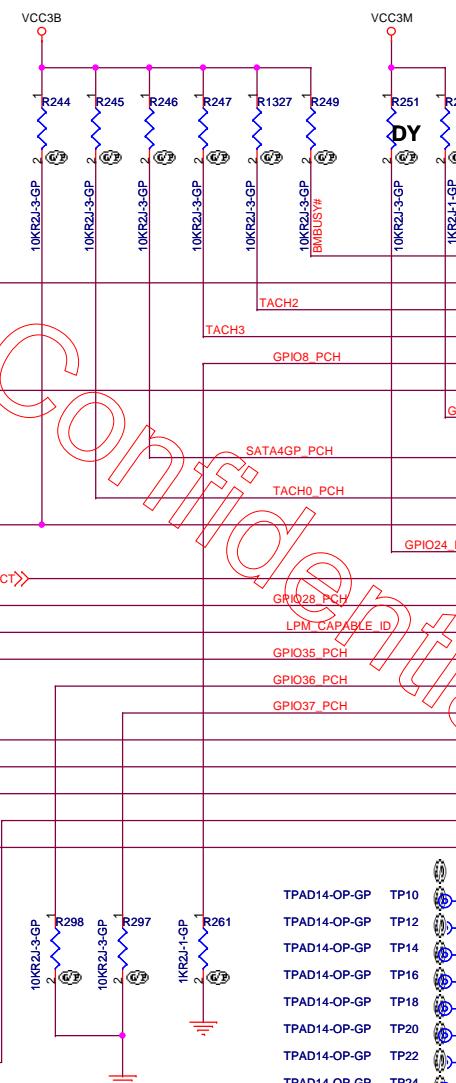
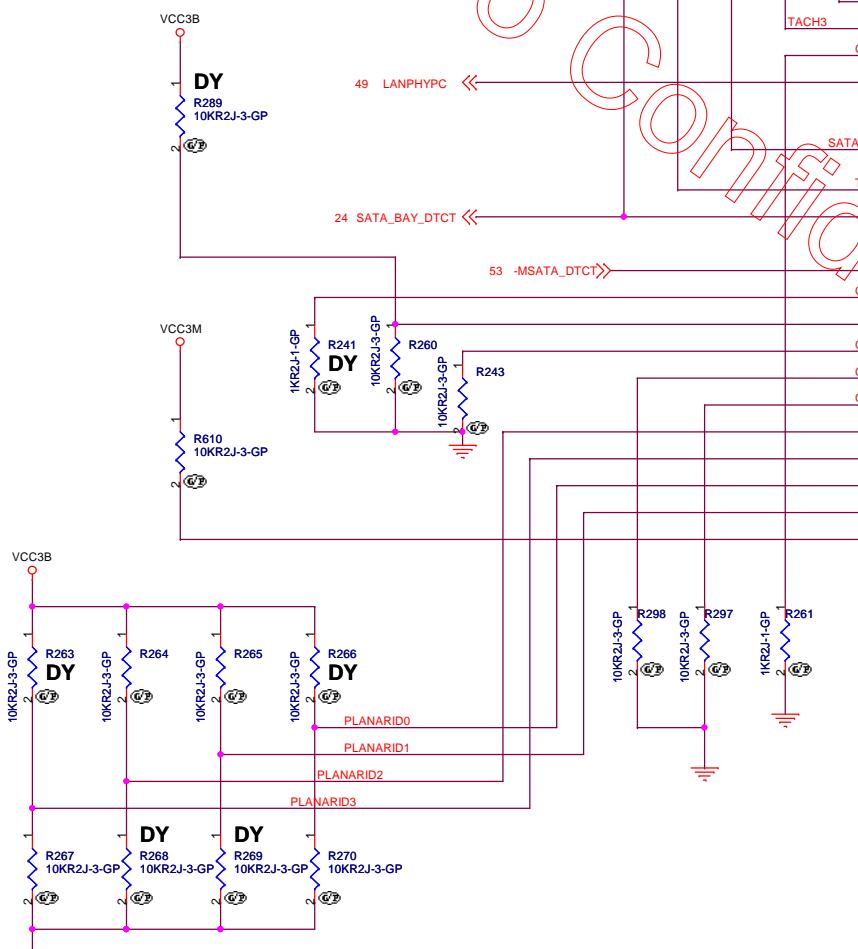
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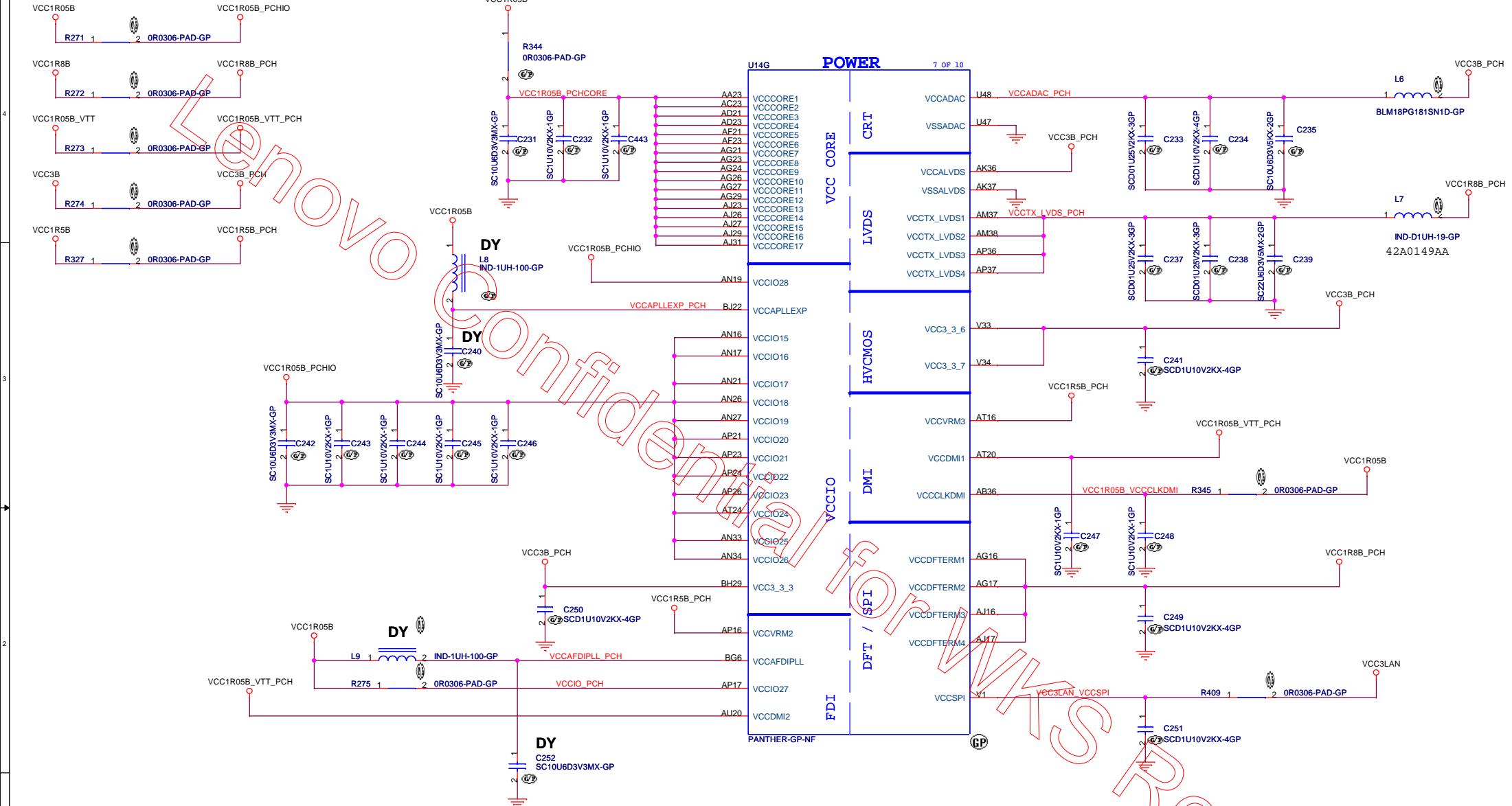
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GPIO8	INTEGRATED CLOCKING
HIGH	DISABLE(BTM)
LOW	ENABLE(FCIM)

GPIO15	ME CRYPTO STRAP
HIGH	WITH CONFIDENTIALITY
LOW	NO CONFIDENTIALITY

GPIO34	LPM CAPABILITY
HIGH	LPM CAPABLE PLANAR
LOW	LPM NON-SUPPORT PLANAR



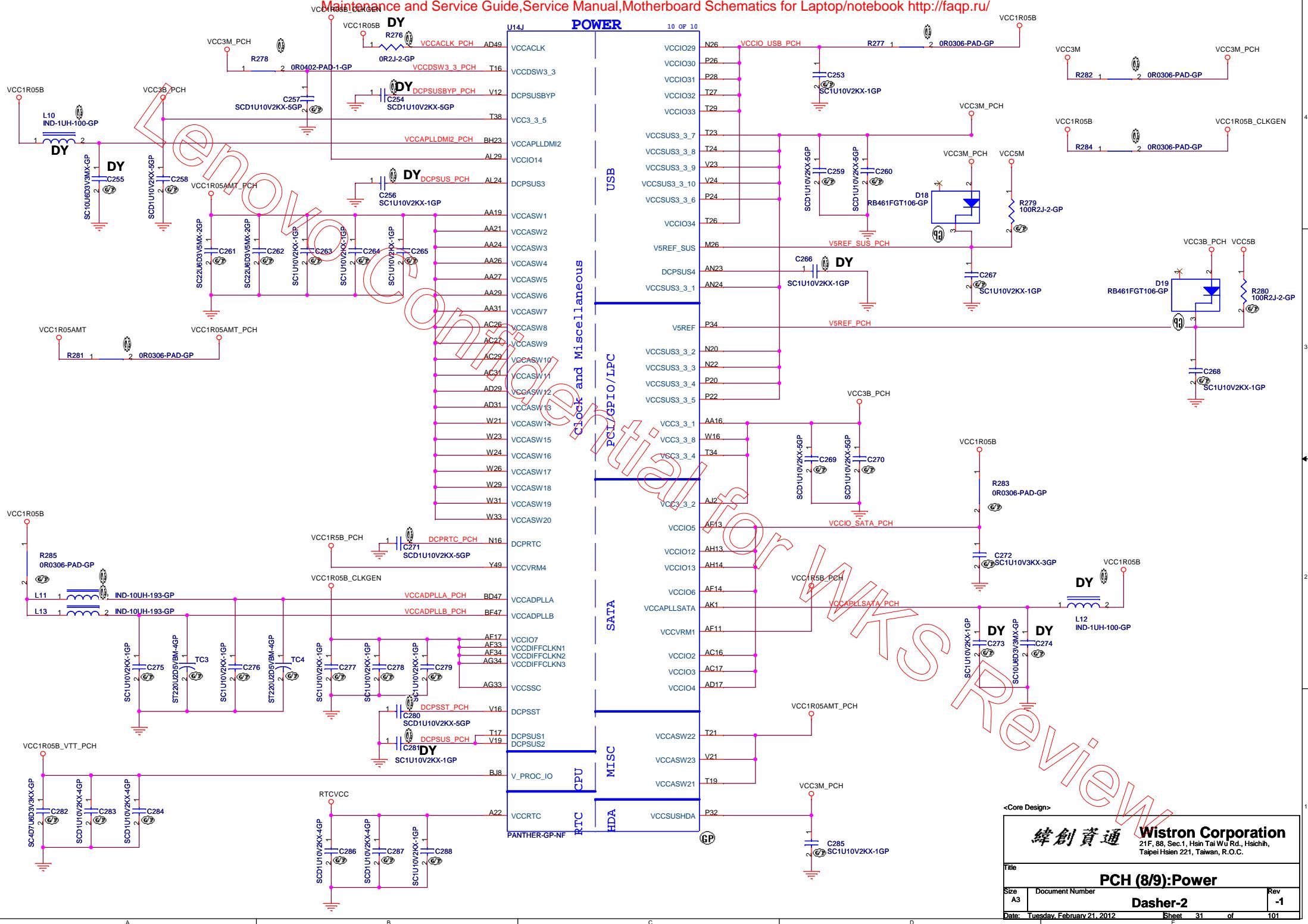


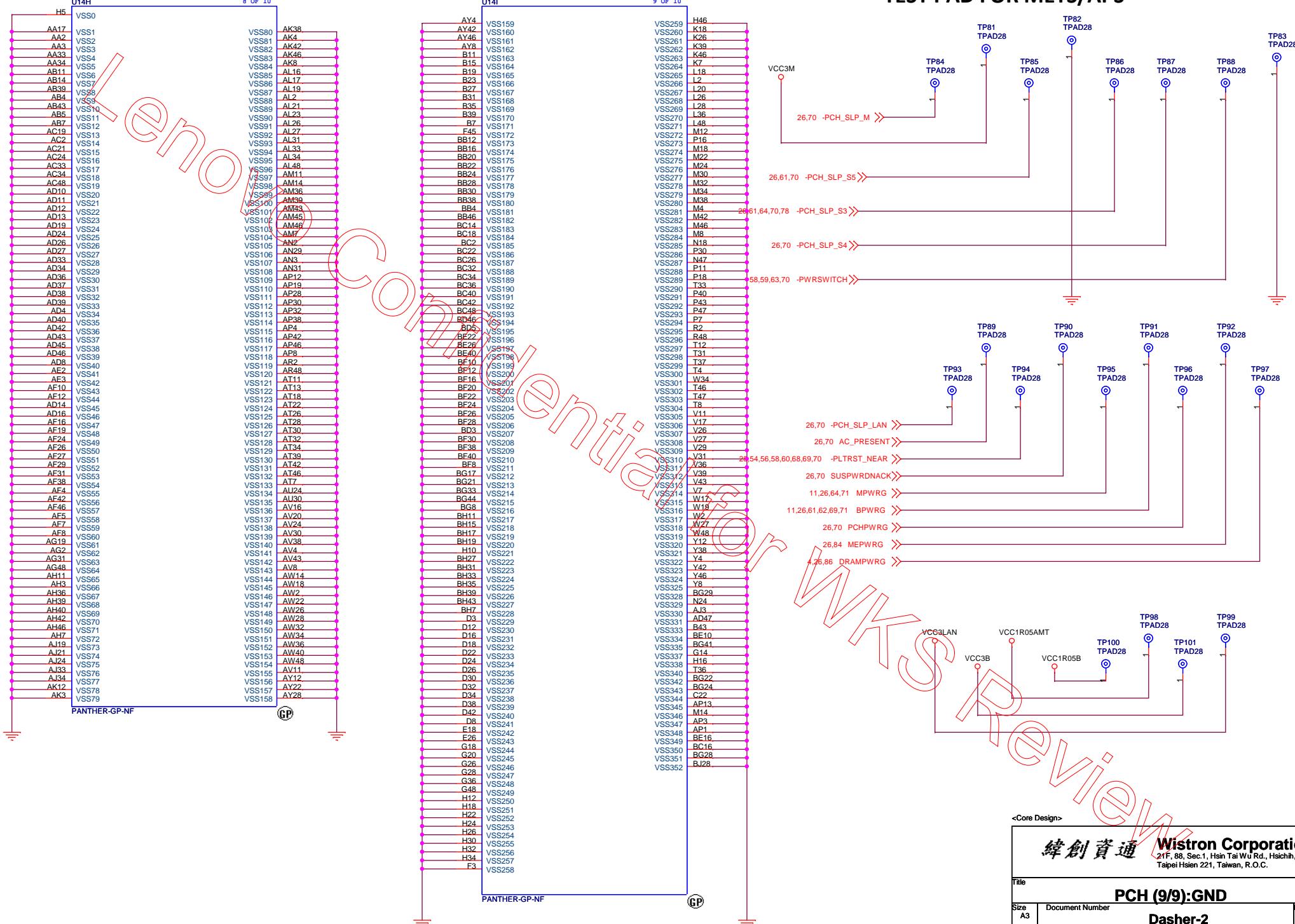
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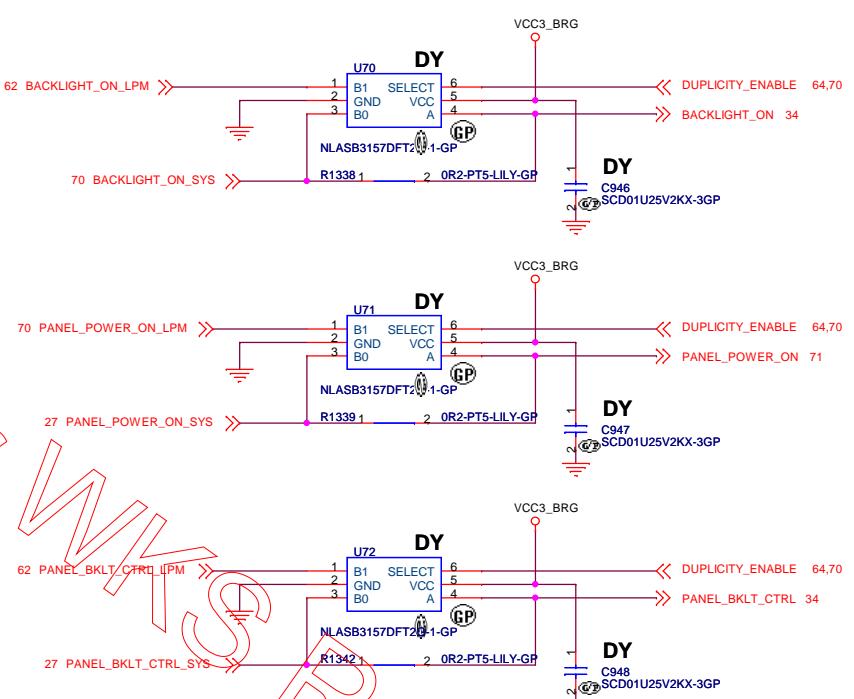
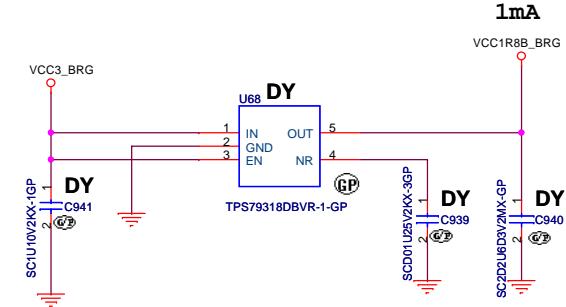
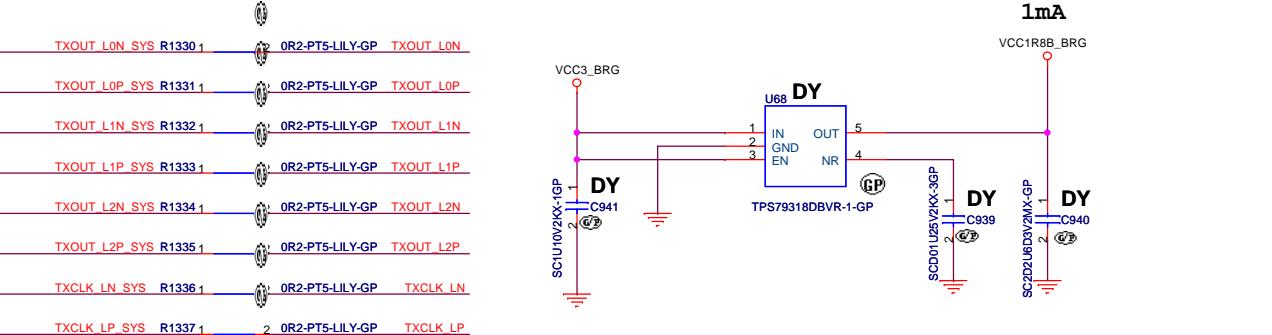
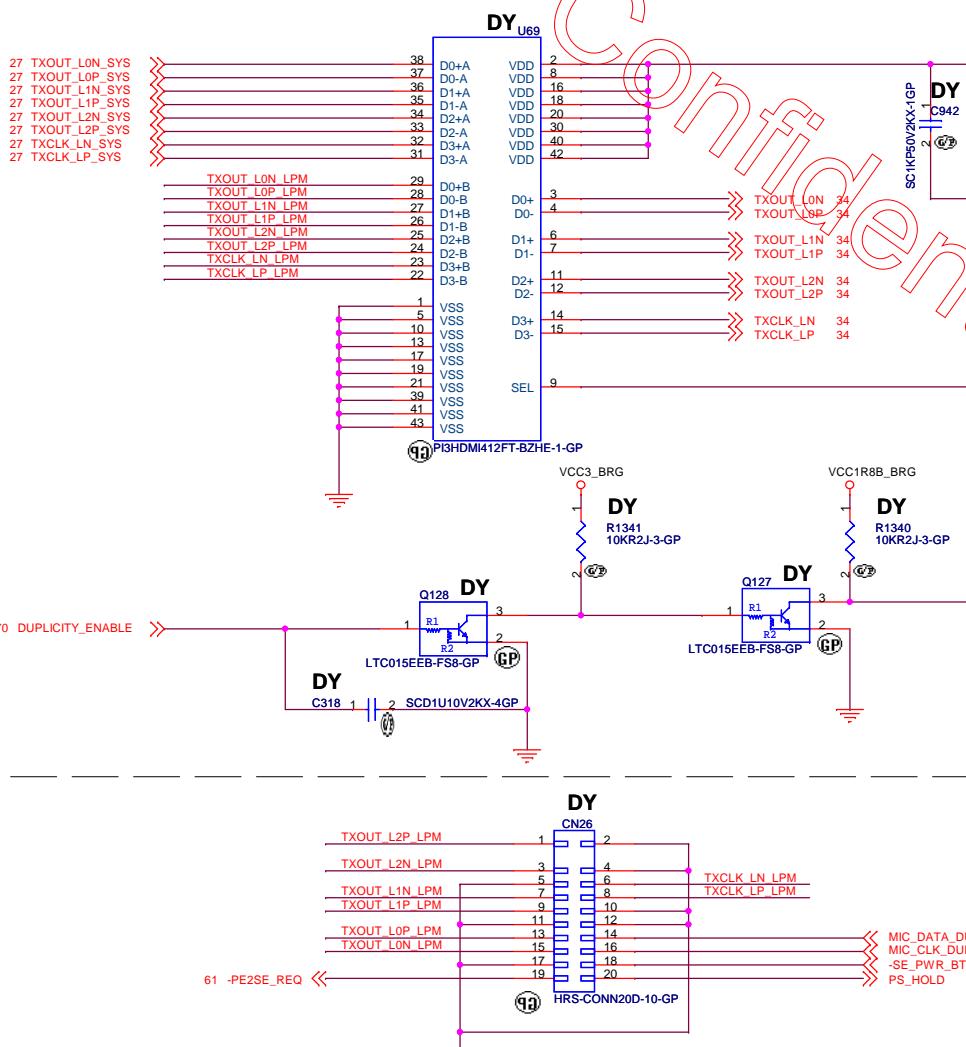
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Size A3	Document Number	<b>Dasher-2</b>		Rev <b>-1</b>
Date: Tuesday, February 21, 2012		Sheet E	30	of 101



**TEST PAD FOR METS/APS**

Supplier	Vendor P/N	Wistron P/N
Pericom	PIHDMI412-BZHE	71.03412.B0G
TI	TS3DV421RUAR	71.03421.003

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**LCD Connector**

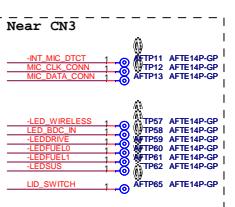
**System LED Connector Pin**

26	VCC3_BRG	5
25	VCC3_SW	6
24	VCC3_M	7

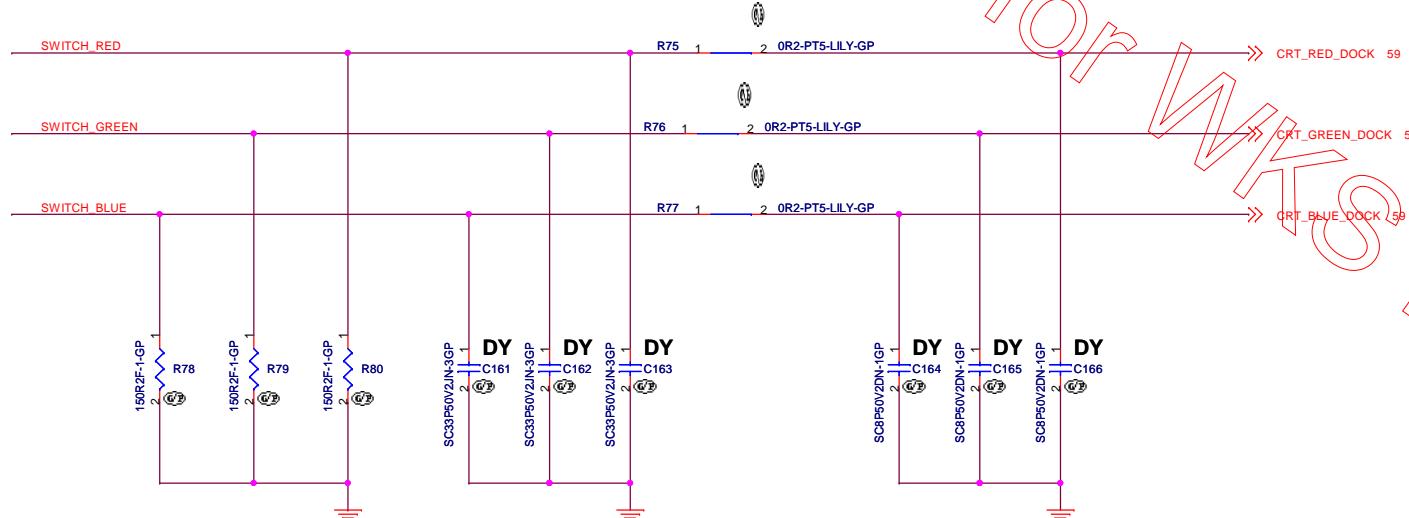
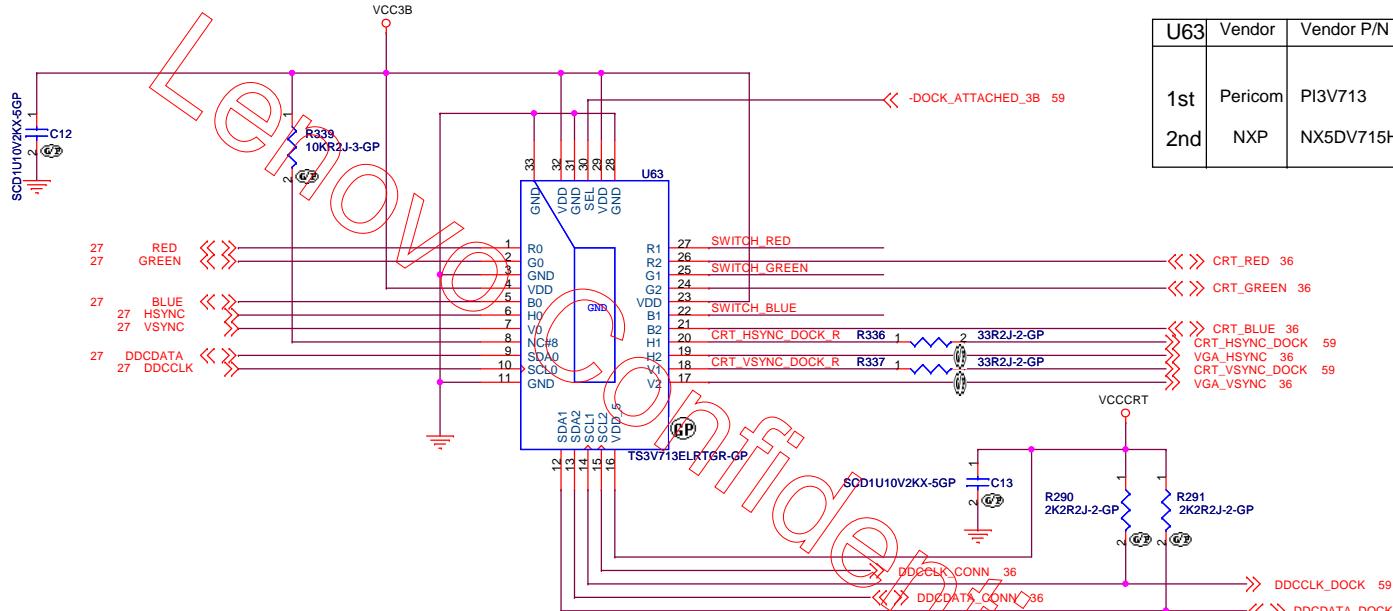
**Near CN3**

- INT\_MIC\_DTCNT
- MIC\_CLK\_CONN
- MIC\_DATA\_CONN

System LED Connector Pin	LED Subcard Connector Pin
26 VCC3_BRG	5 -> MIC
25 VCC3SW	6 -> Hall Sensor
24 VCC3M	7 -> LED

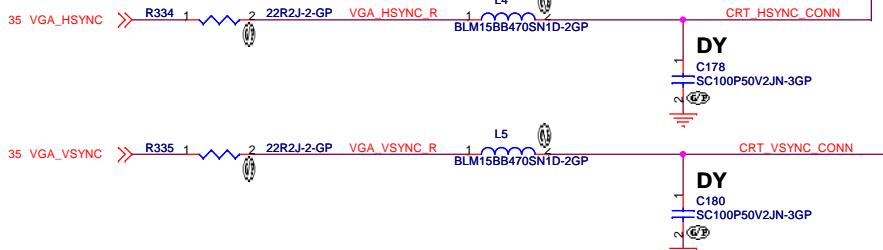
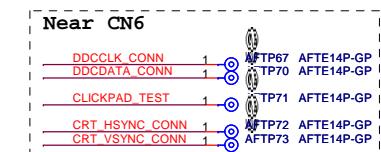
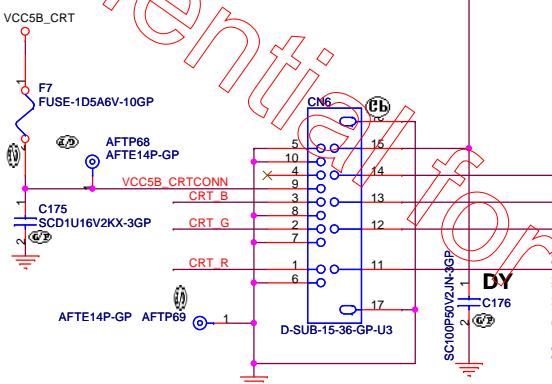
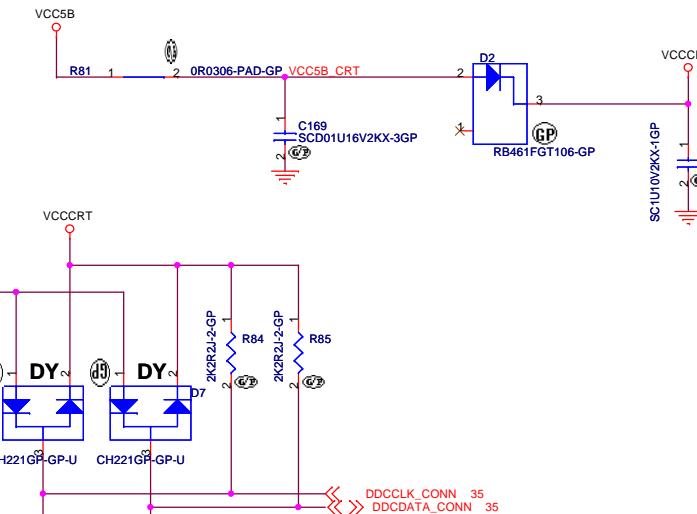
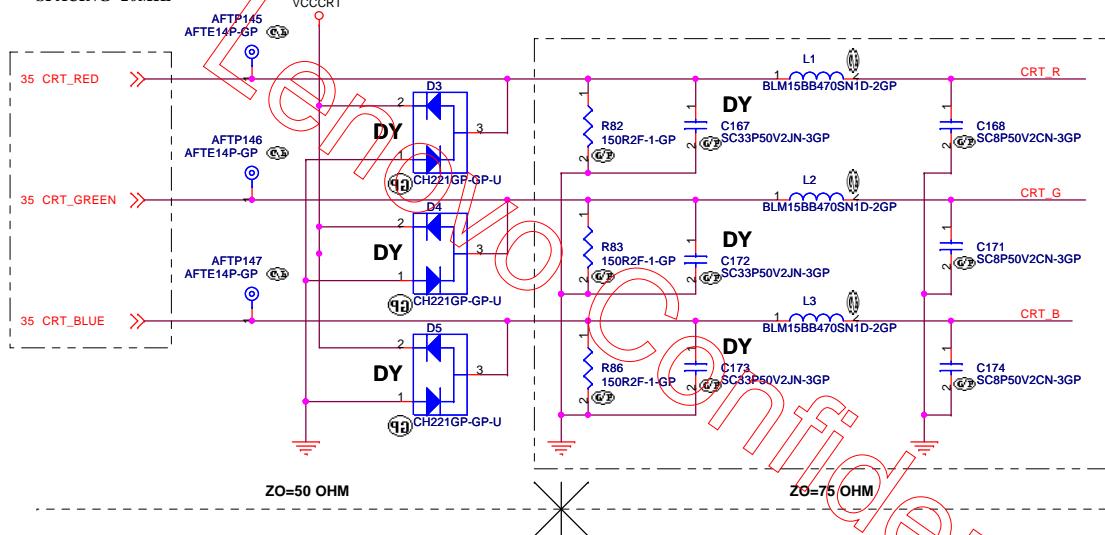


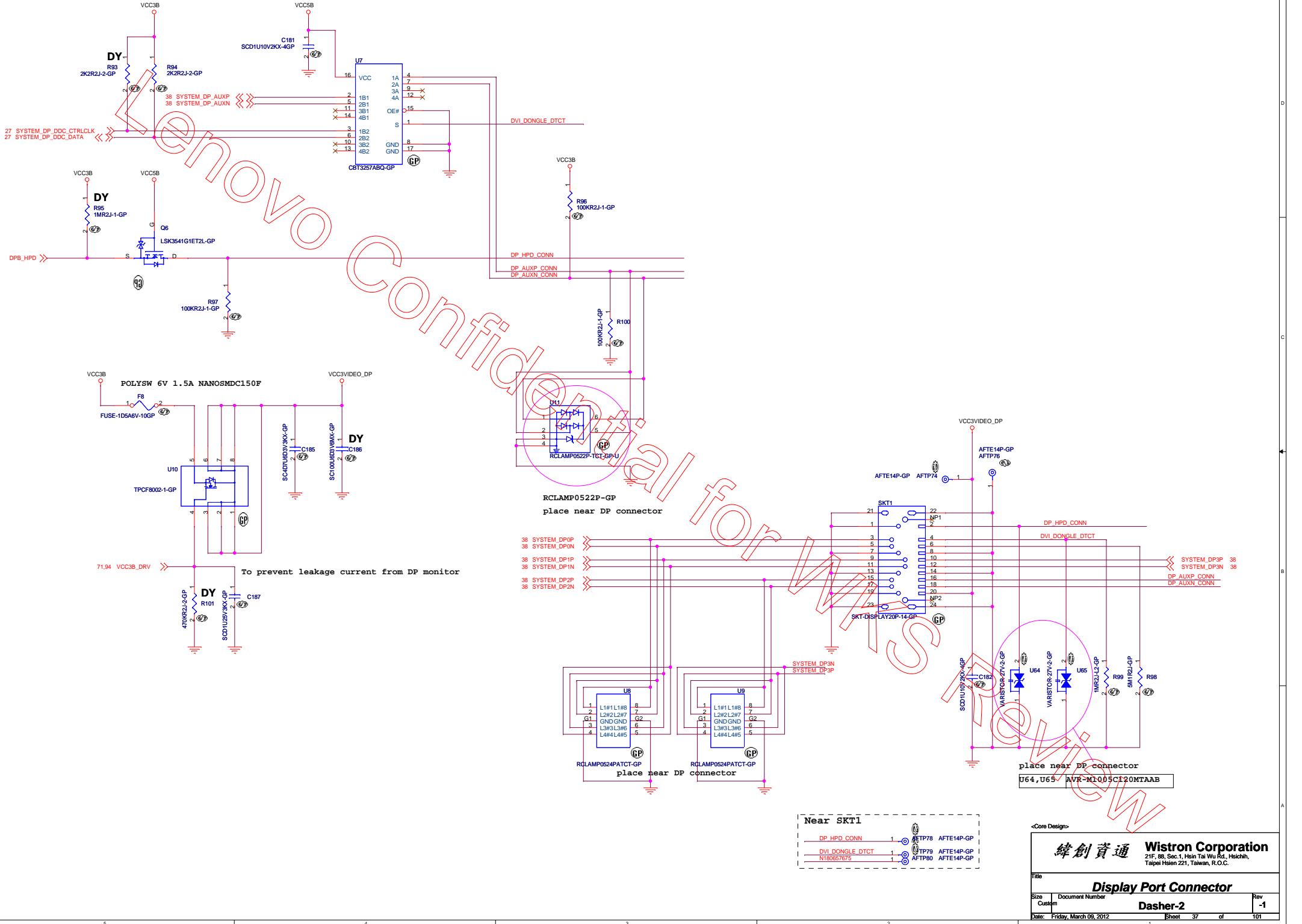
Core Design		Wistron Corporation	
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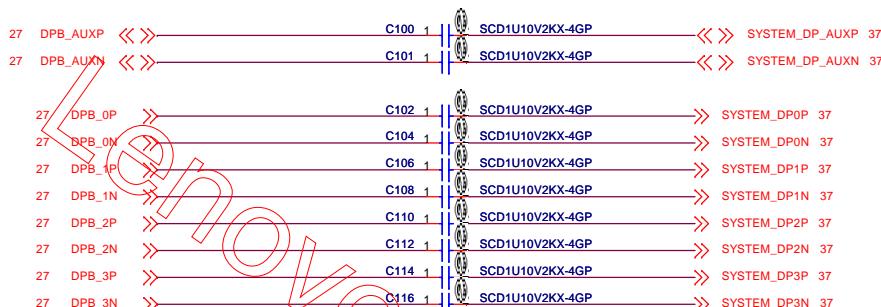
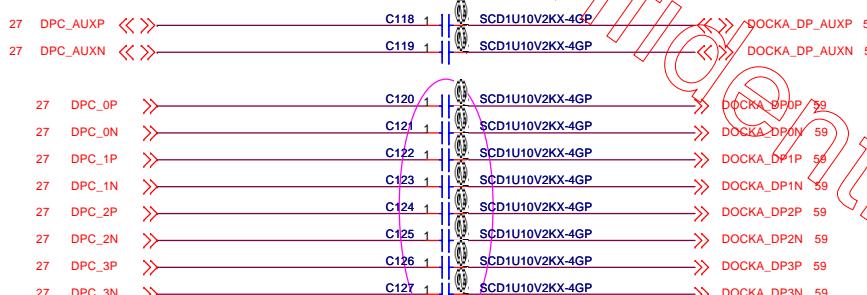
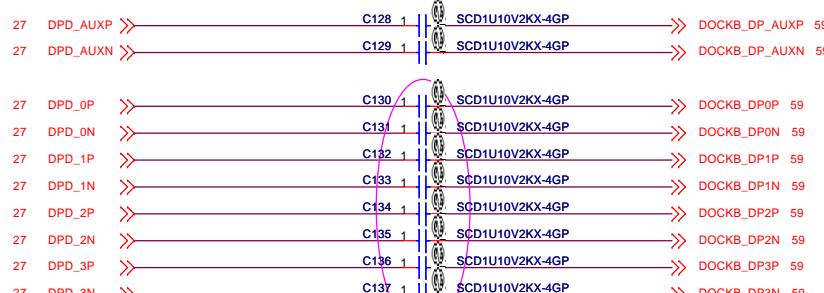


&lt;Core Design&gt;

<b>Wistron Corporation</b>	
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	
<b>CRT SELECTOR</b>	
Size A3	Document Number Dasher-2
Rev -1	
Date: Friday, March 09, 2012	
Sheet 35 of 101	

**GND GUARDING****EACH SIGNAL WIDTH DEPENDS ON ZO(TRACE IMPEDANCE)****SPACING=20MIL**



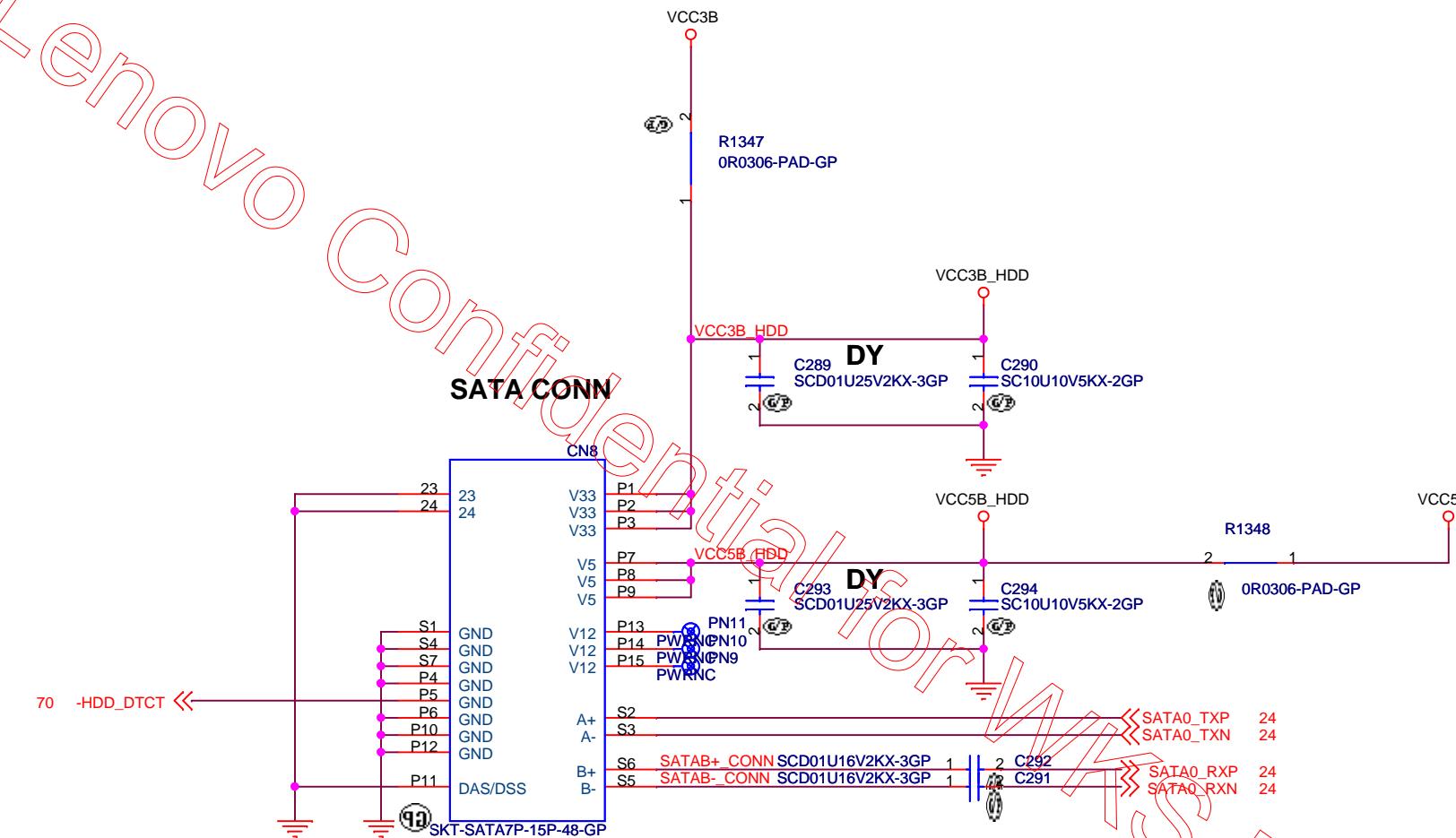
**System DP Connector****Docking DP Connector A****Docking DP Connector B**

&lt;Core Design&gt;

<b>Wistron Corporation</b>		
21F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title <b>Display Port AC Coupling</b>		
Size A3	Document Number	Rev -1
<b>Dasher-2</b>		
Date: Friday, March 09, 2012	Sheet 38 of 101	E

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B  
L  
A  
N  
K

<Core Design>		
Wistron Corporation 緯創資通 21F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title		
Size A3	Document Number	Rev -1
Dasher-2		
Date: Tuesday, February 21, 2012	Sheet 39 of 101	1

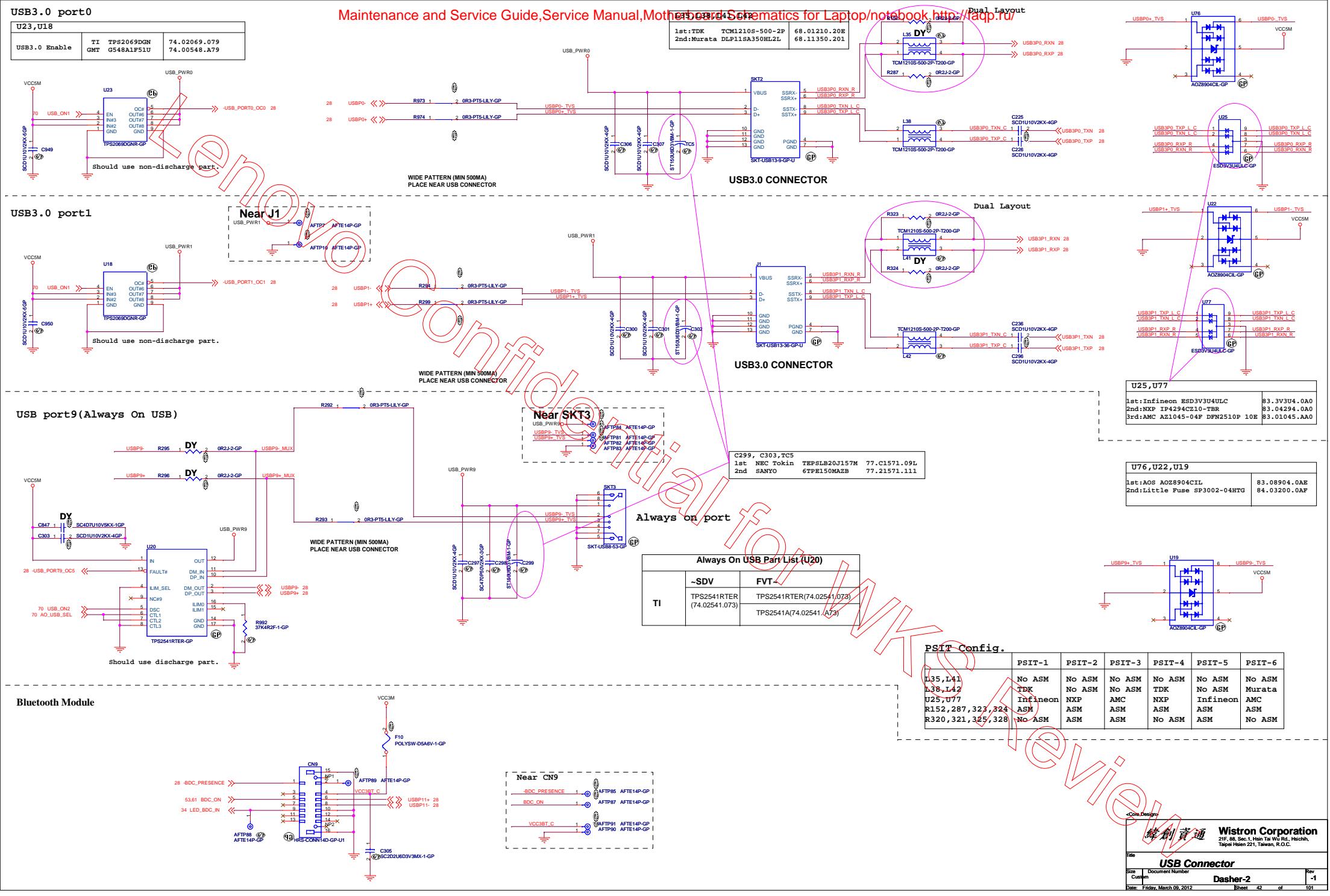


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<b>緯創資通</b>		<b>Wistron Corporation</b>
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
<b>Title</b>		<b>SATA Connector</b>
<b>Size</b>		<b>Rev</b>
<b>A4</b>	<b>Document Number</b>	<b>-1</b>
<b>Date:</b> Friday, March 09, 2012		<b>Sheet</b> 40 <b>of</b> 101

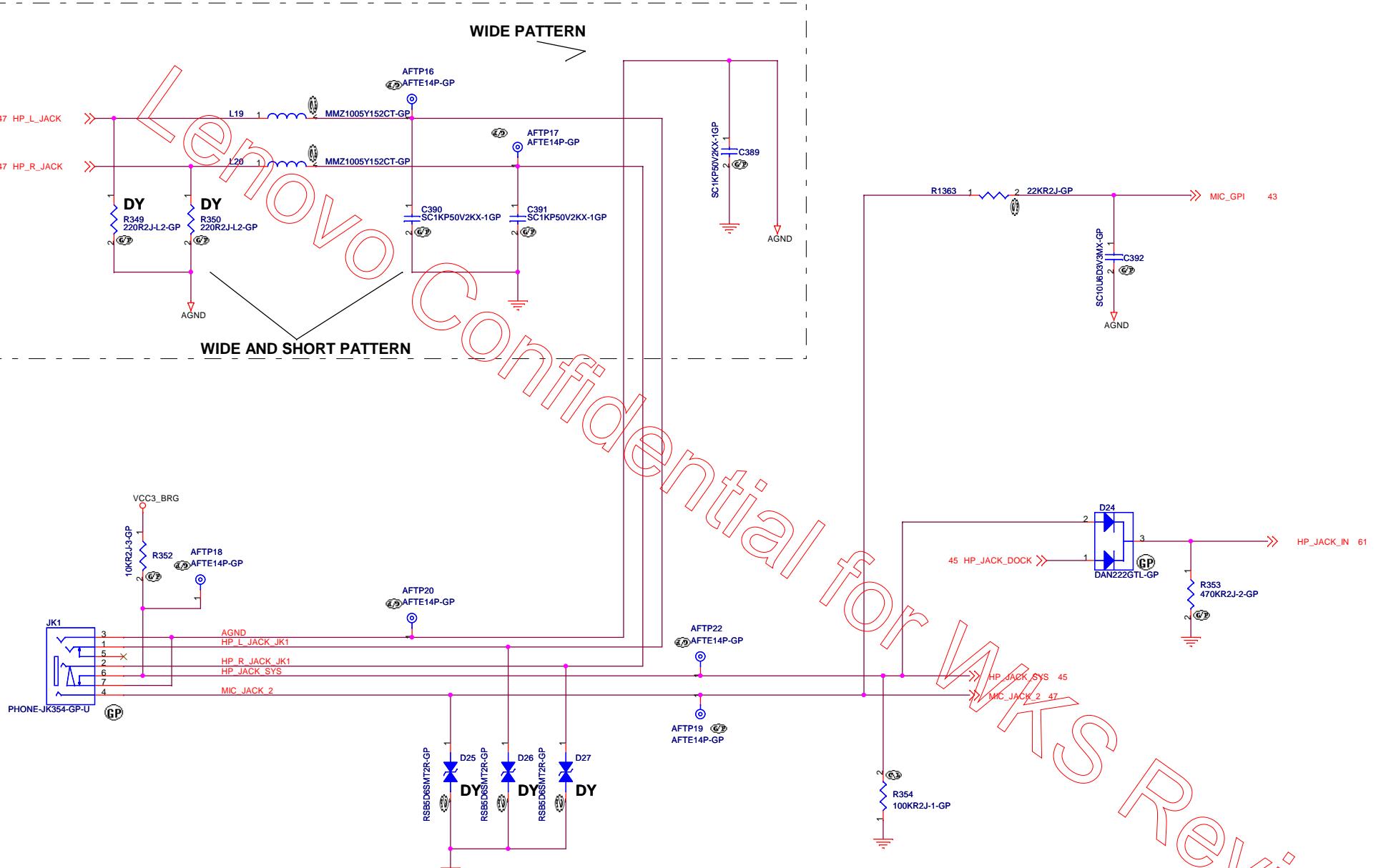
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Title <b>BLANK</b>		
Size A3	Document Number Dasher-2	Rev -1
Date: Tuesday, February 21, 2012	Sheet 41 of 101	1



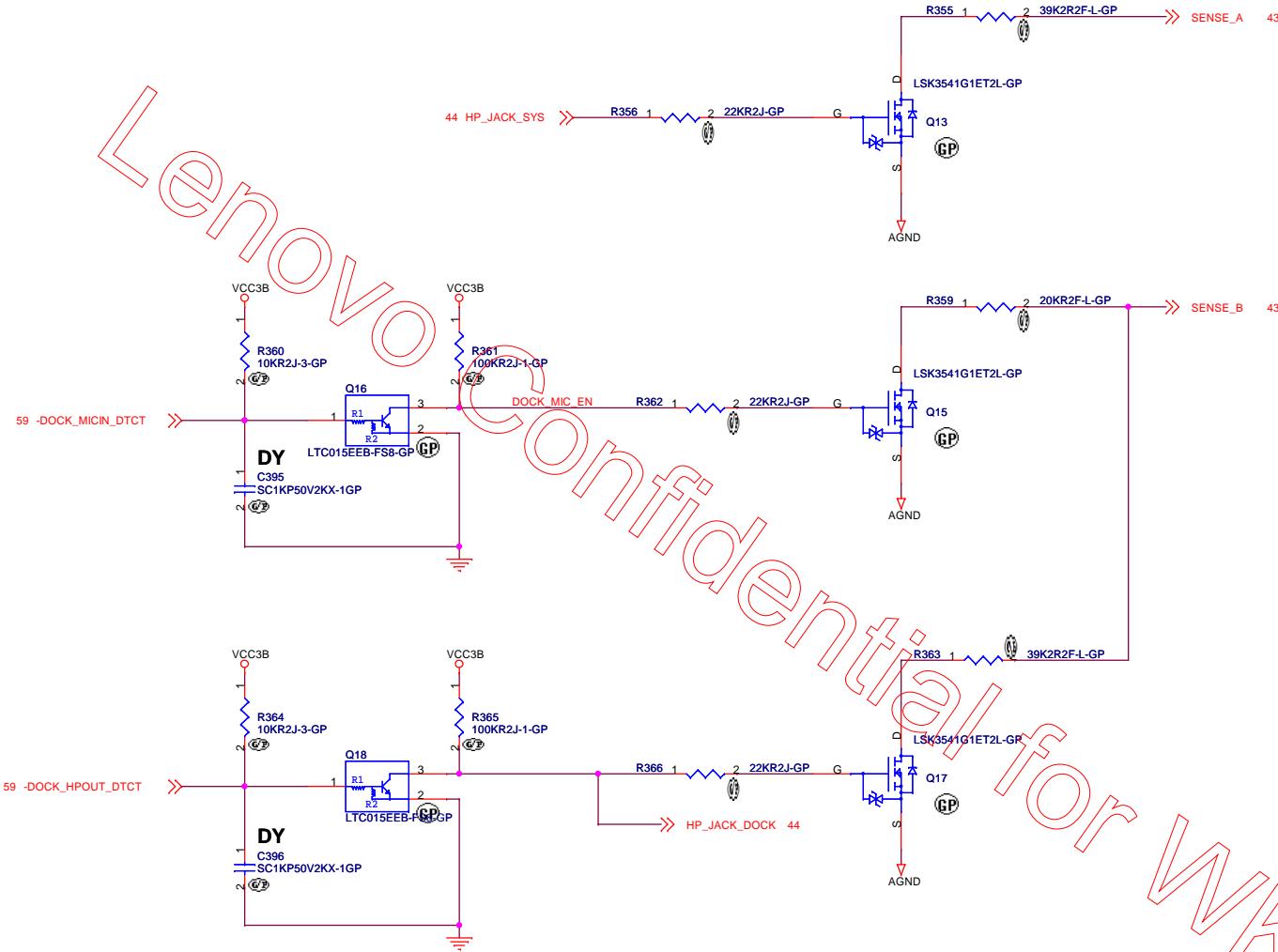
This schematic diagram illustrates the complex audio and power management circuitry of a Lenovo laptop. Key components include:

- Power Management:** U27 (a large IC) handles power distribution, featuring pins for VCC5B\_AUDIO, VCC5B, and AGND.
- Audio Subsystem:** U27 also manages audio paths, including LINE1\_L/PORT\_C\_L, LINE1\_R/PORT\_C\_R, LINE2\_L/PORT\_E\_L, and LINE2\_R/PORT\_E\_R.
- Serial Communication:** Various SCDU10/20KX-GP and SCDU10/25V2KX-GP components are used for serial communication, often connected to pins like AVD01, AVD02, PVD01, PVD02, DVDO, and DVDO.
- Control and Status:** Numerous pins are labeled with control signals such as SENSE\_A, SENSE\_B, HDA\_BCLK, HDA\_SYNC, BEEP\_MIX\_ATT, SPK\_MUTE, HDA\_RST, HDA\_SDNO, HDA\_SDO, MIC\_DATA, and MIC\_CLK.
- Output Drivers:** SPK\_OUT\_L+, SPK\_OUT\_L-, SPK\_OUT\_R+, and SPK\_OUT\_R- are shown, along with MONO\_OUT.
- Power Supply:** AVDD\_3R3 is a power source connected to various parts of the circuit.
- Other Components:** Resistors R1351 through R1360, and capacitors C955 through C990 are used throughout the circuit.



<Core Design>

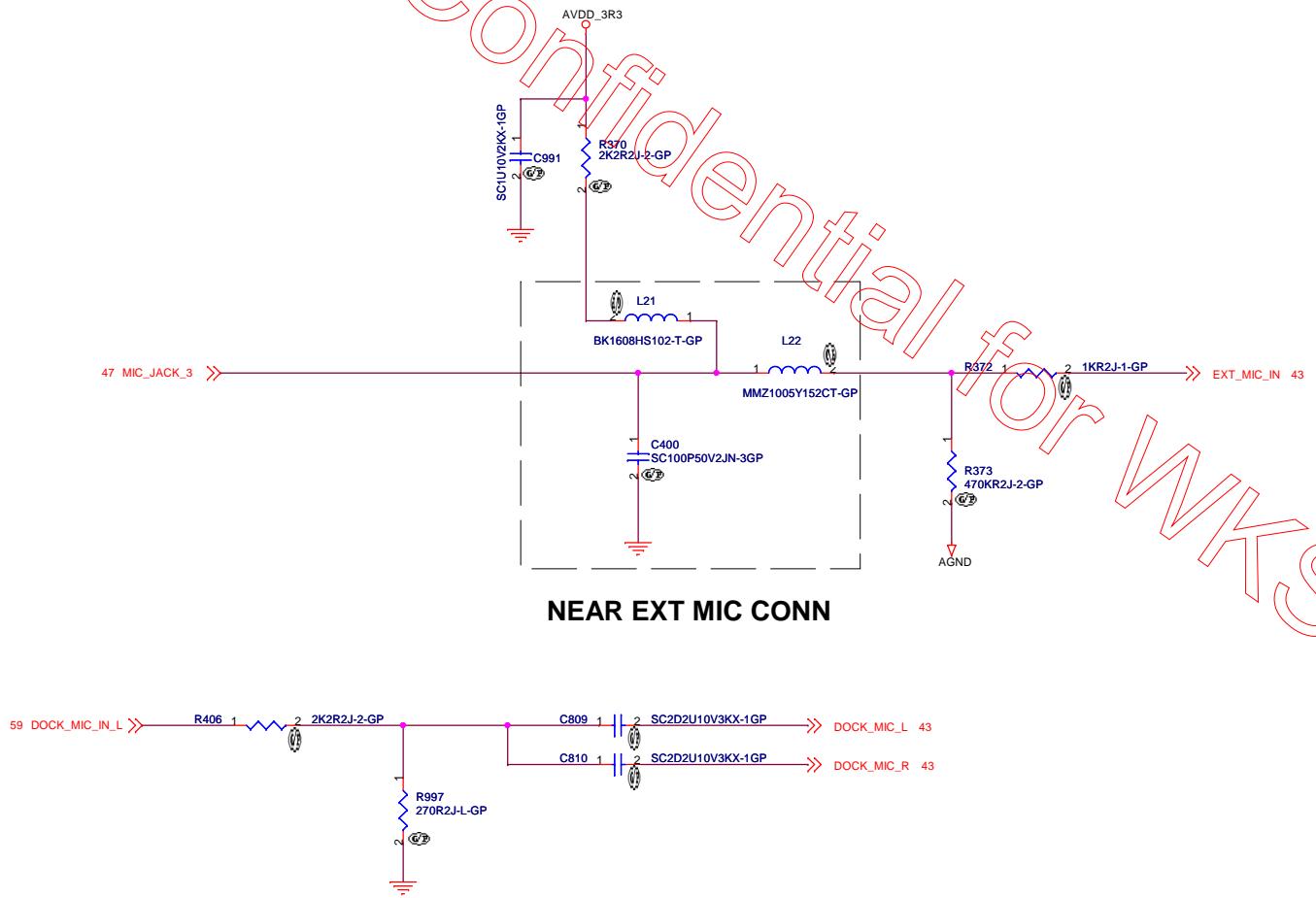
<b>Wistron Corporation</b>		
21F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title <b>Audio Connector</b>		
Size A3	Document Number <b>Dasher-2</b>	Rev -1
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&lt;Core Design&gt;

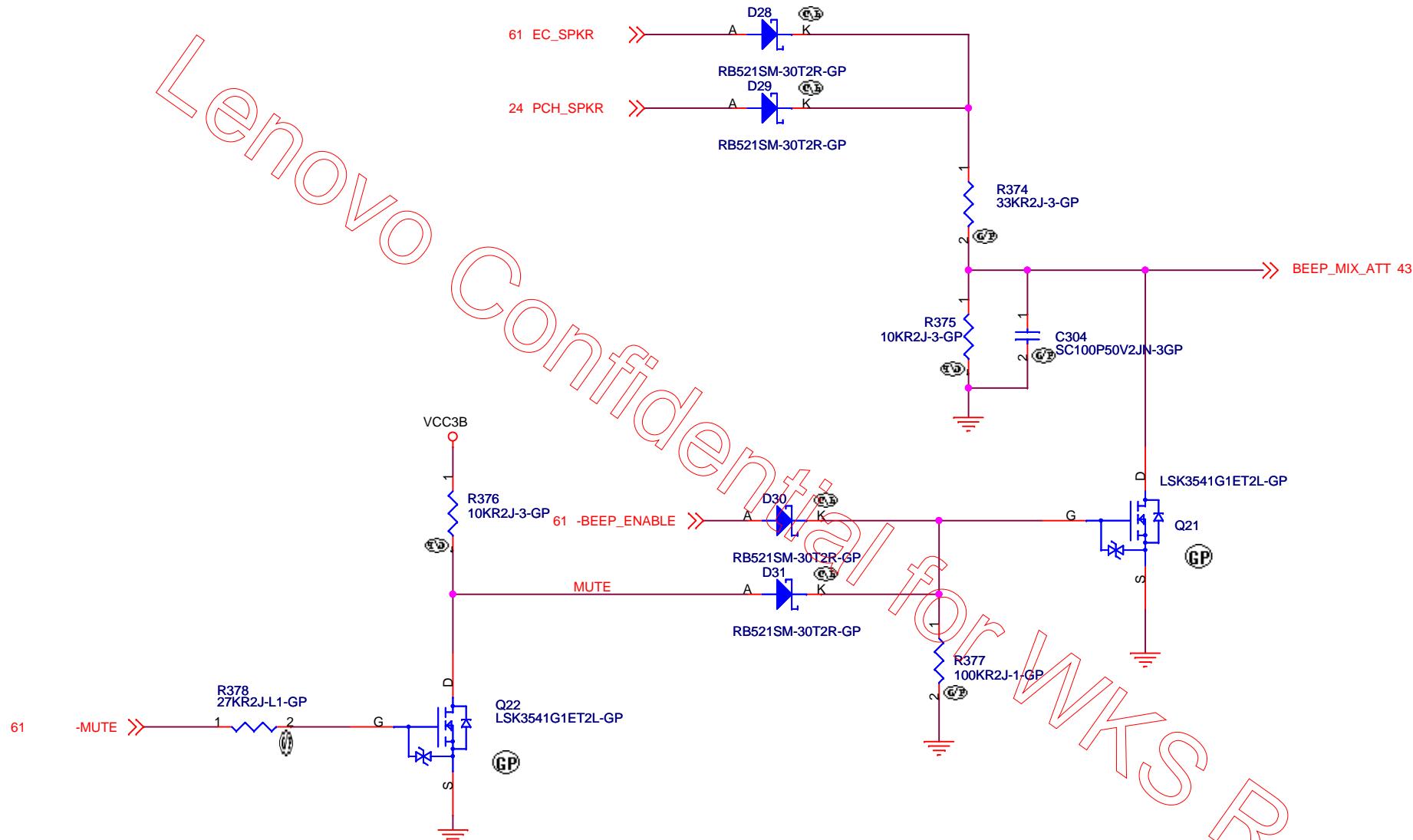
<b>Wistron Corporation</b>		
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
<Core Design>		
Title	<b>Audio Jack Sense</b>	
Size A3	Document Number	Rev -1
<b>Dasher-2</b>		
Date: Friday, March 09, 2012	Sheet 45	of 101

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<Core Design>		
<b>Wistron Corporation</b>		
21F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title	<b>Audio Ext MIC I/F</b>	
Size	Document Number	Rev
A3	Dasher-2	-1
Date: Friday, March 09, 2012	Sheet	46 of 101





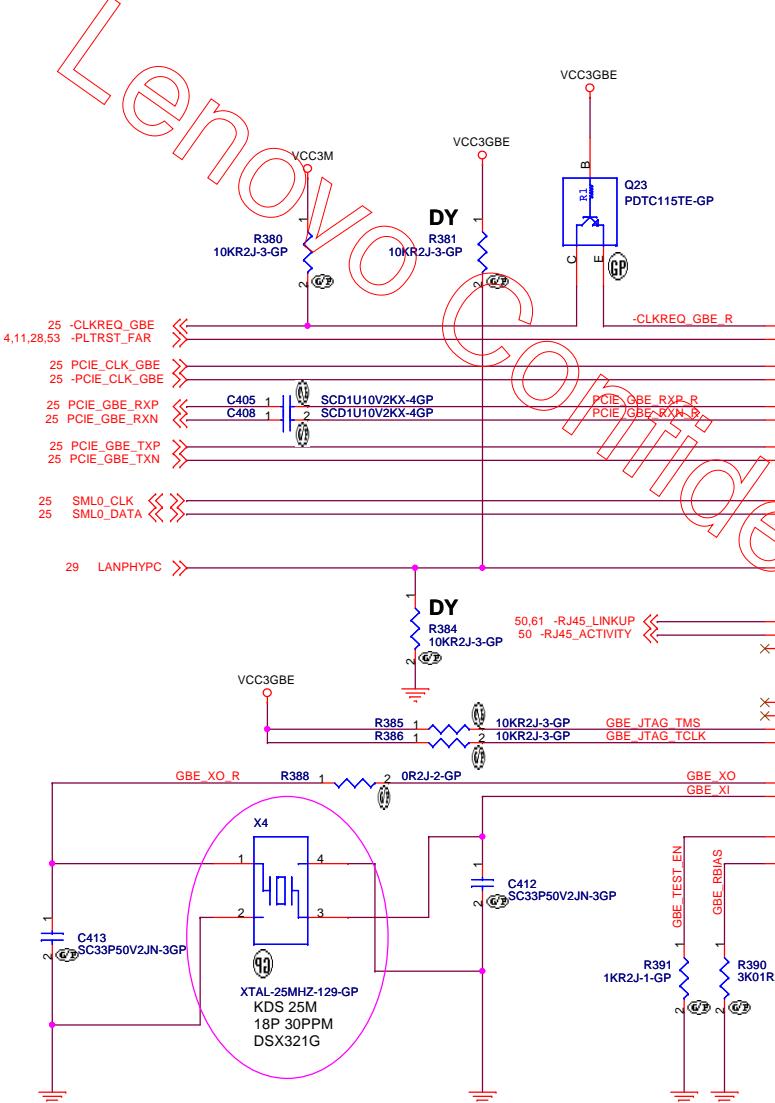
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緯創資通

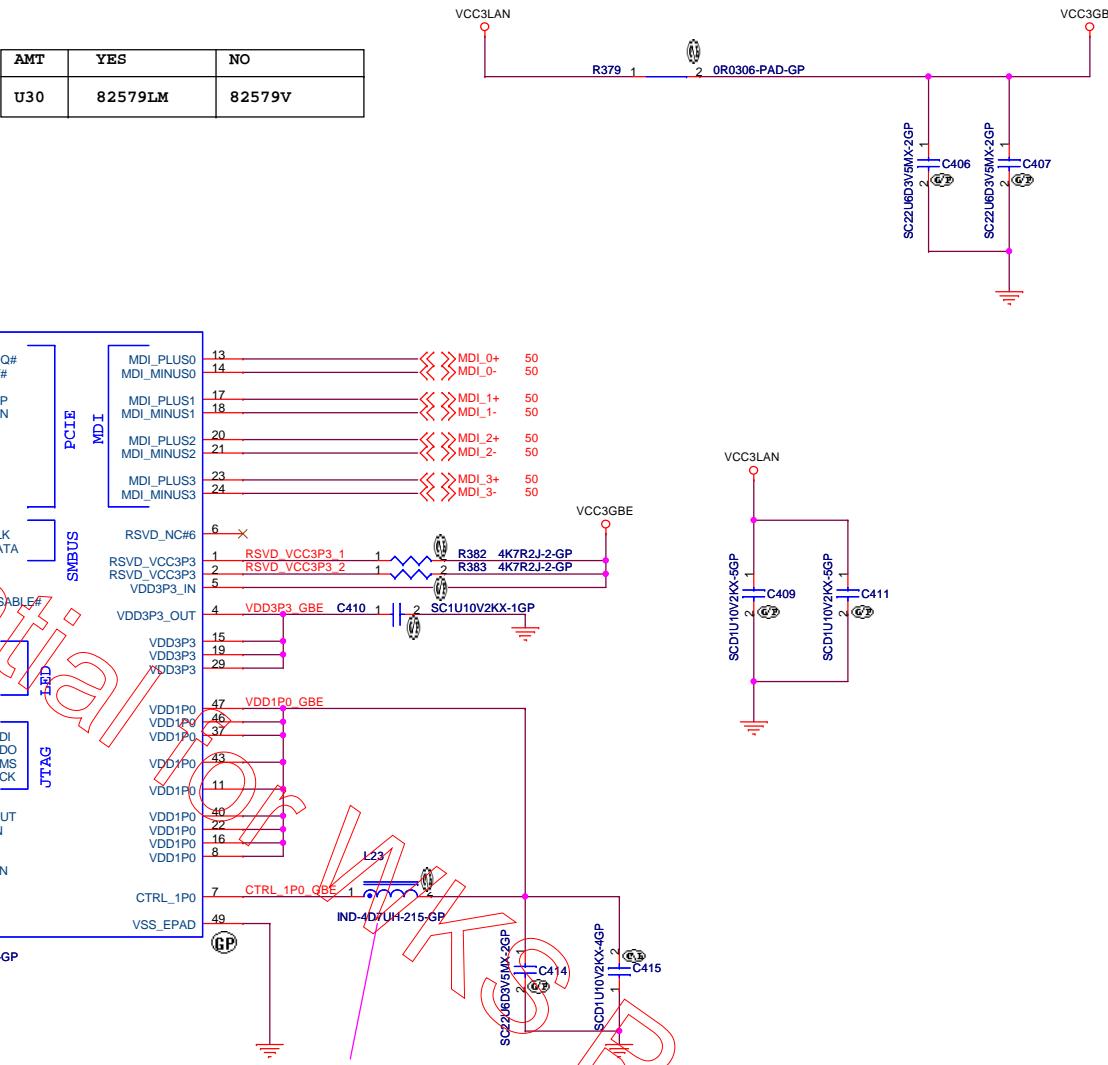
**Wistron Corporation**  
 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,  
 Taipei Hsien 221, Taiwan, R.O.C.

Title

**Audio BEEP**Size  
A4 Document Number**Dasher-2**Rev  
-1

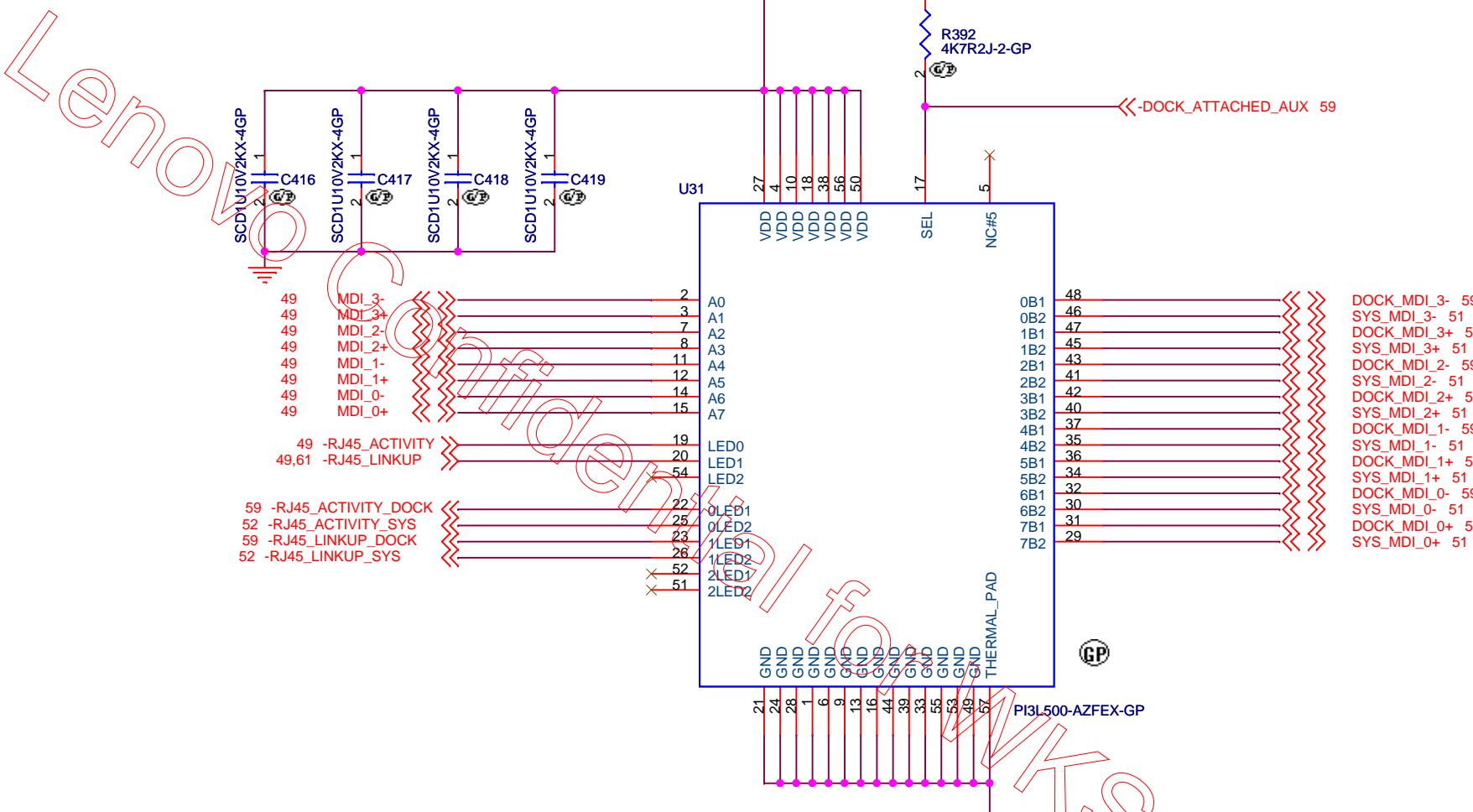


AMT	YES	NO
U30	82579LM	82579V



1st	KDS	DSX321G 25M 18P 30PPM	82.30020.B11
2nd	H.ELE	HSX321S 25M 18P 30PPM	82.30020.B21
3rd	TXC	7V25020001 25M 18P 30PPM	41U6141AA

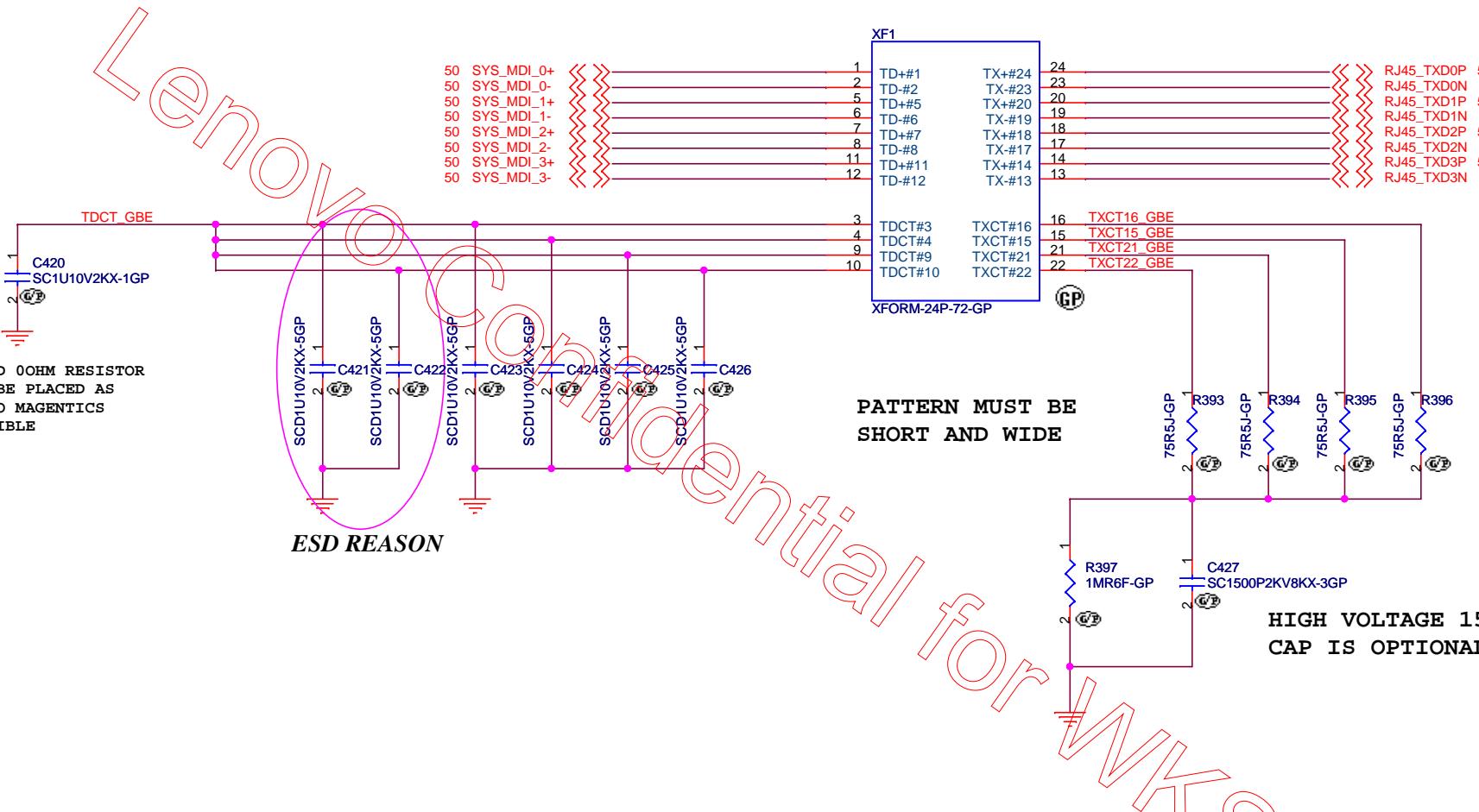
1st	TDK	FLF3215T-4R7M	68.4R71D.10Q
2nd	Murata	LQH321PN4R7NN0	68.4R750.20H
3rd	Taiyo Yuden	BRL3225T4R7M	68.4R71E.10I



		Vendor P/N	Wistron P/N
1st	Pericom	PI3L500AZFEX	73.3L500.003
2nd	TI	TS3L500AERHUR	73.3L500.A0V
3rd	ST	STMUX1800LQTR	73.01800.003

&lt;Core Design&gt;

<b>Wistron Corporation</b>		
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title		
<b>GBE LAN Switch</b>		
Size A4	Document Number	Rev -1
Dasher-2		
Date: Friday, March 09, 2012		
Sheet 50 of 101		



&lt;Core Design&gt;

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

Title

GBE MAGNETICS

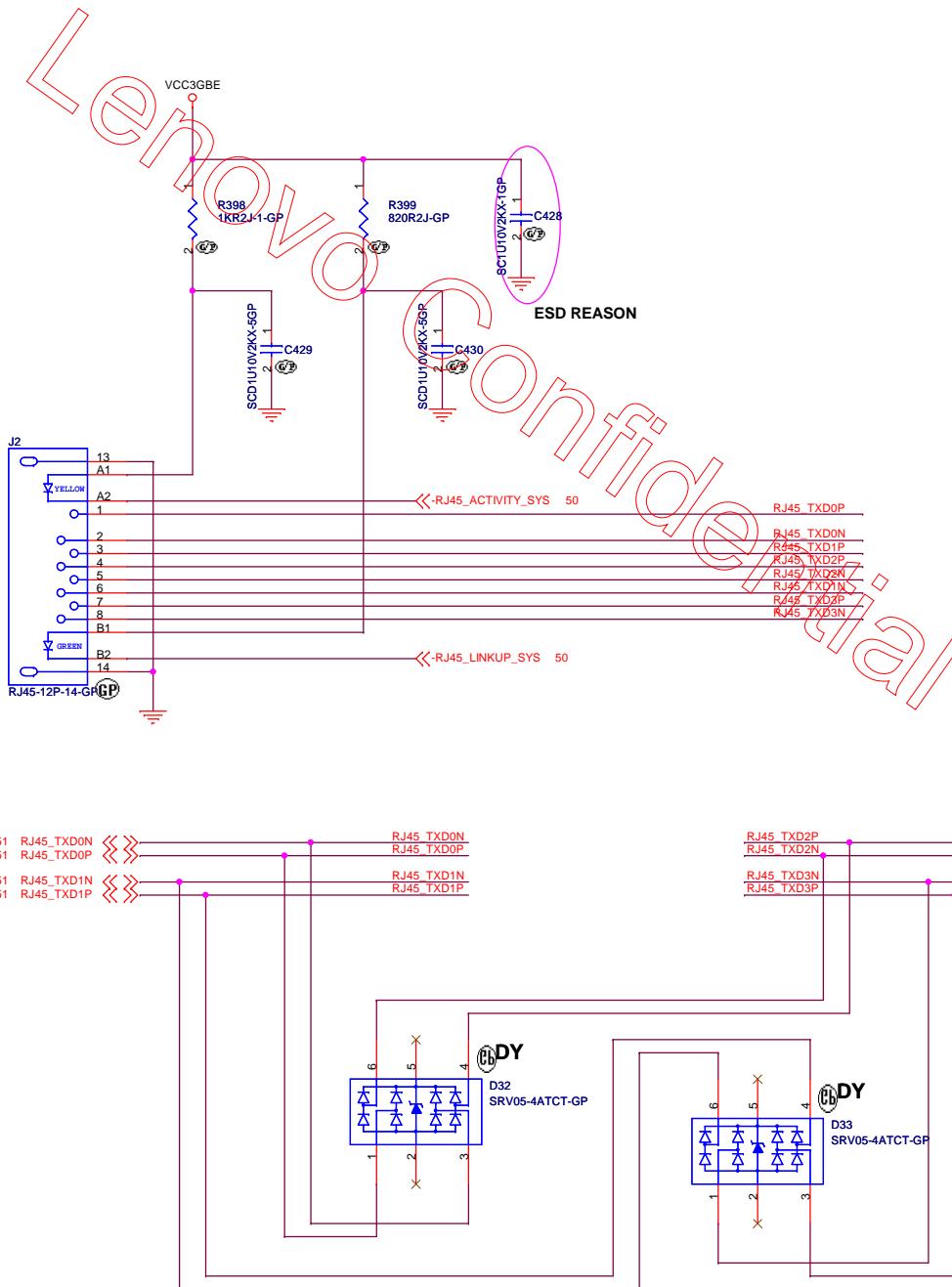
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Dasher-2

Rev -1

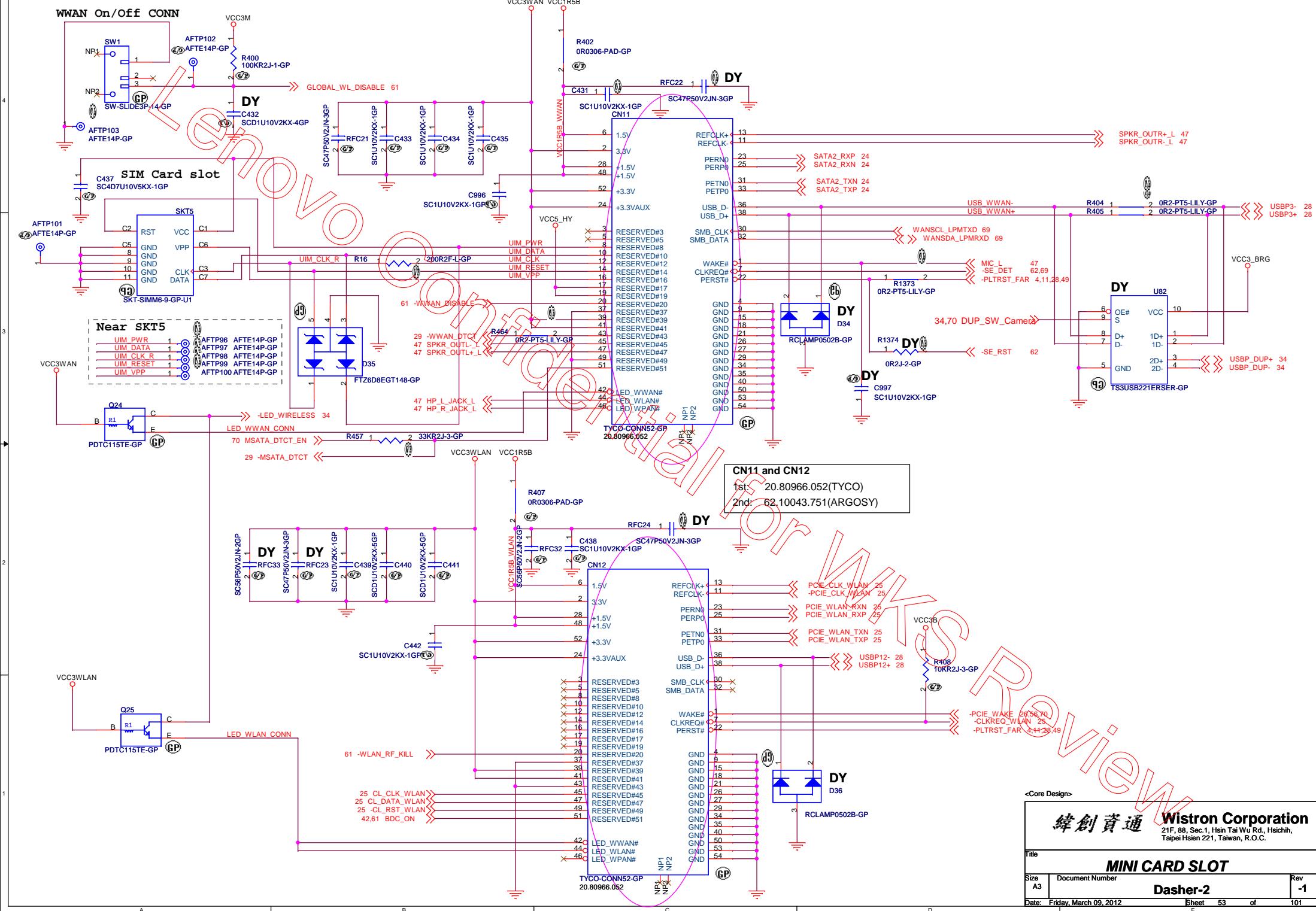
Date: Friday, March 09, 2012

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&lt;Core Design&gt;

<b>Wistron Corporation</b>		
2/F, 88, Sec.1, Hei Tai Wu Rd, Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title		
RJ45 CONNECTOR		
Size A3	Document Number Dasher-2	Rev -1
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MEDIA I/F	SD/MMC	MEMORYSTICK	XD
MFIO00	SDWP#	MSBS	XD_D7
MFIO01	SD_D1	MS_D1	XD_D6
MFIO02	SD_D0	MS_D1	XD_D5
MFIO03	(SD_D7)		XD_D4
MFIO04	(SD_D6)	(MS_D5)	XD_D3
MFIO05	SD_CLK	MSD0	XD_D2
MFIO06			XD_D1
MFIO07	(SD_D5)	(MS_D4)	XD_D0
MFIO08	SD_CDM	MS_D2	XD_WP#
MFIO09	(SD_D4)	(MS_D6)	XD_WE#
MFIO10	SD_D3	MS_D3	XD_ALE
MFIO11	SD_D2		XD_CLE
MFIO12			XD_CE#
MFIO13		(MS_D7)	XD_RE#
MFIO14		MS_CLK	XD_R/B
MFCD0#	SDDC#		XDCD0#
MFCD1#		MSINS#	XDCD1#

28,32,56,58,60,68,69,70  
-PCIE\_CLK\_MCC  
-PCIE\_CLK\_MCC  
-PLTRST\_NEAR

25 PCIE\_MCC\_TXN  
25 PCIE\_MCC\_TXP  
25 PCIE\_MCC\_RXN  
25 PCIE\_MCC\_RXP

C455 1 2 SCD1U10V2KX-5GP  
C454 1 2 SCD1U10V2KX-5GP

VCC3B  
PU is placed on PCH page.

R410 100KR2J-1-GP

UDI00 MEDIA  
UDI01 MEDIA  
UDI03 MEDIA

SCD02U25V2KX-GP

C456 1 2 SC4700F50V2KX-1GP

SK1R2P2-2-GP

R411 47KR2J-2-GP

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
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VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

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LTC015EEB-FS8-GP

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R306 10KR2J-3-GP

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O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

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LTC015EEB-FS8-GP

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R306 10KR2J-3-GP

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O113 R1 1  
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R306 10KR2J-3-GP

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O113 R1 1  
LTC015EEB-FS8-GP

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R306 10KR2J-3-GP

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O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

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O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

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O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

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O113 R1 1  
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R306 10KR2J-3-GP

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O113 R1 1  
LTC015EEB-FS8-GP

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R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

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LTC015EEB-FS8-GP

VCC3B

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R306 10KR2J-3-GP

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O113 R1 1  
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VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
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VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
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VCC3B

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VCC3B

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-CLKREQ\_MCC 25

O113 R1 1  
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VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

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R306 10KR2J-3-GP

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-CLKREQ\_MCC 25

O113 R1 1  
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VCC3B

R306 10KR2J-3-GP

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O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
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VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
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VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

O113 R1 1  
LTC015EEB-FS8-GP

VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

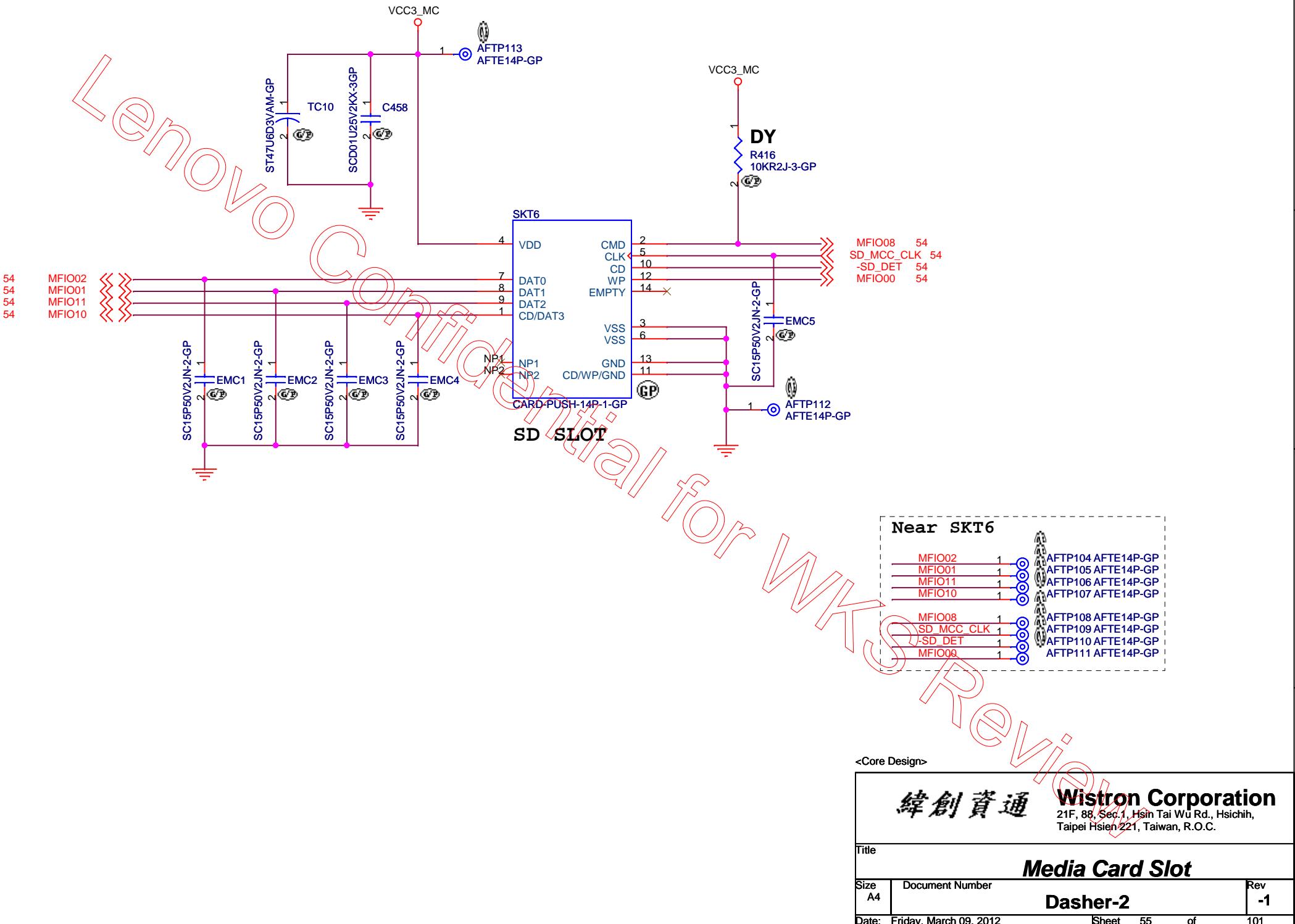
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LTC015EEB-FS8-GP

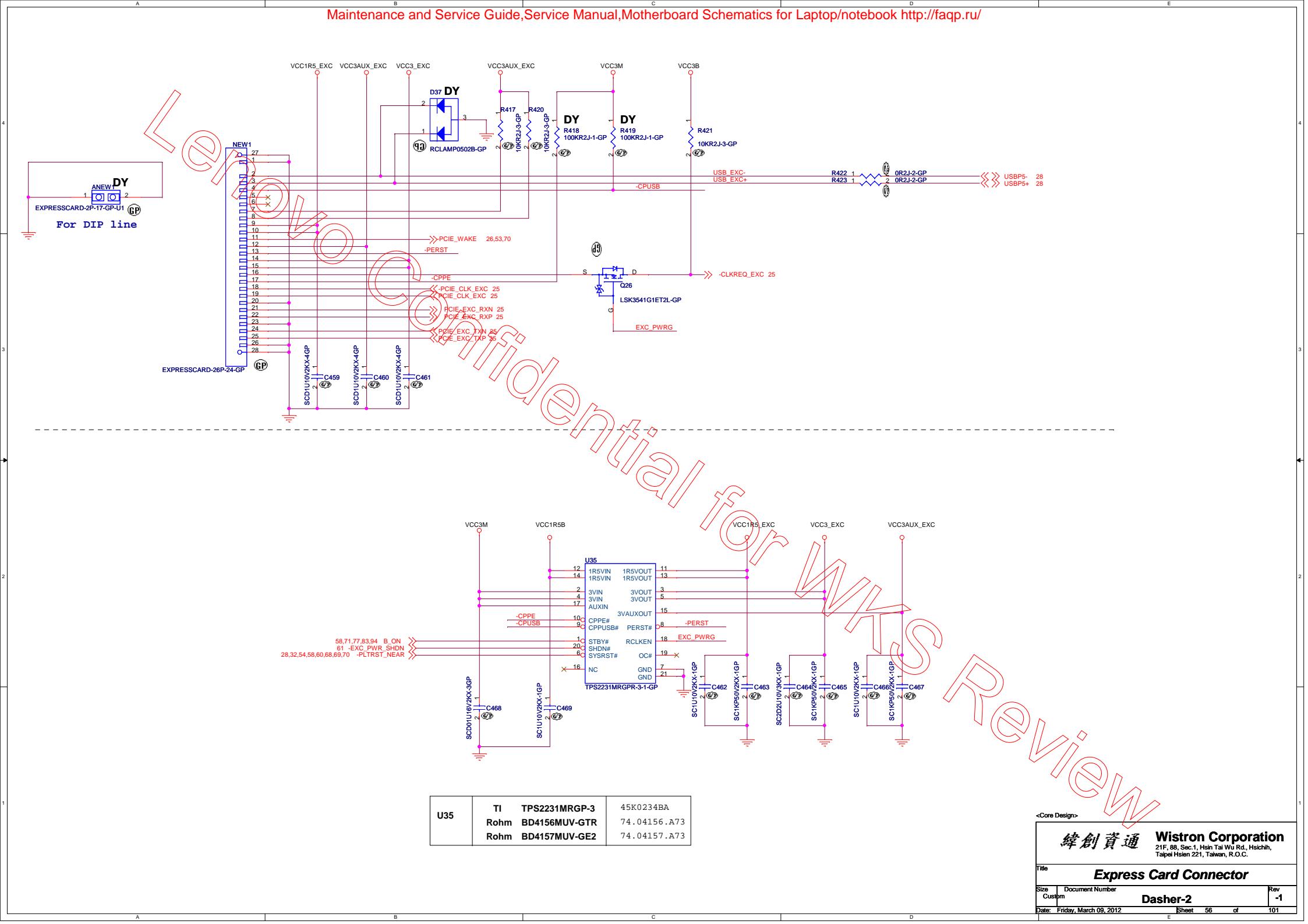
VCC3B

R306 10KR2J-3-GP

-CLKREQ\_MCC 25

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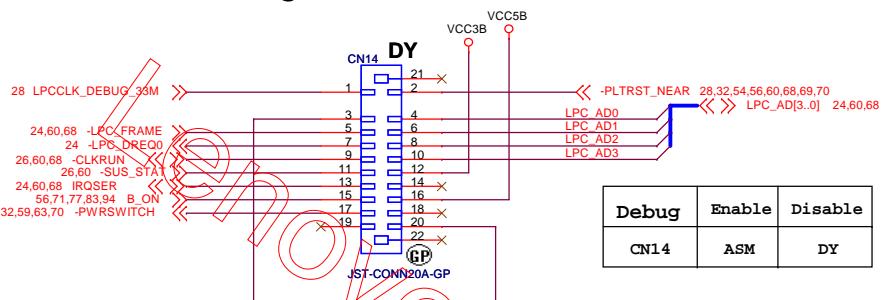
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<b>緯創資通</b>		<b>Wistron Corporation</b>
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title		
<b>BLANK</b>		
Size A	Document Number	Rev -1
<b>Dasher-2</b>		
Date: Tuesday, February 21, 2012	Sheet 57 of 101	

# **Golden Finger for Debug Board**

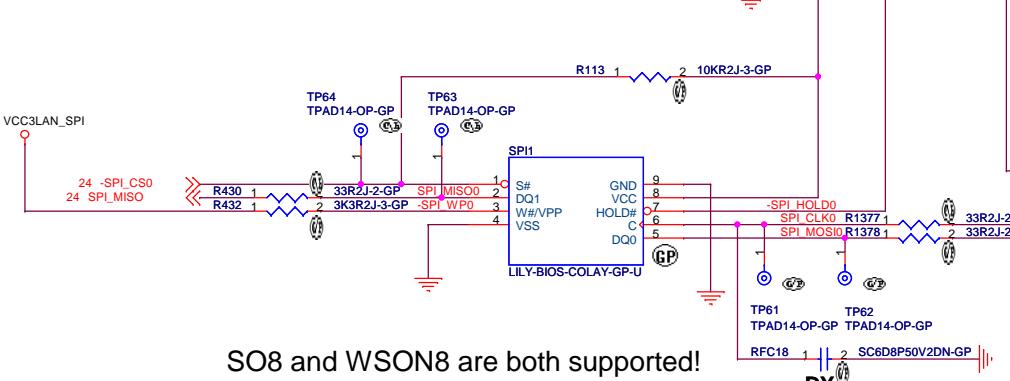
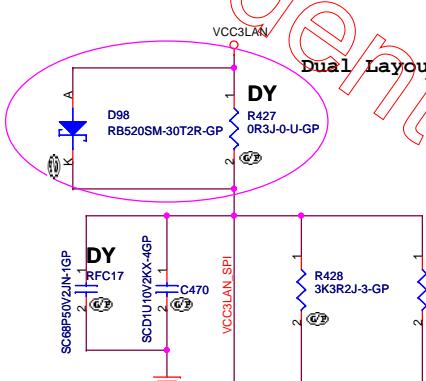
## *Debug card connector*



Put "easy-to-access" place

<b>4MB</b>				
<b>SO8</b>	Marcronix	MX25L3206EM2I-12G	72.25320.C01	
	Winbond	W25Q032BVSSIG	72.25Q32.A01	
	Eon	EN25QH32-104HIP	72.02532.B01	
	Numonyx	N25Q032A13ESECO	72.25Q32.C01	
<b>8MB</b>				
<b>SO8</b>	Marcronix	MX25L6406EM2I-12G	72.25640.D01	
	Winbond	W25Q064CVSSIG	72.25Q64.B01	
	Eon	EN25QH64-104HIP	72.02564.001	
	Numonyx	N25Q064A13ESECO	72.25Q64.G01	
	Winbond	W25Q64FVSSIG	72.25Q64.F01	

SO8 and WSON8 are both supported!



**GF1**

	TOP	BOTTOM
-PLTRST_NEAR	1	14
-LPC_FRAME	2	15
LPCCLK_DEBUG_33M	3	16
-PLTRST_NEAR	4	17
LPC AD3_GF1	5	18
LPC AD2_GF1	6	19
LPC AD1_GF1	7	20
LPC AD0_GF1	8	21
1 -EXT_FWH	9	22
TP78	10	23
TPAD14-OP-GP	11	24
	12	25
	13	26

**GF26P-GP-U1**

	TOP	BOTTOM
-PLTRST_NEAR	1	14
-EXT_FWH	2	15
LPC CLK DEBUG_33M	3	16
LPC FRAME	4	17
-PLTRST_NEAR	5	18
LPC AD3_GF1	6	19
LPC AD2_GF1	7	20
LPC AD1_GF1	8	21
LPC AD0_GF1	9	22
1 -EXT_FWH	10	23
TP78	11	24
TPAD14-OP-GP	12	25
	13	26

**SCD1 Uny 2Kx1GP**

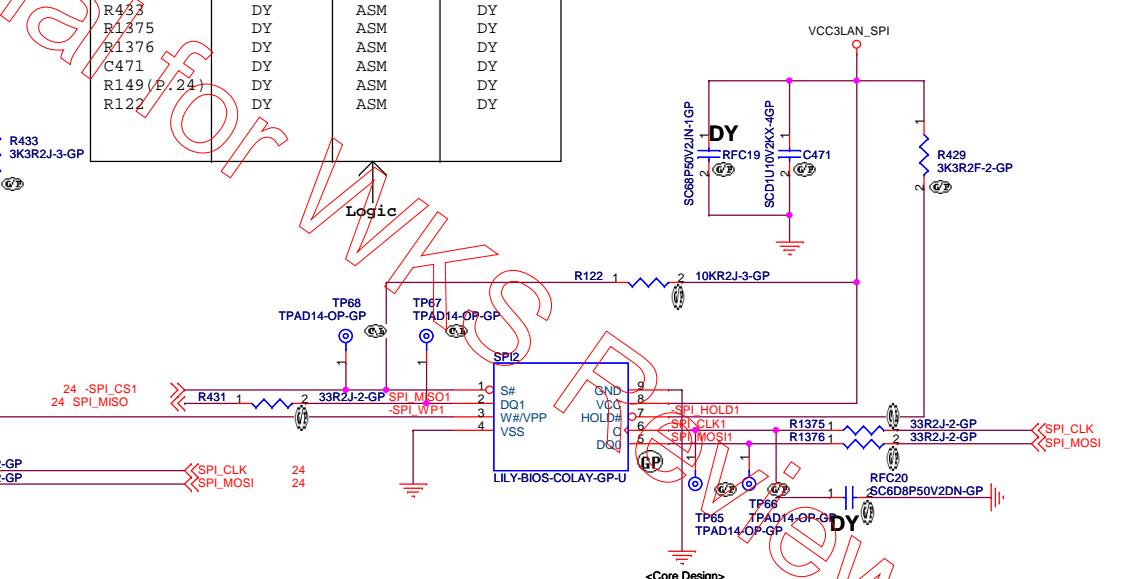
**For EMI**

**(BOTTOM VIEW) TOP VIEW**

	Yes	No
R874	ASM	DY
R823	ASM	DY
R834	ASM	DY
R835	ASM	DY
R235	ASM	DY

(26) (25)....(15) (14)

Configuration Table			
	CONFIG-1 16MB	CONFIG-2 12MB	CONFIG-3 8MB
SPI1	16MB	8MB	8MB
SPI2	DY	4MB	DY
R429	DY	ASM	DY
R431	DY	ASM	DY
R433	DY	ASM	DY
R1375	DY	ASM	DY
R1376	DY	ASM	DY
C471	DY	ASM	DY
R149 (P.24)	DY	ASM	DY
R122	DY	ASM	DY



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

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

Title		<b>SPI&amp;LPC debug card</b>		
Size A3	Document Number	<b>Dasher-2</b>		Rev <b>-1</b>
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Lenovo

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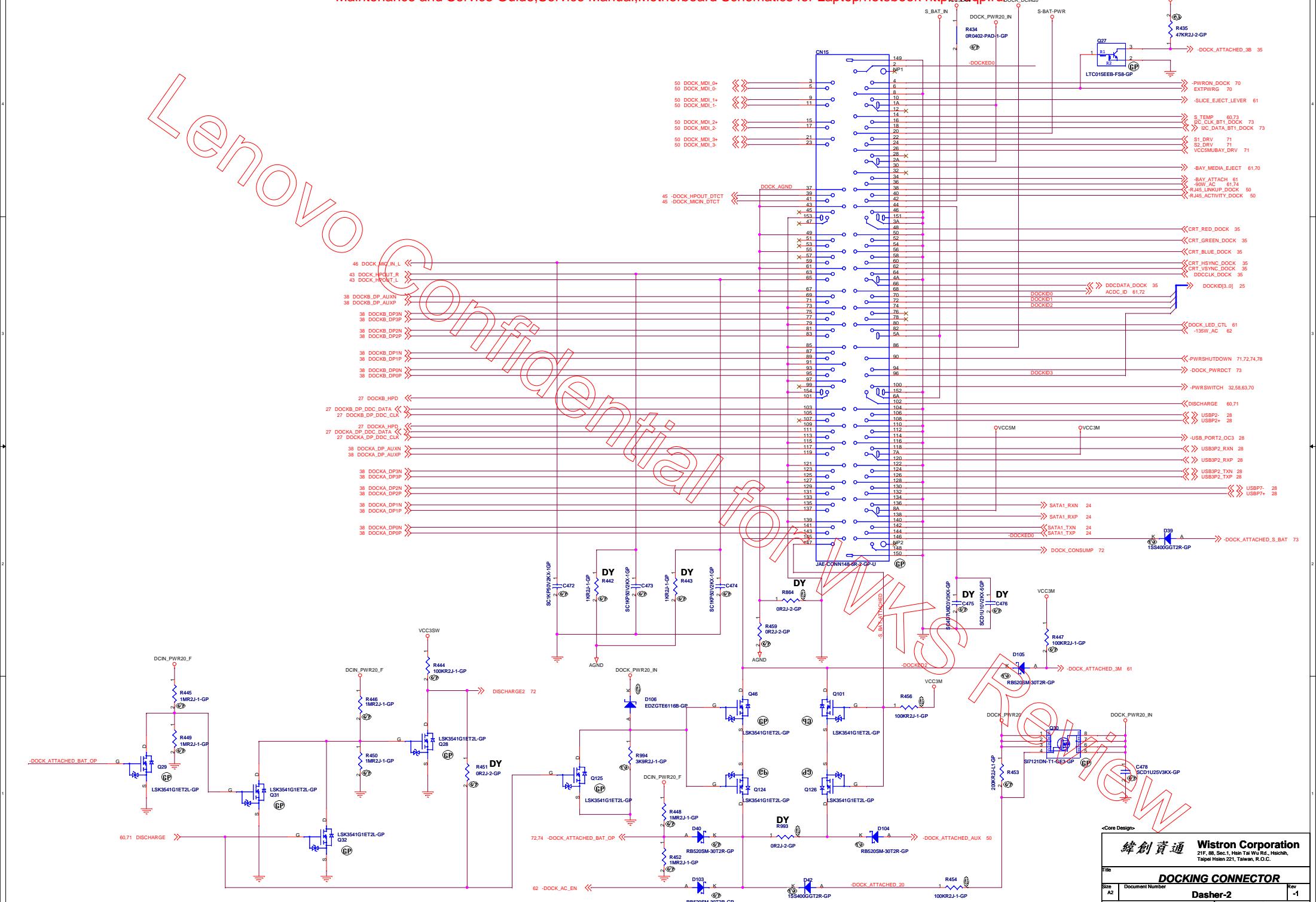
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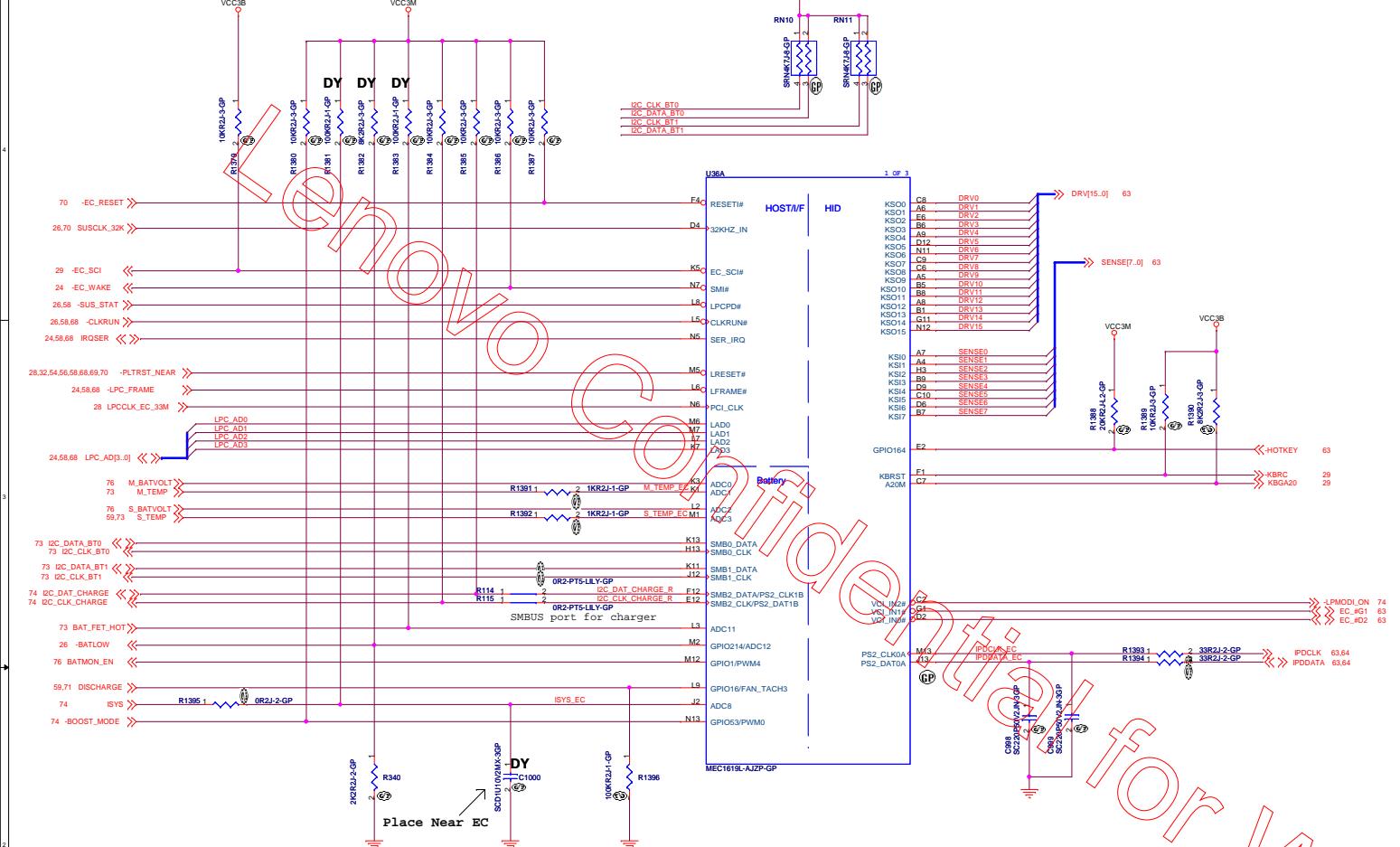
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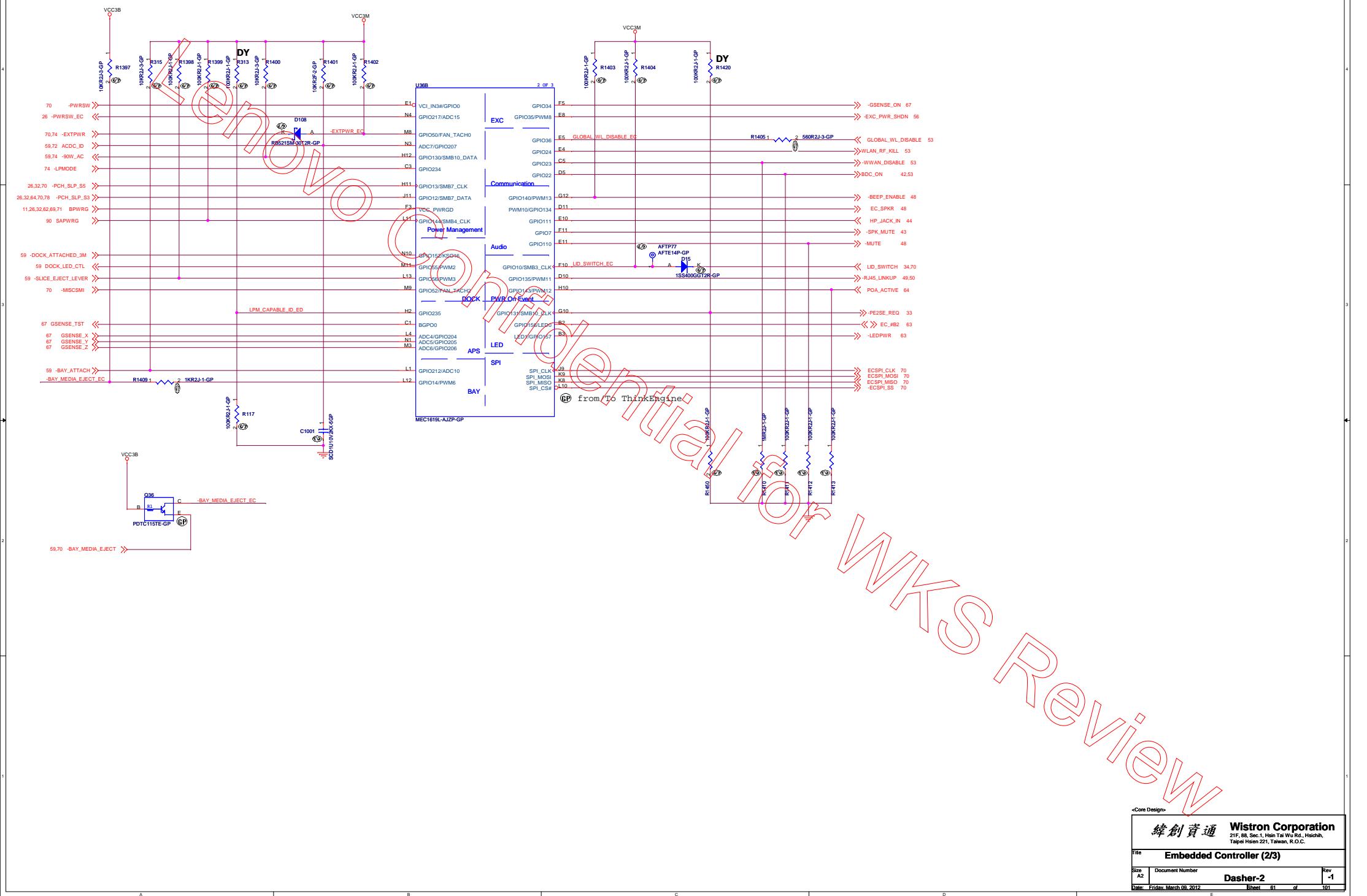
The diagram shows a connection from the **USB3P2\_RXN** pin of the U2202 component to the **-USBP7\_OSC** pin of the U2201 component. The connection is highlighted in red.

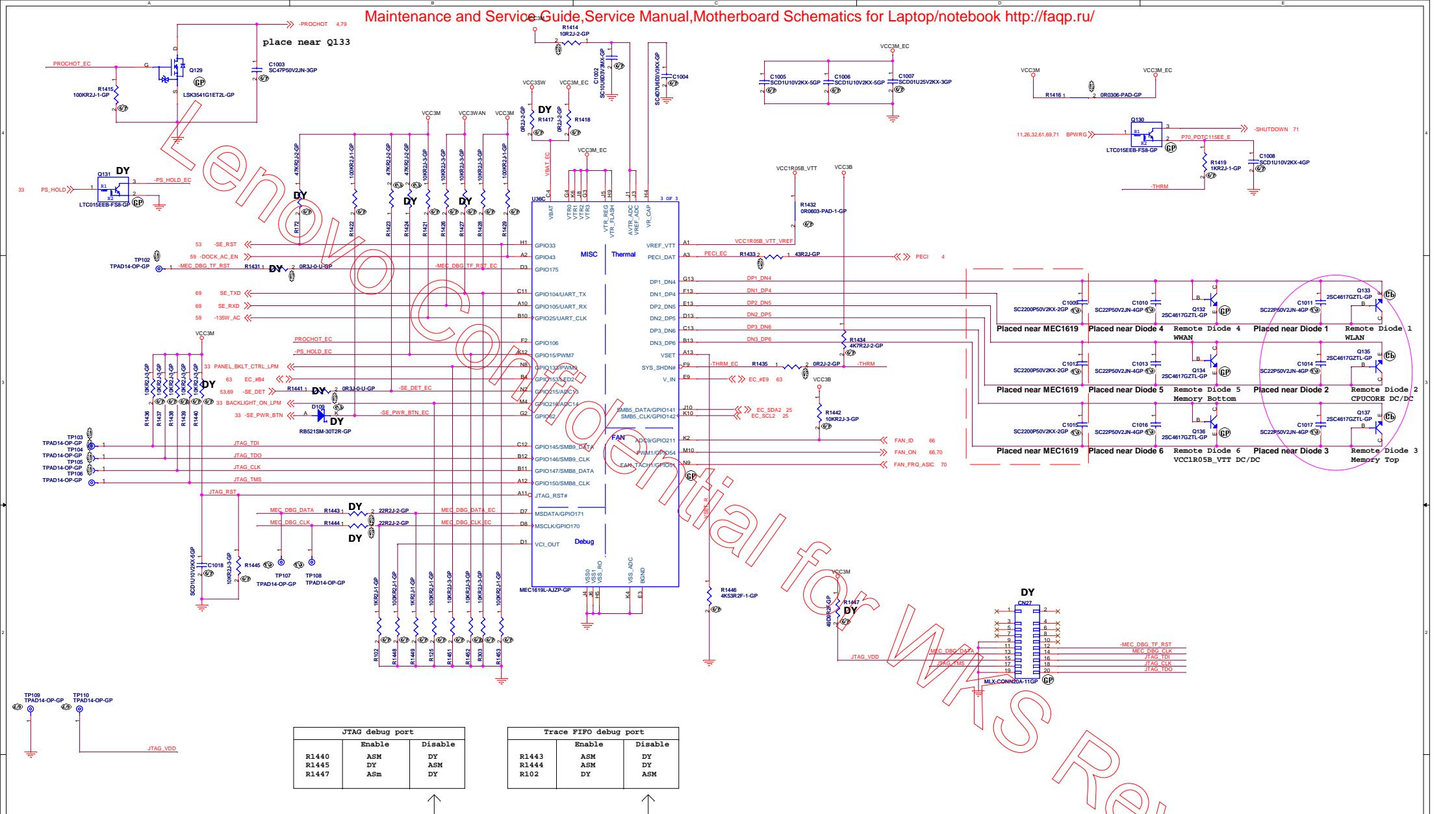
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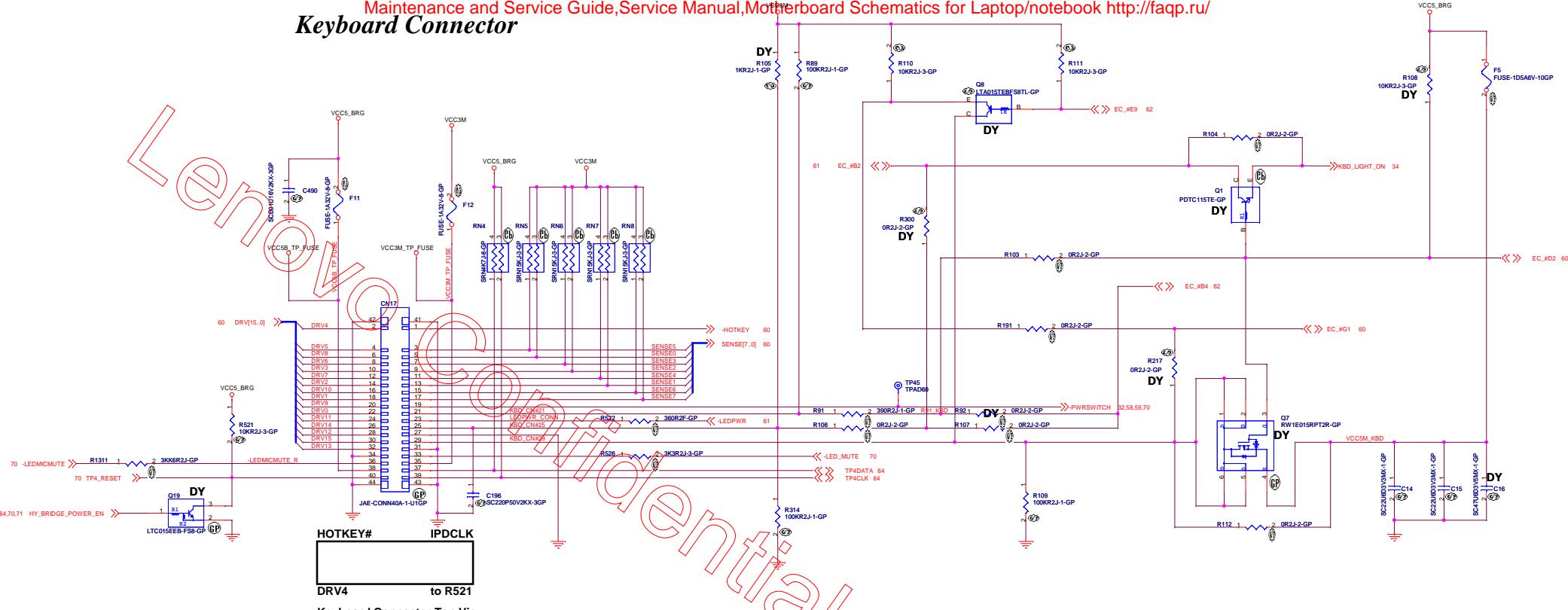




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<b>Wistron Corporation</b> 21F, 88, Sec. 1, Hsin Chu Wu Rd., Hsinchii, Taipei Hsien 221, Taiwan, R.O.C.		
<b>Embedded Controller (1/3)</b>		
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### Keyboard Connector Top View

Near CN17

The diagram illustrates the correspondence between DRV genes (DRV4 through DRV11) and their respective SENSE and AFTRP genes. Each DRV gene is shown with its number and a blue line connecting it to its corresponding SENSE and AFTRP genes. A red arrow points from the 'IP4 RESET' label to the AFTRP genes.

DRV Gene	DRV	DRV SENSE	DRV AFTRP
DRV4	1	AFTE14P-GP	AFTP23
DRV5	1	AFTE14P-GP	AFTP25
DRV6	1	AFTE14P-GP	AFTP27
DRV7	1	AFTE14P-GP	AFTP29
DRV8	1	AFTE14P-GP	AFTP31
DRV9	1	AFTE14P-GP	AFTP33
DRV10	1	AFTE14P-GP	AFTP35
DRV11	1	AFTE14P-GP	AFTP37
DRV1	1	AFTE14P-GP	AFTP40
DRV2	1	AFTE14P-GP	AFTP42
DRV3	1	AFTE14P-GP	AFTP44
DRV4	1	AFTE14P-GP	AFTP46
DRV5	1	AFTE14P-GP	AFTP48
DRV6	1	AFTE14P-GP	AFTP50
DRV7	1	AFTE14P-GP	AFTP52
DRV8	1	AFTE14P-GP	AFTP54
DRV9	1	AFTE14P-GP	AFTP56
DRV10	1	AFTE14P-GP	AFTP58
DRV11	1	AFTE14P-GP	AFTP60

60.64 IPDATA  
60.64 IPDCLK

IP4 RESET

VCC5 TP FUSE

-HOTRESET

vccm1

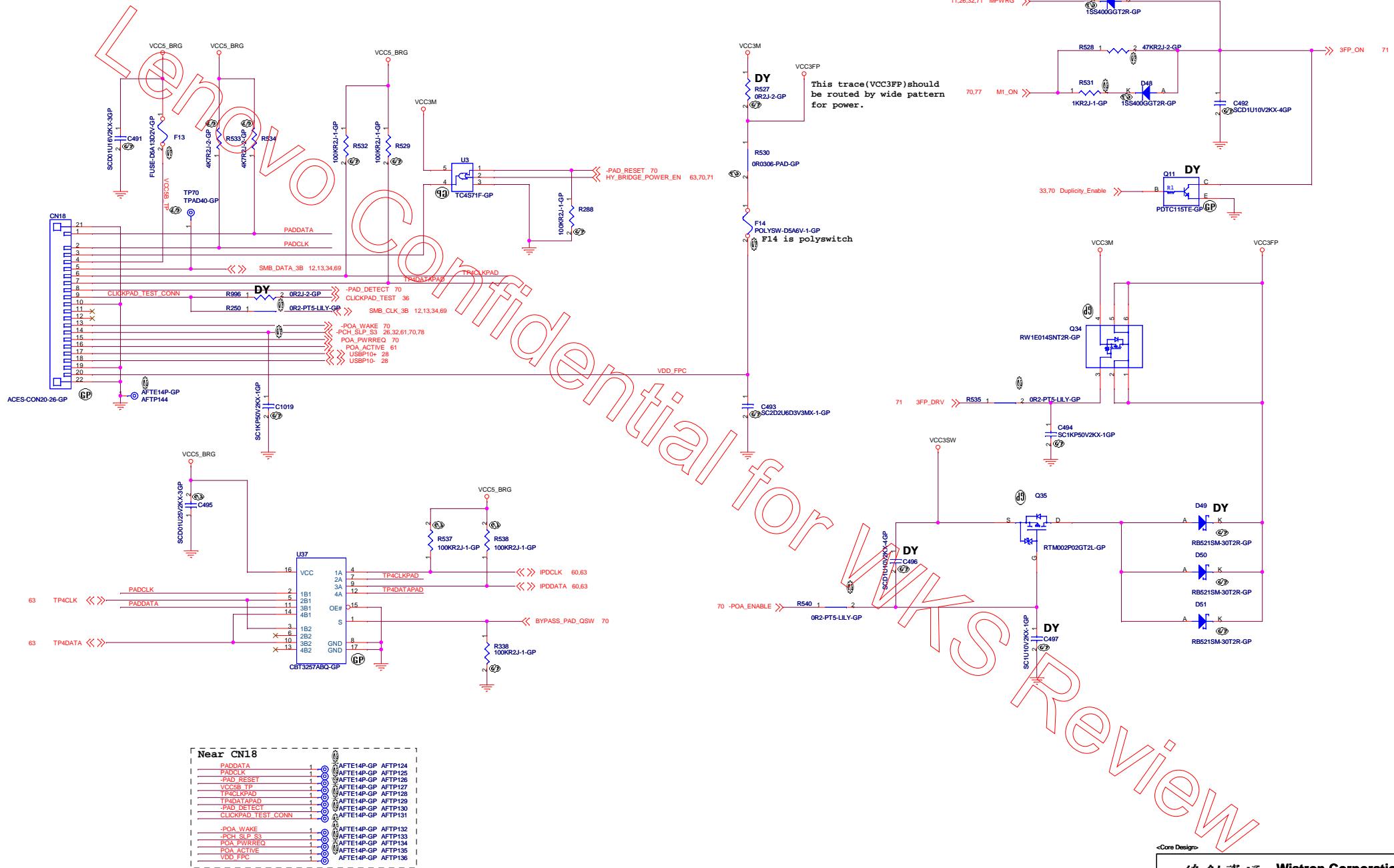
## KBD Table

		case1	case2	case3	case4
	CS12 KBD w/o BL	v	v	v	v
	CS12 KBD w BL		v	v	
CS09			v	v	v
Parts#	parts	case1	case2	case3	case4
R108	10K_5%_0402	DY	DY	ASM	ASM
R104	0.5%_0402	ASM	ASM	DY	DY
R89	100K_5%_0402	ASM	ASM	ASM	ASM
R105	1k_5%_0402	ASM	DY	ASM	ASM
R111	10K_5%_0402	ASM	ASM	ASM	ASM
R110	10K_5%_0402	DY	ASM	ASM	ASM
R92	0.5%_0402	DY	DY	ASM	ASM
R91	390_5%_0402	DY	ASM	ASM	ASM
R107	0.5%_0402	DY	ASM	DY	DY
R103	0.5%_0402	ASM	ASM	DY	DY
R106	0.5%_0402	DY	ASM	ASM	ASM
R112	0.5%_0402	DY	ASM	DY	DY
R109	100K_5%_0402	DY	ASM	ASM	DY
R191	0.5%_0402	ASM	ASM	DY	ASM
R217	0.5%_0402	DY	DY	ASM	DY
R300	0.5%_0402	DY	DY	ASM	ASM
C16	47uF_6.3V_0805	DY	DY	DY	DY
C15	10uF_6.3V_0603	DY	ASM	ASM	DY
C14	10uF_6.3V_0603	DY	ASM	ASM	DY
Q1	LTC015TE	DY	DY	ASM	ASM
Q8	LTA015TE	DY	DY	ASM	DY
Q7	RW1E015RP	DY	DY	ASM	DY
F5	1.5A/6A Fuse	DY	ASM	DY	DY
	1.5A/6V PolySW	DY	DY	ASM	DY
R314	100K_5%_0402	DY	ASM	DY	DY

KBD Table

R&D Tablez	
Pre-DV	case1
SDV	case2
FVT	case3
PreSIT	case4
SIT	case5

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 <b>緯創資通</b> <b>Wistron Corporation</b> 2F, No. 1, Hsin Tai Wu Rd., Neihu, Taipei, Taiwan, R.O.C.		
Title		
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Size	Document Number	Rev
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Date:	Friday, March 09, 2012	Sheet
		63
		of
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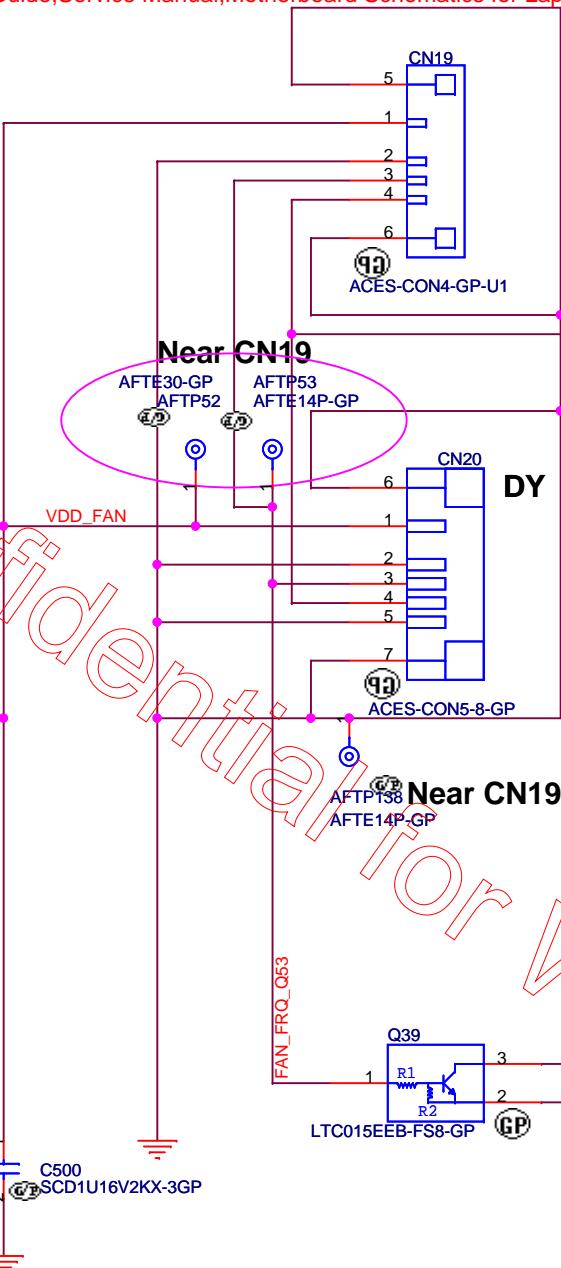
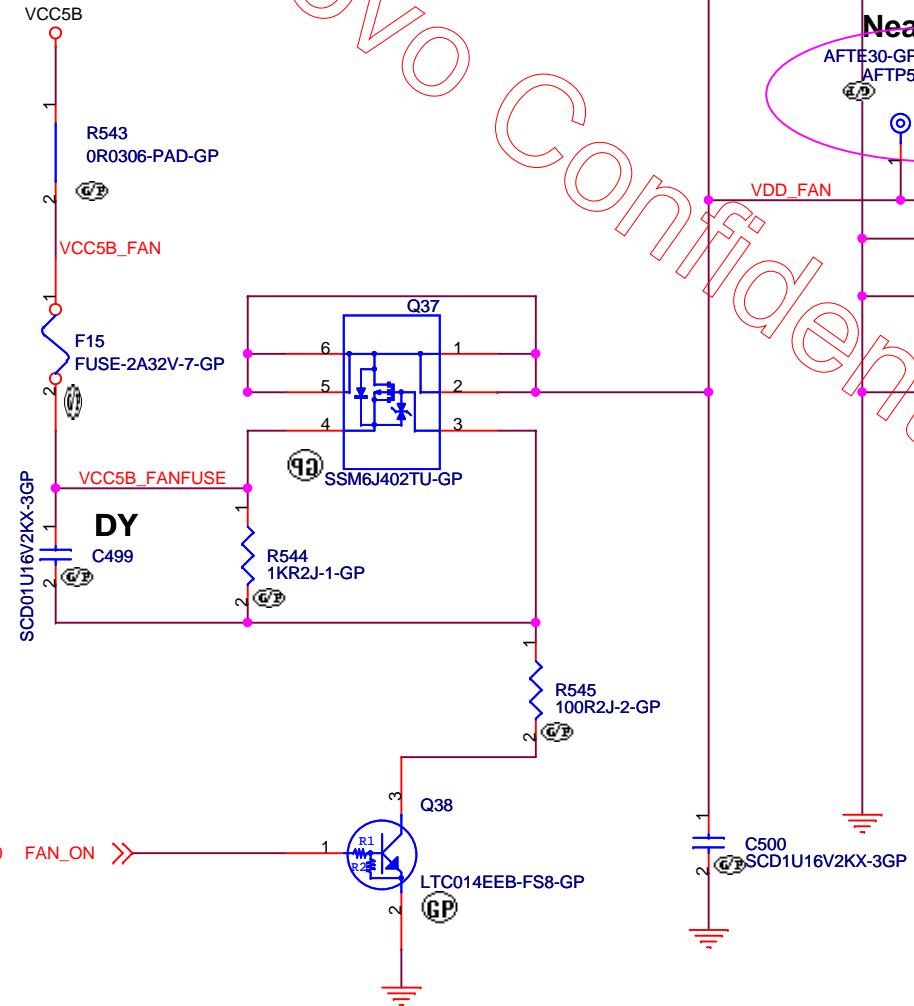
**Fingerprint Reader / Touch PAD**

Near CN18	
PADDATA	AFT14P-GP AFTP124
PADCLK	AFT14P-GP AFTP125
PAD_RESET	AFT14P-GP AFTP126
PAD_S3	AFT14P-GP AFTP127
TP4CLKPAD	AFT14P-GP AFTP128
TP4DATAPAD	AFT14P-GP AFTP129
PAD_DETECT	AFT14P-GP AFTP130
CLICKPAD_TEST_CONN	AFT14P-GP AFTP131
-POA_WAKE	AFT14P-GP AFTP132
POH_SLP_S3	AFT14P-GP AFTP133
POA_PMRREQ	AFT14P-GP AFTP134
POA_ACTIVE	AFT14P-GP AFTP135
VDD_FPC	AFT14P-GP AFTP136

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<b>緯創資通</b>		<b>Wistron Corporation</b>
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Title	<b>BLANK</b>	
Size A	Document Number	Rev -1
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For SV/LV

AFTE137  
AFTE30-GP

FAN\_ID 62

Near CN19

SV

FAN_ID	Thermal module
1	DELTA or Toshiba
0	AVC

For ULV

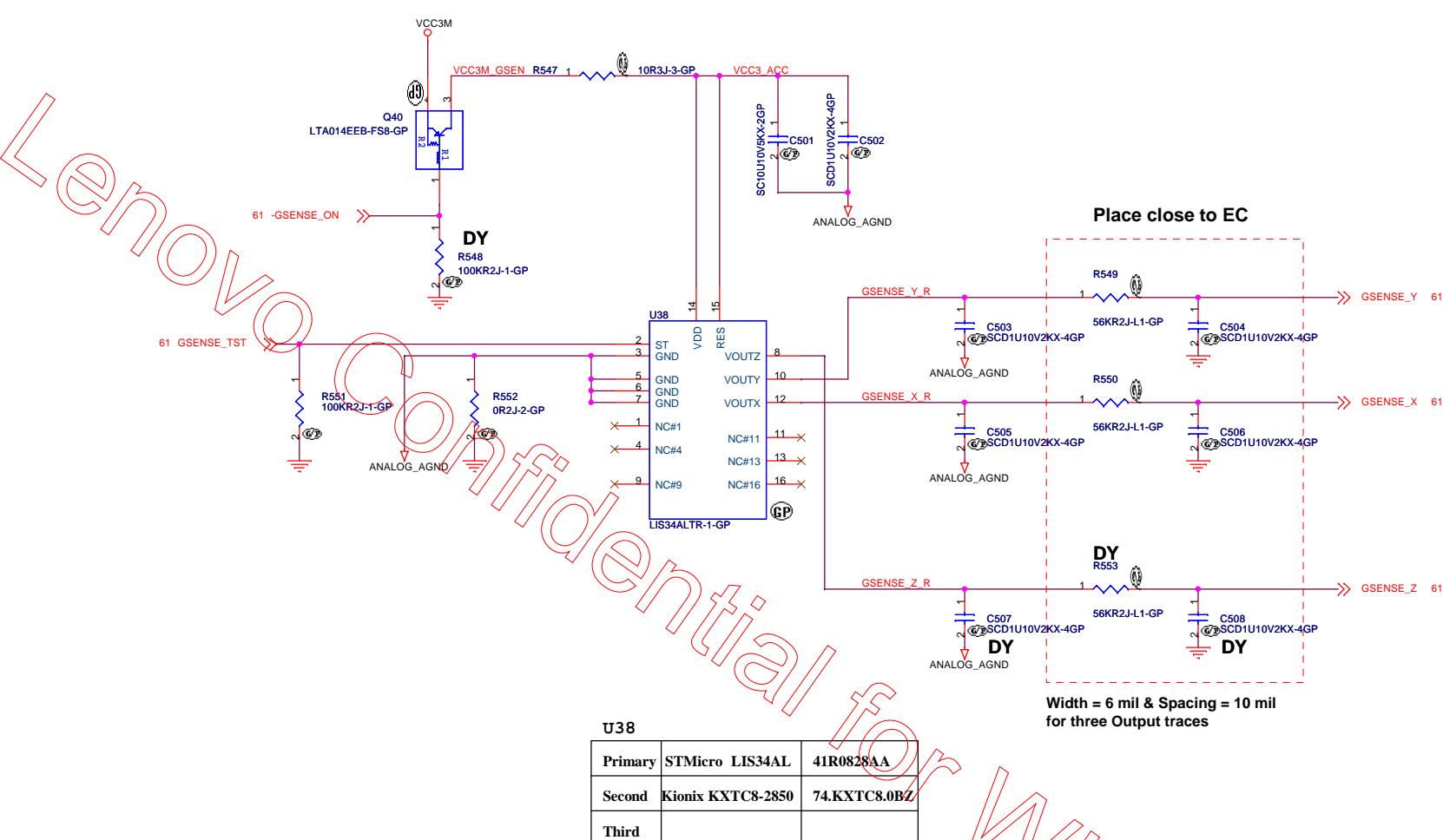
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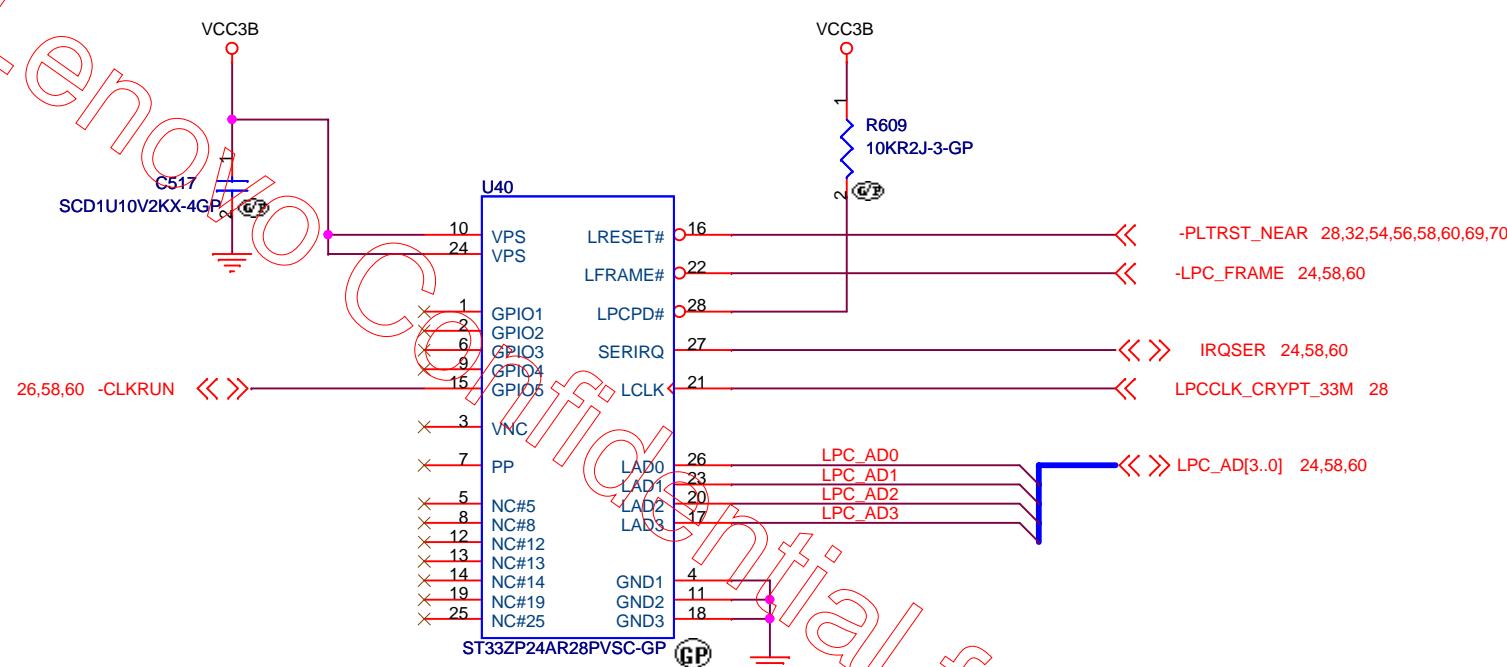
ULV

FAN_ID	Thermal module
1	Toshiba
0	AVC or DELTA

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Wistron Corporation	
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	
FAN Control	
Size A4	Document Number
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Rev -1	





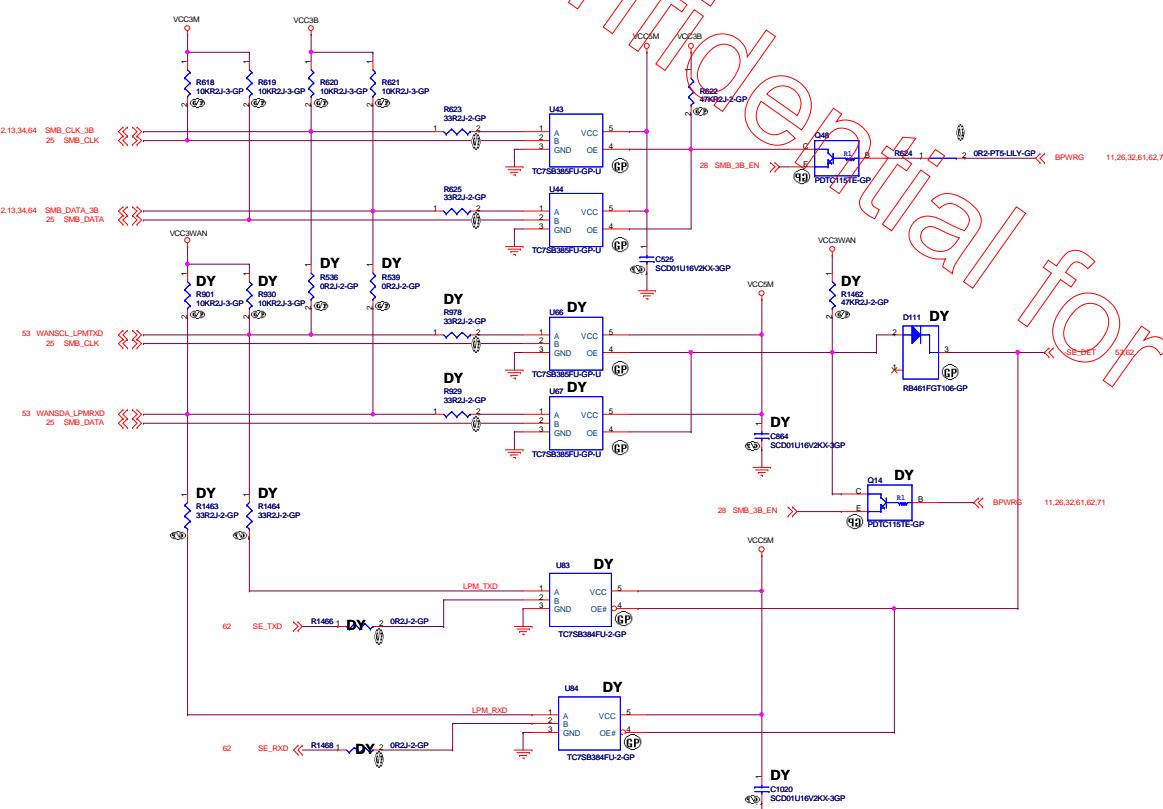
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ST19NP18ER28PVMO (71.19N18.T0W)	ST33ZP24AR28PVxx xx="OG" for SDV(71.03324.A0W), "RC" for FVT, PreSIT (FW 1.2.C.0)(71.03324.C0W) SC for SIT (not PreSIT) FW 1.2.D.0(71.03324.D0W)

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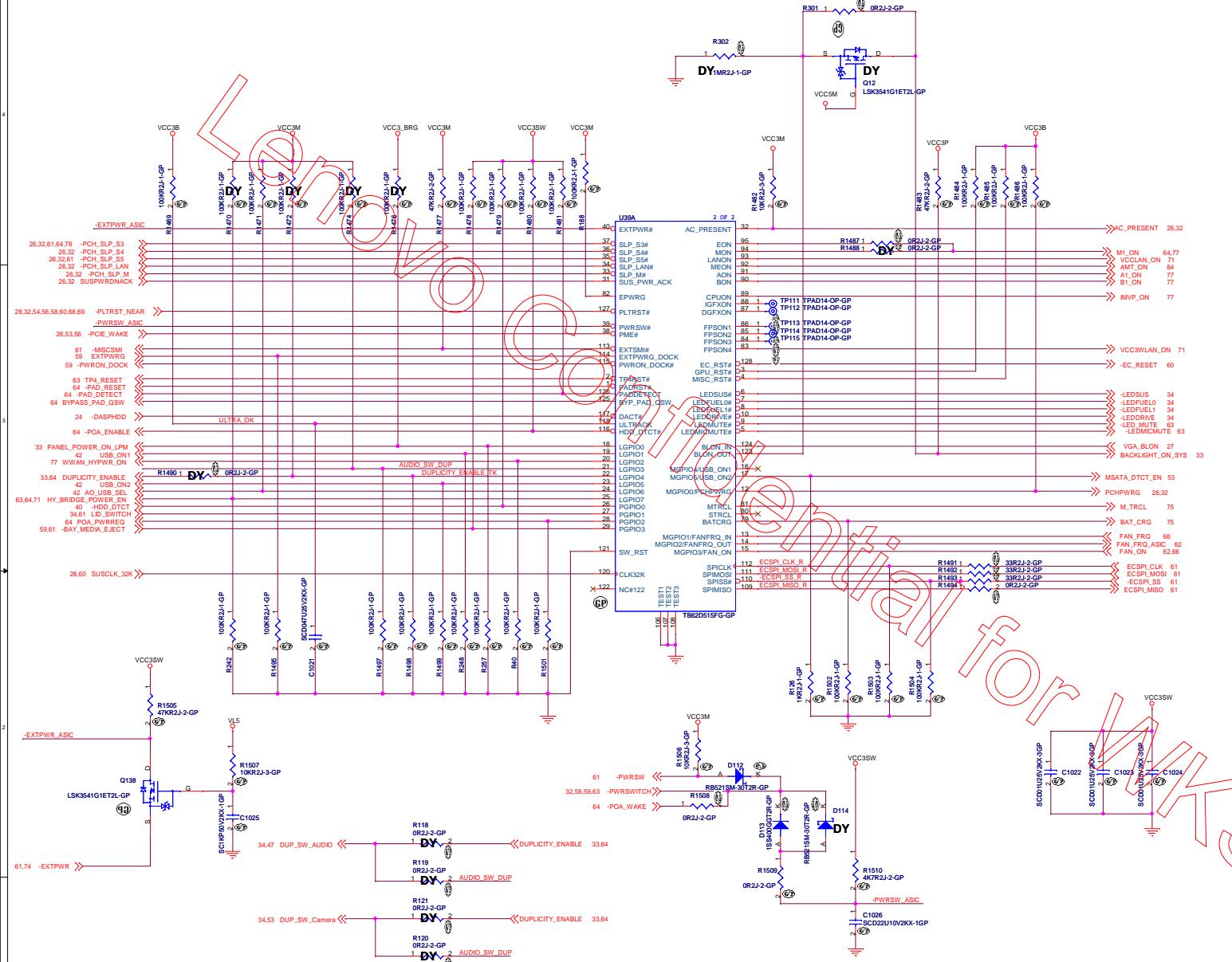
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Title		
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Size A4	Document Number	Rev -1
<b>Dasher-2</b>		
Date: Friday, March 09, 2012		
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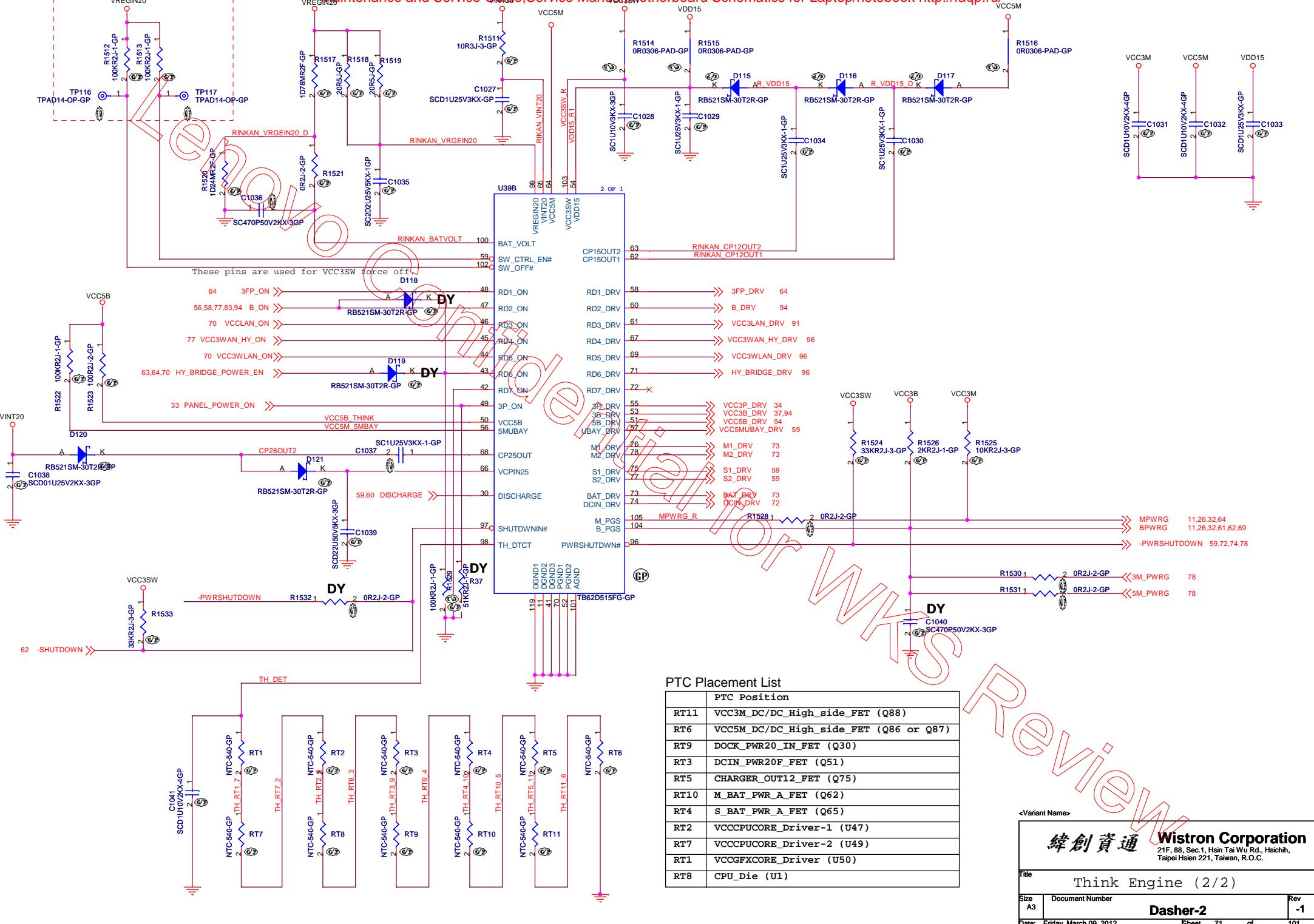
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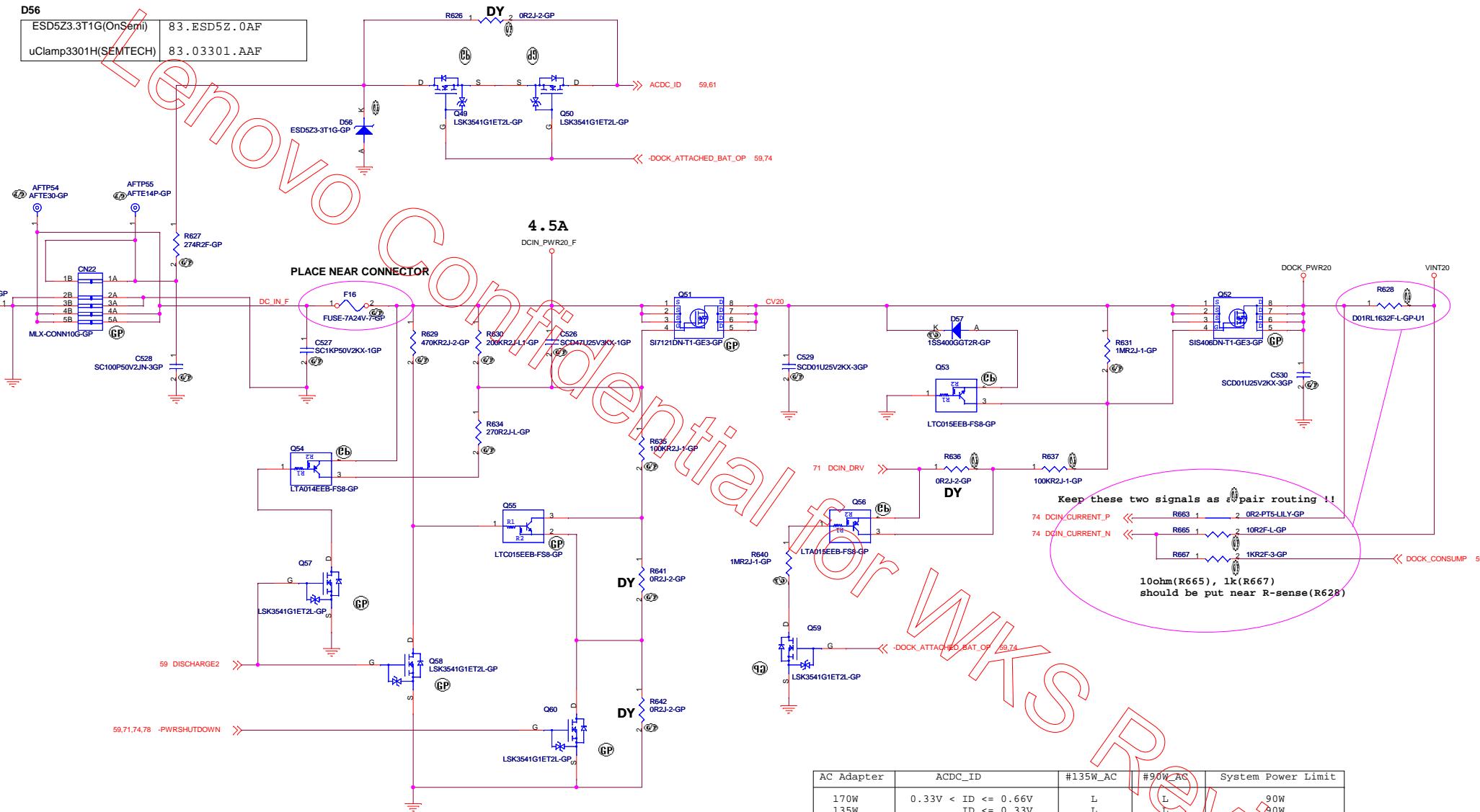
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1st ROHM	BUL08-1FVJ-W	72.BUL08.A0Q
2nd NXP	PCA24S08ADP	72.24S08.A0Q
3rd Sanyo	LE26CAP08TT	72.26C08.00R

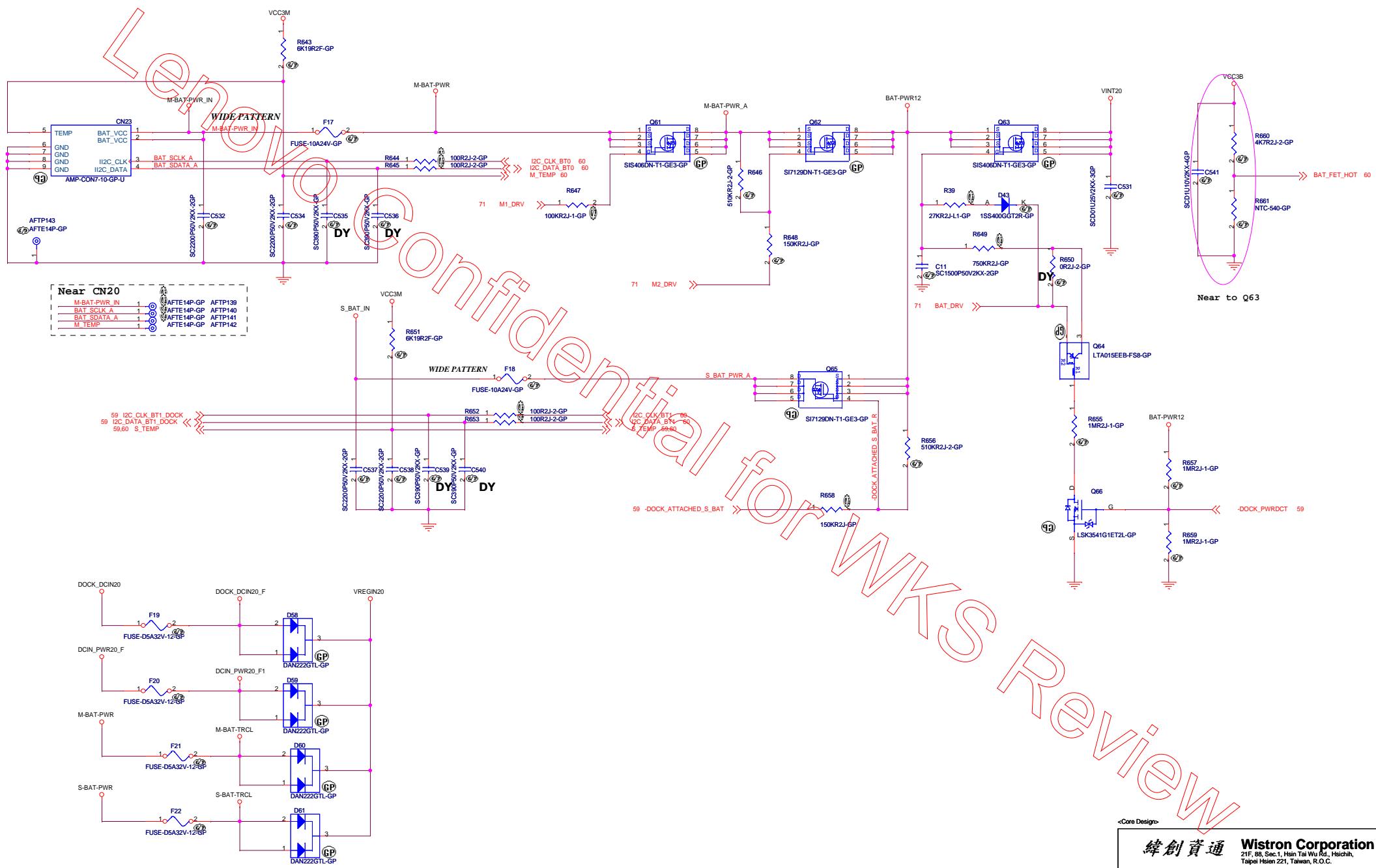


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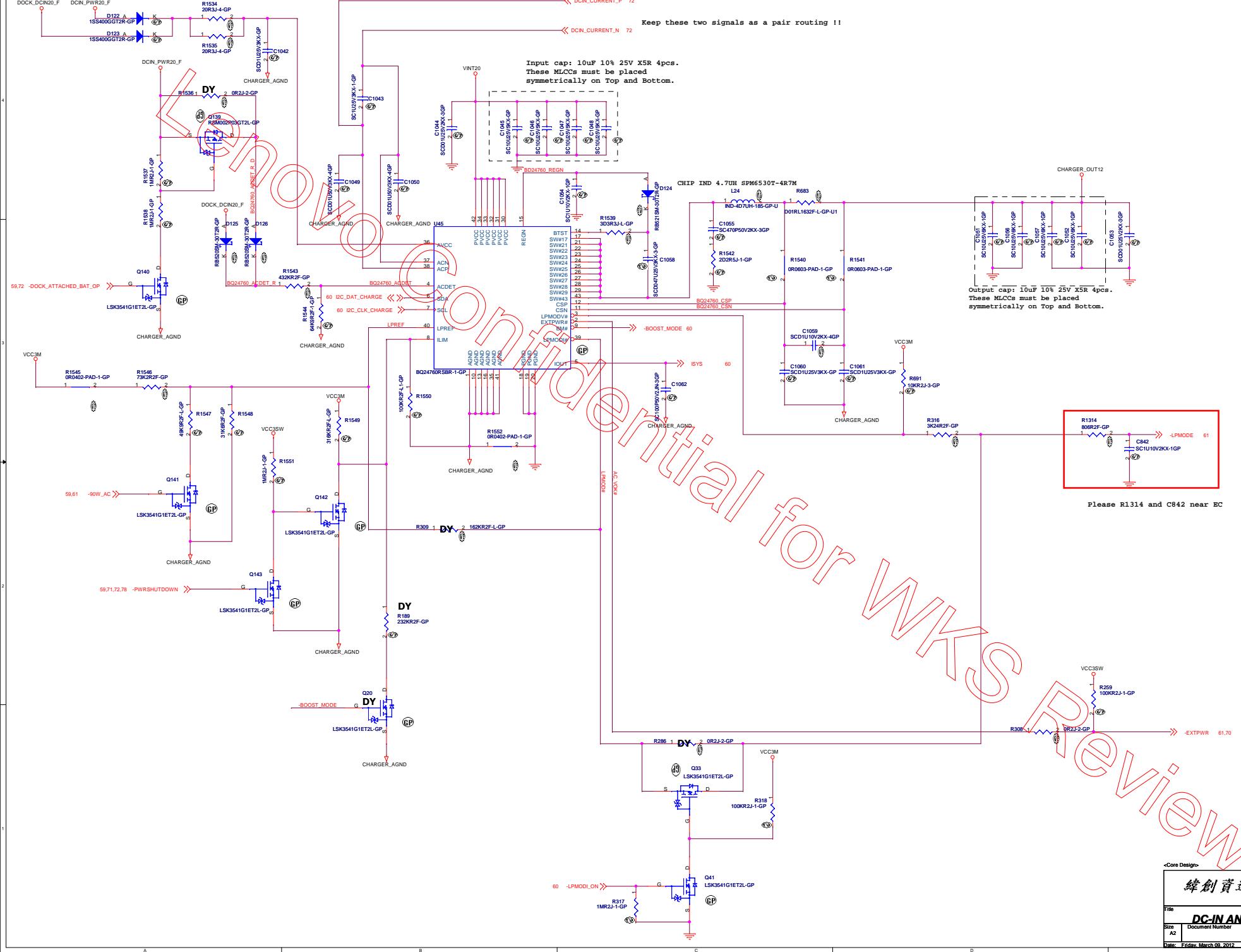


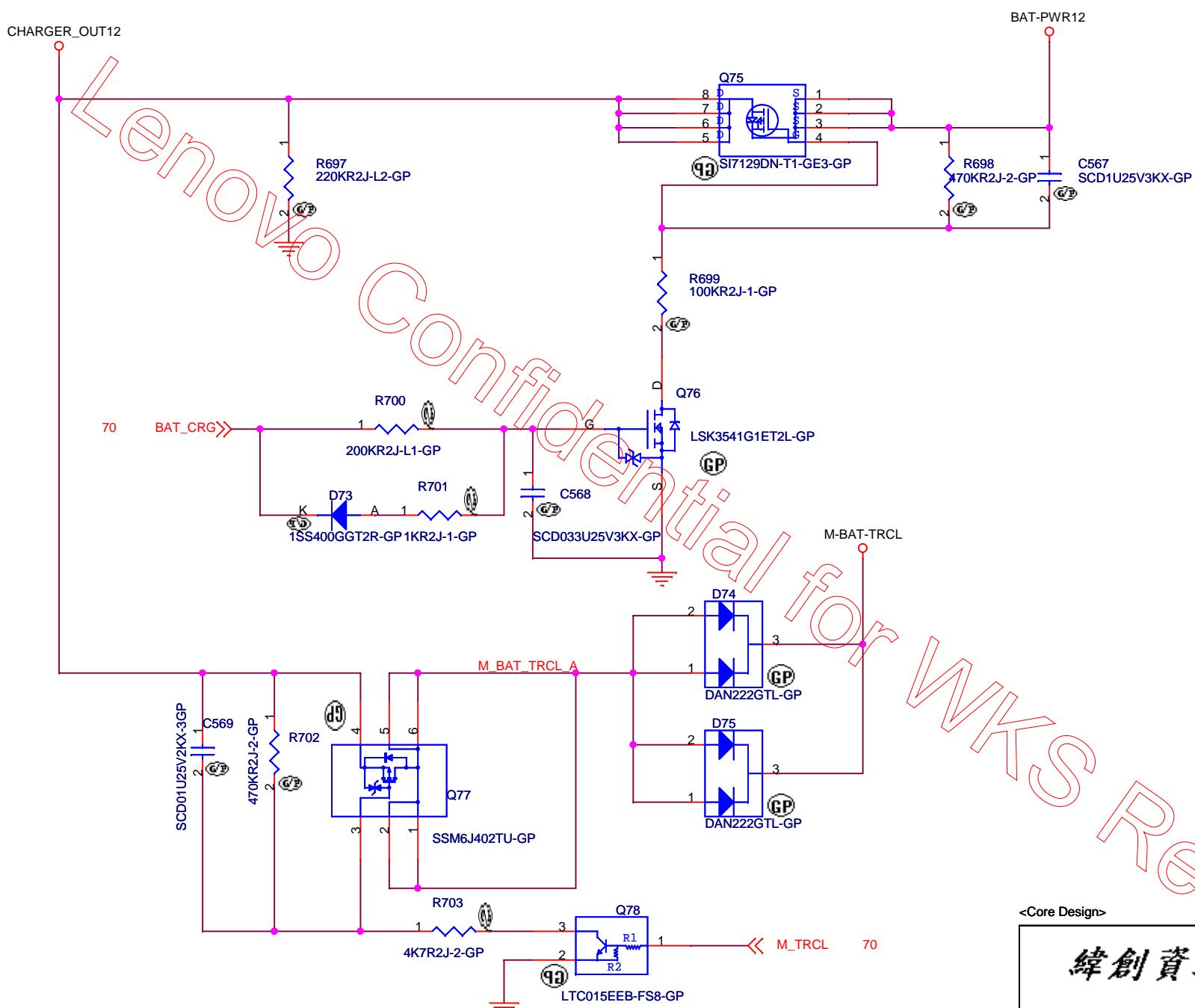






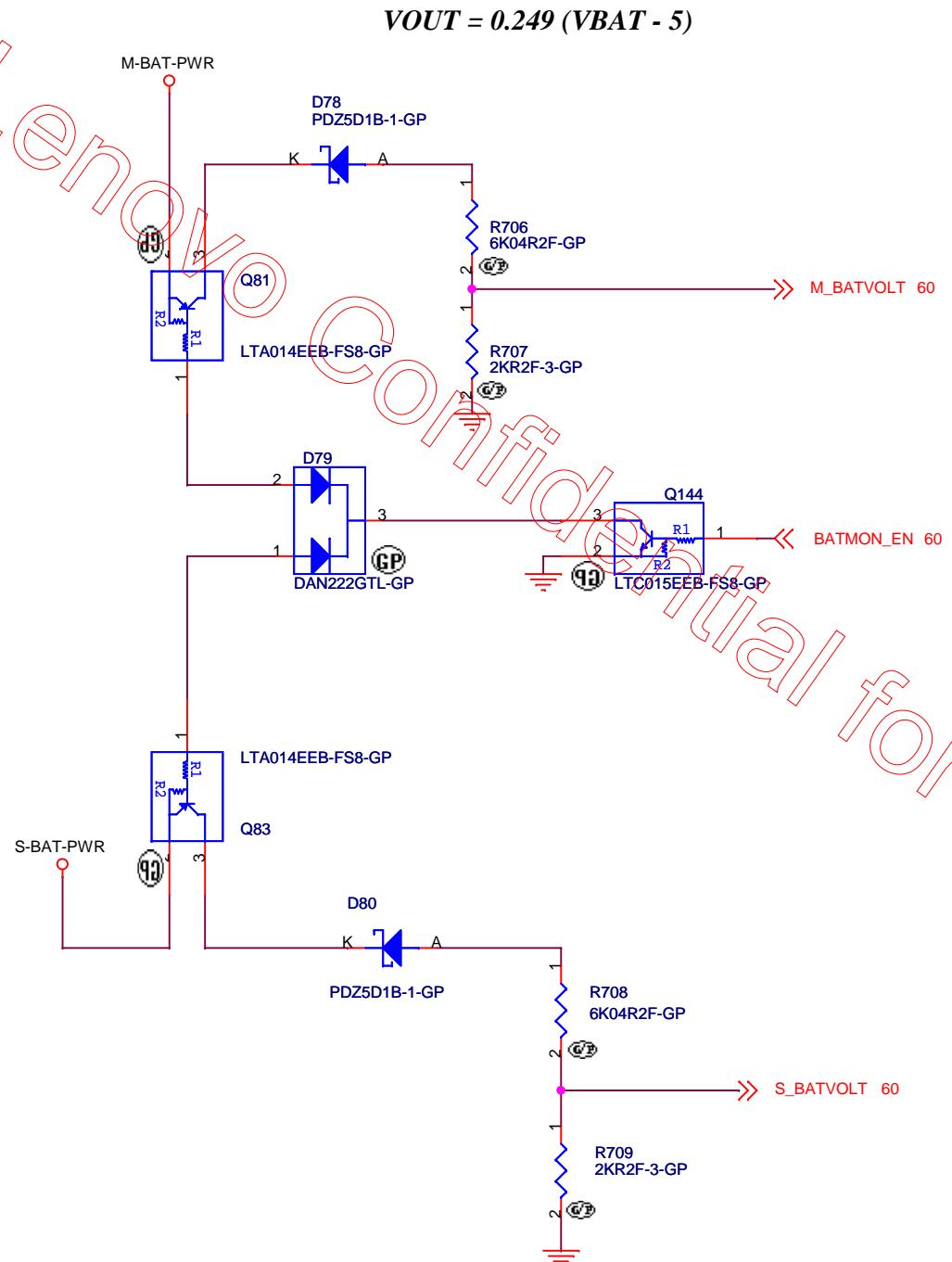
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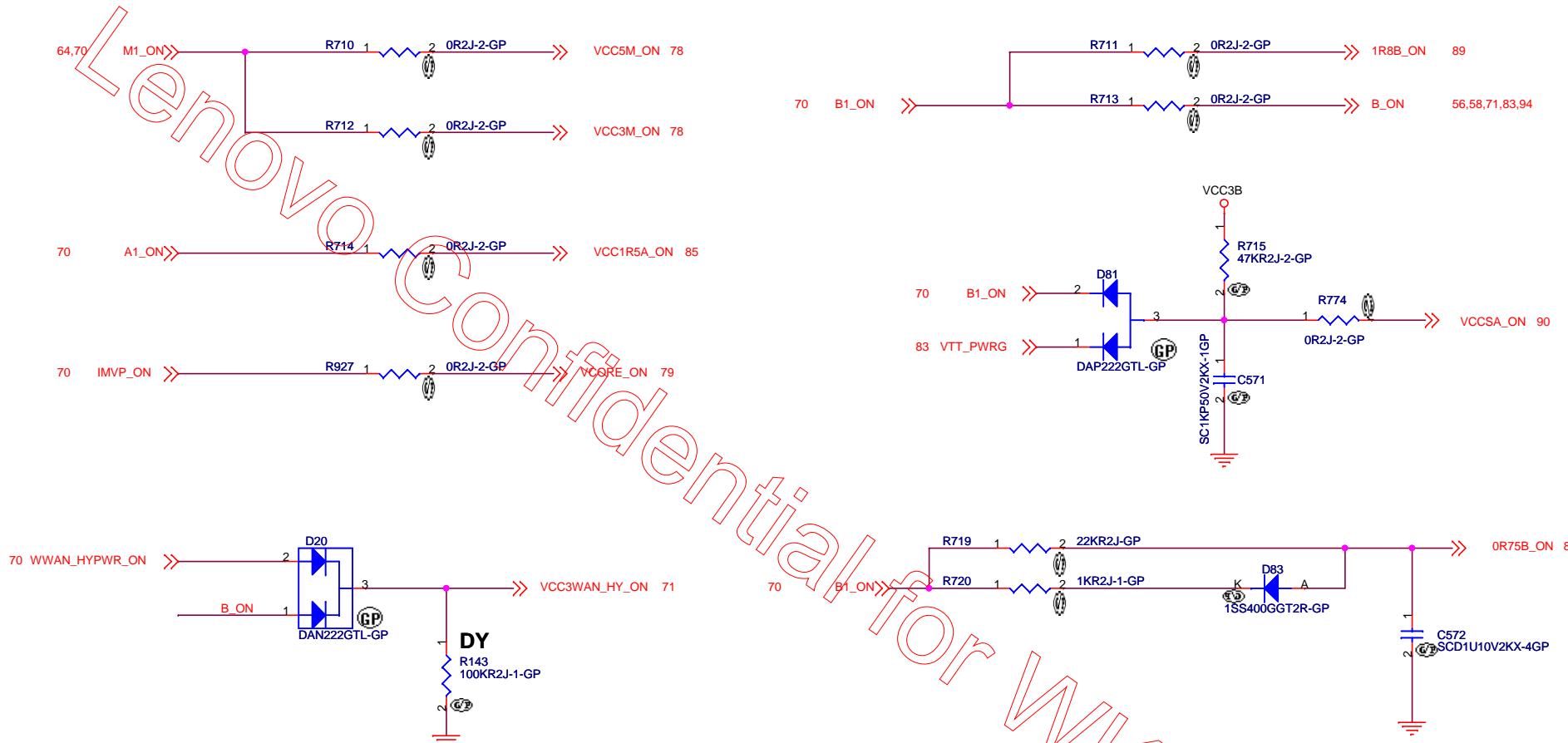
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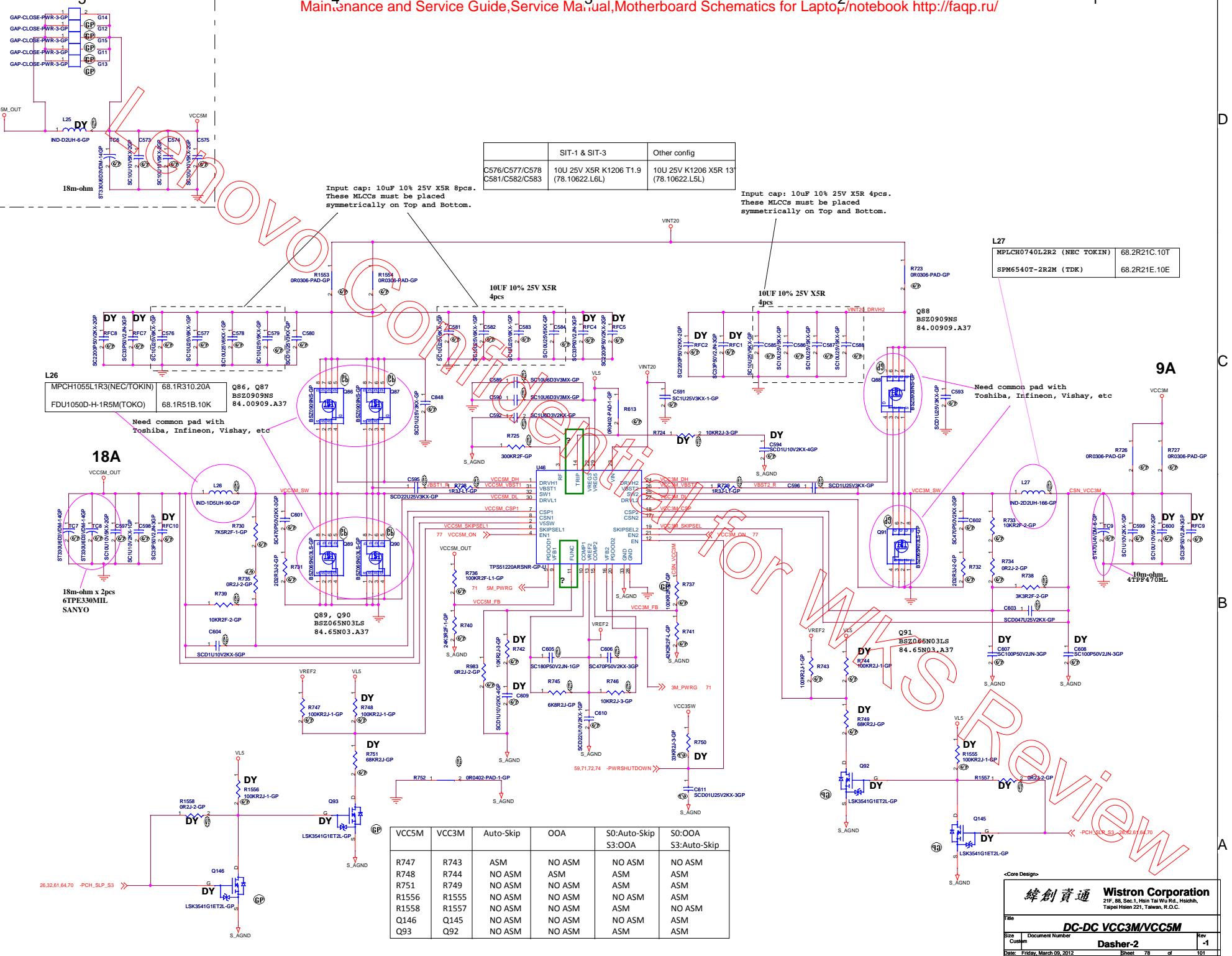


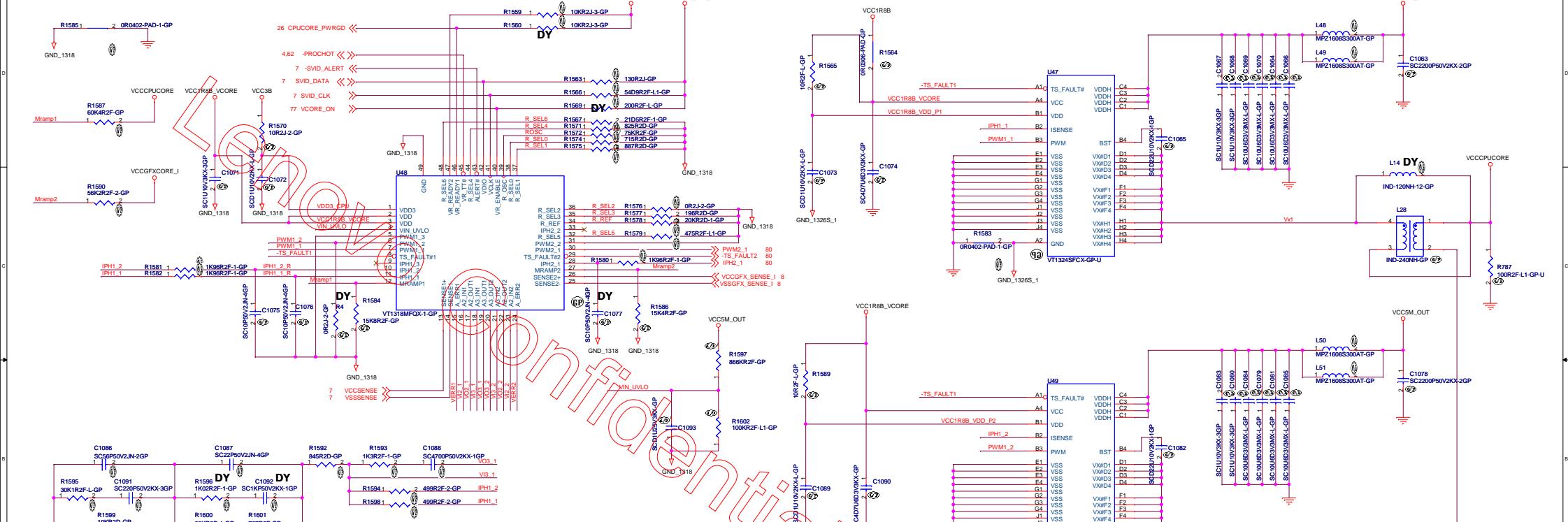
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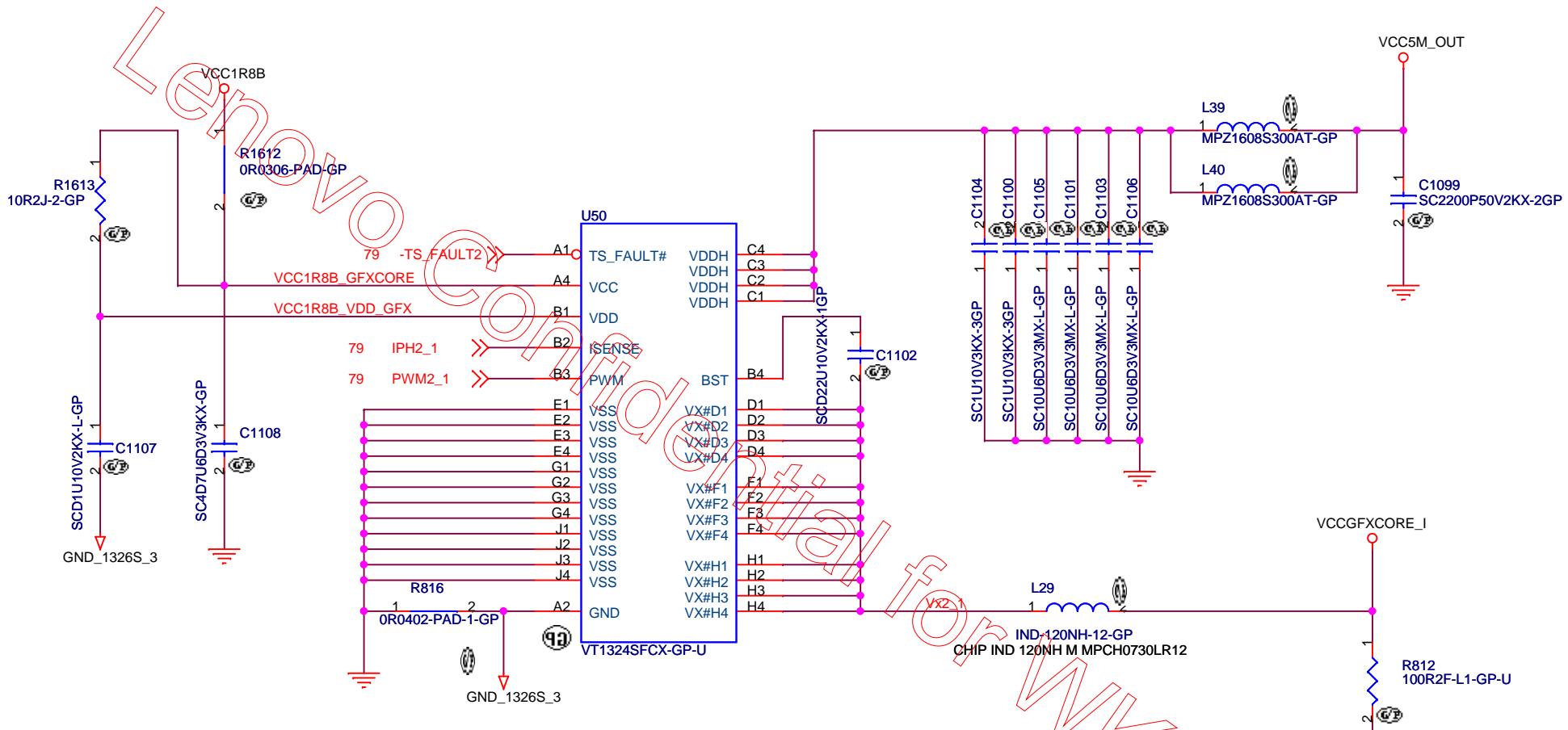
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 Taipei Hsien 221, Taiwan, R.O.C.  
 Title DC-DC VCCCPUCORE  
 Size Custom Document Number Dasher-2  
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**Wistron Corporation**  
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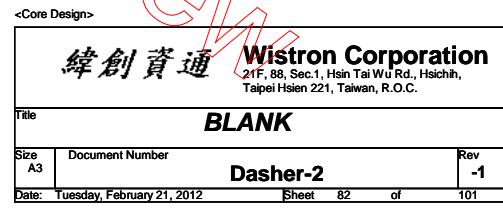
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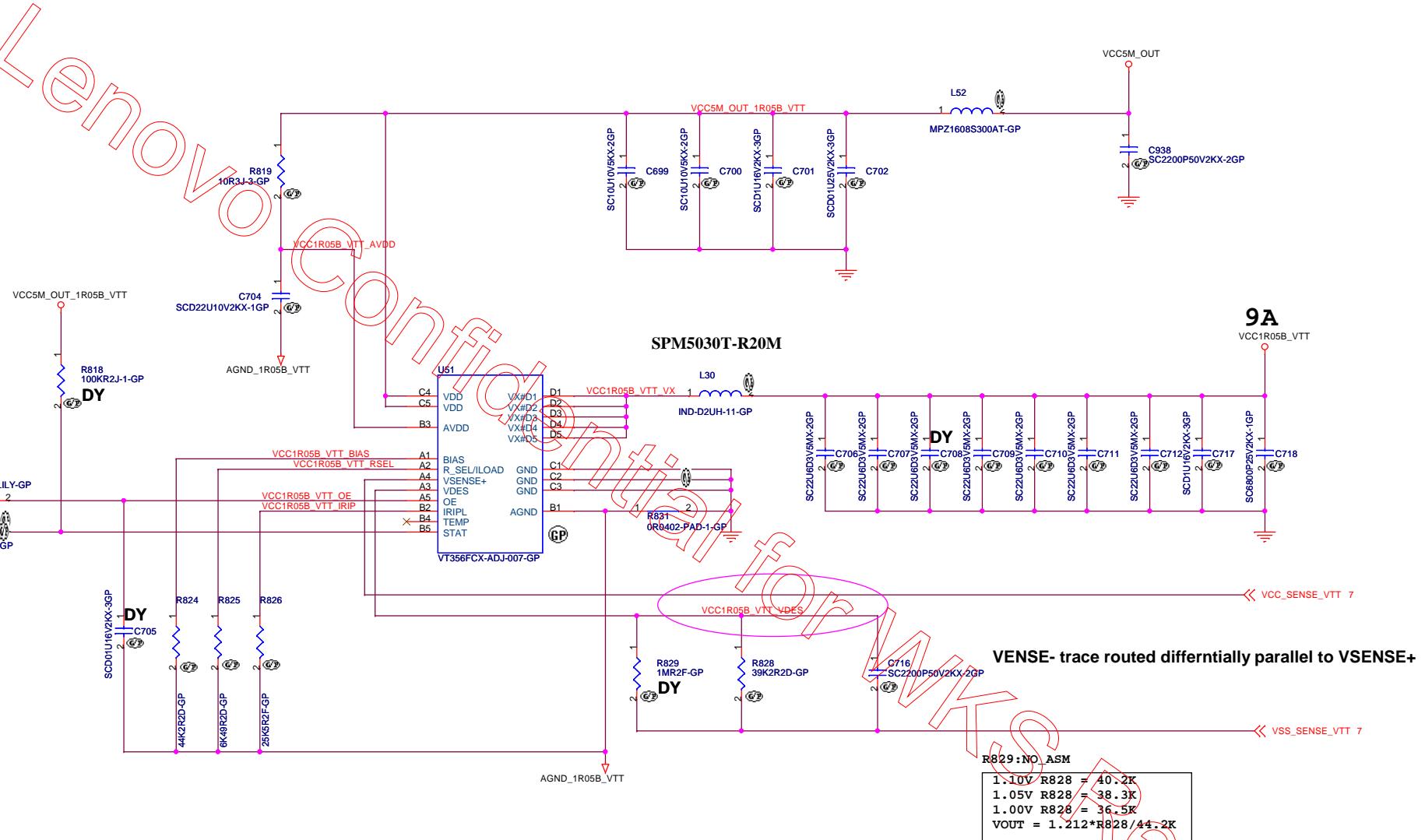
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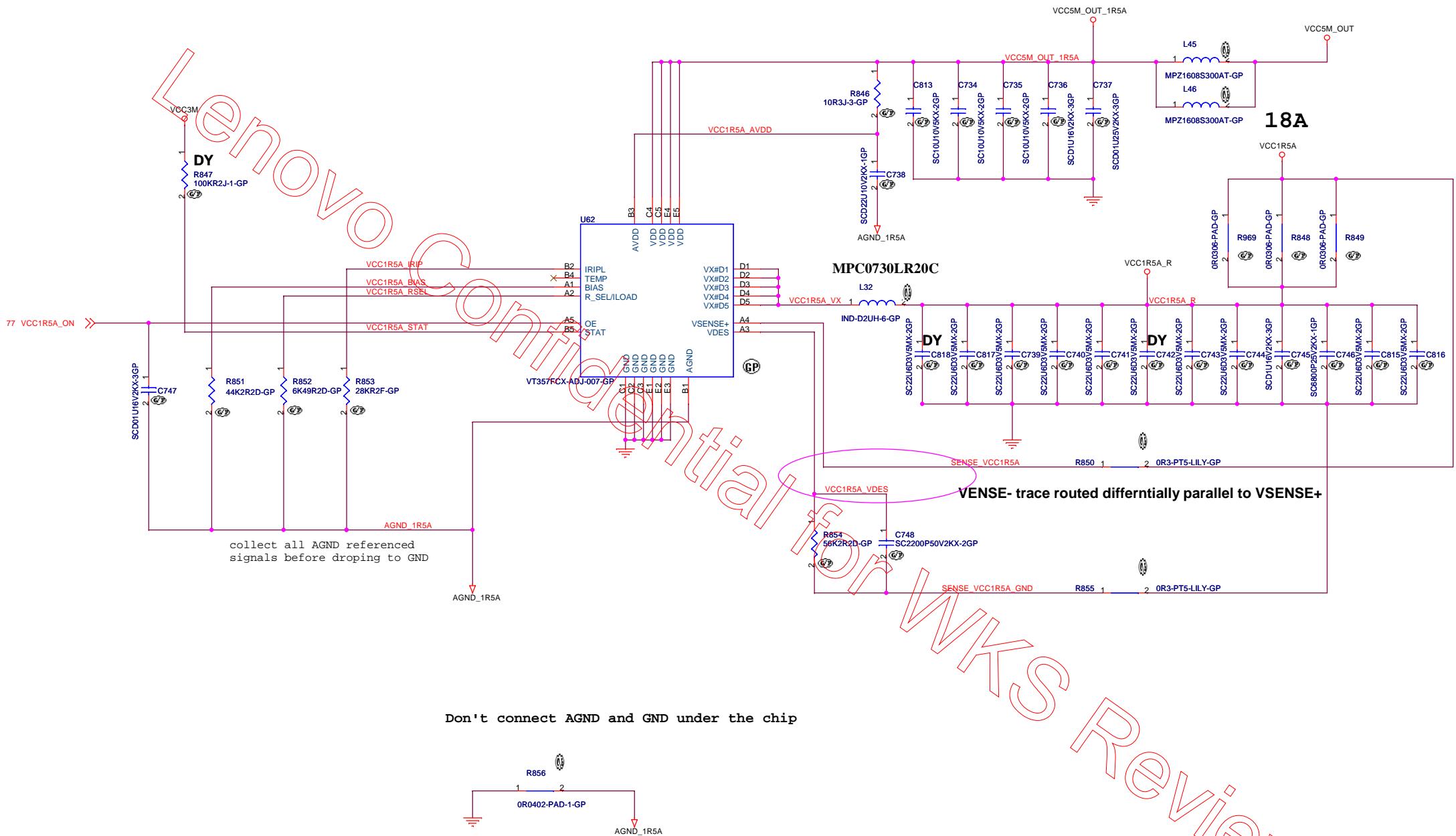




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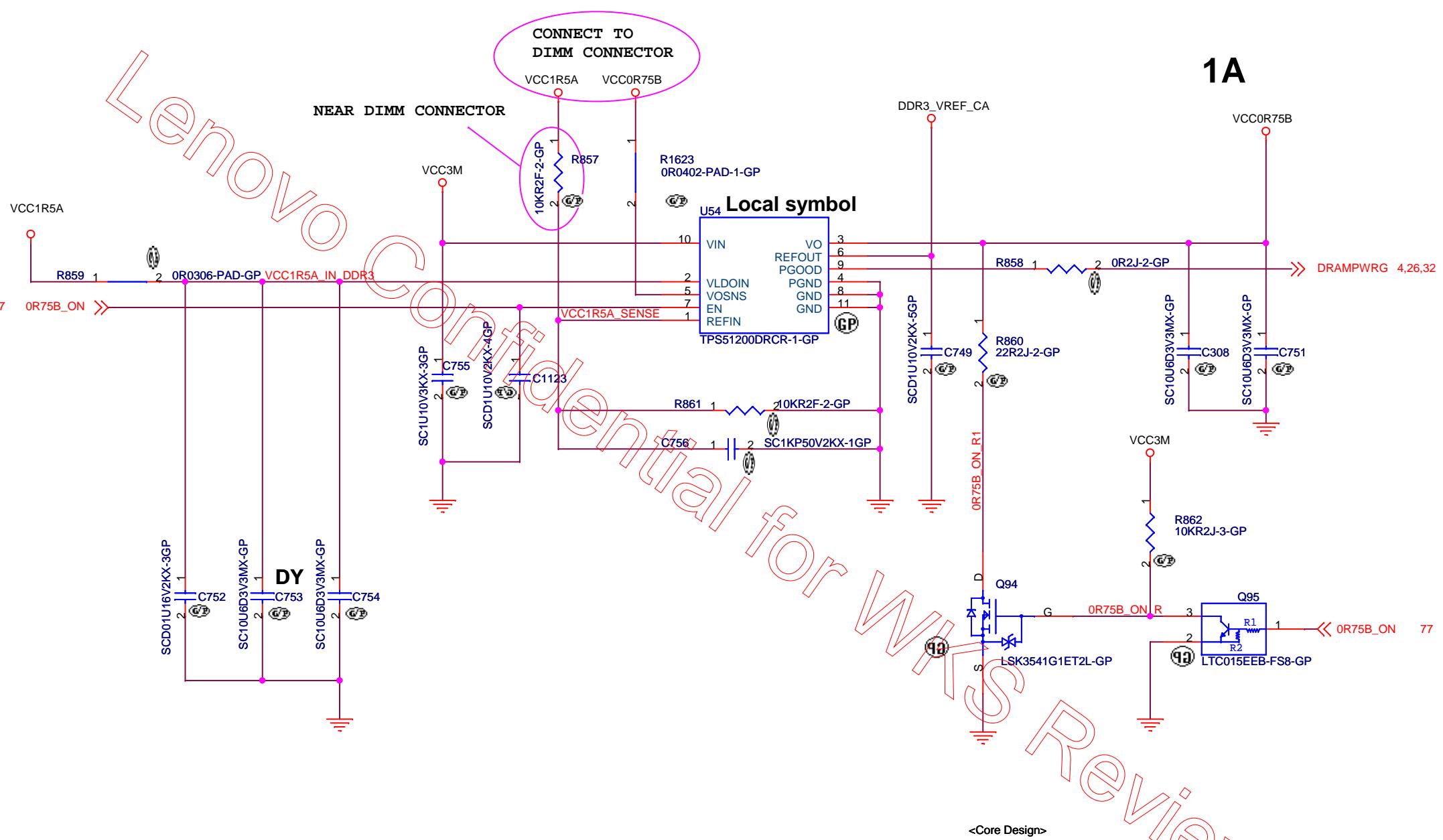
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**Wistron Corporation**  
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,  
Taipei Hsien 221, Taiwan, R.O.C.

 <b>Wistron Corporation</b> 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title		
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Size A3	Document Number <b>Dasher-2</b>	Rev <b>-1</b>
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緯創資通

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

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**DC-DC VCC0R75B**

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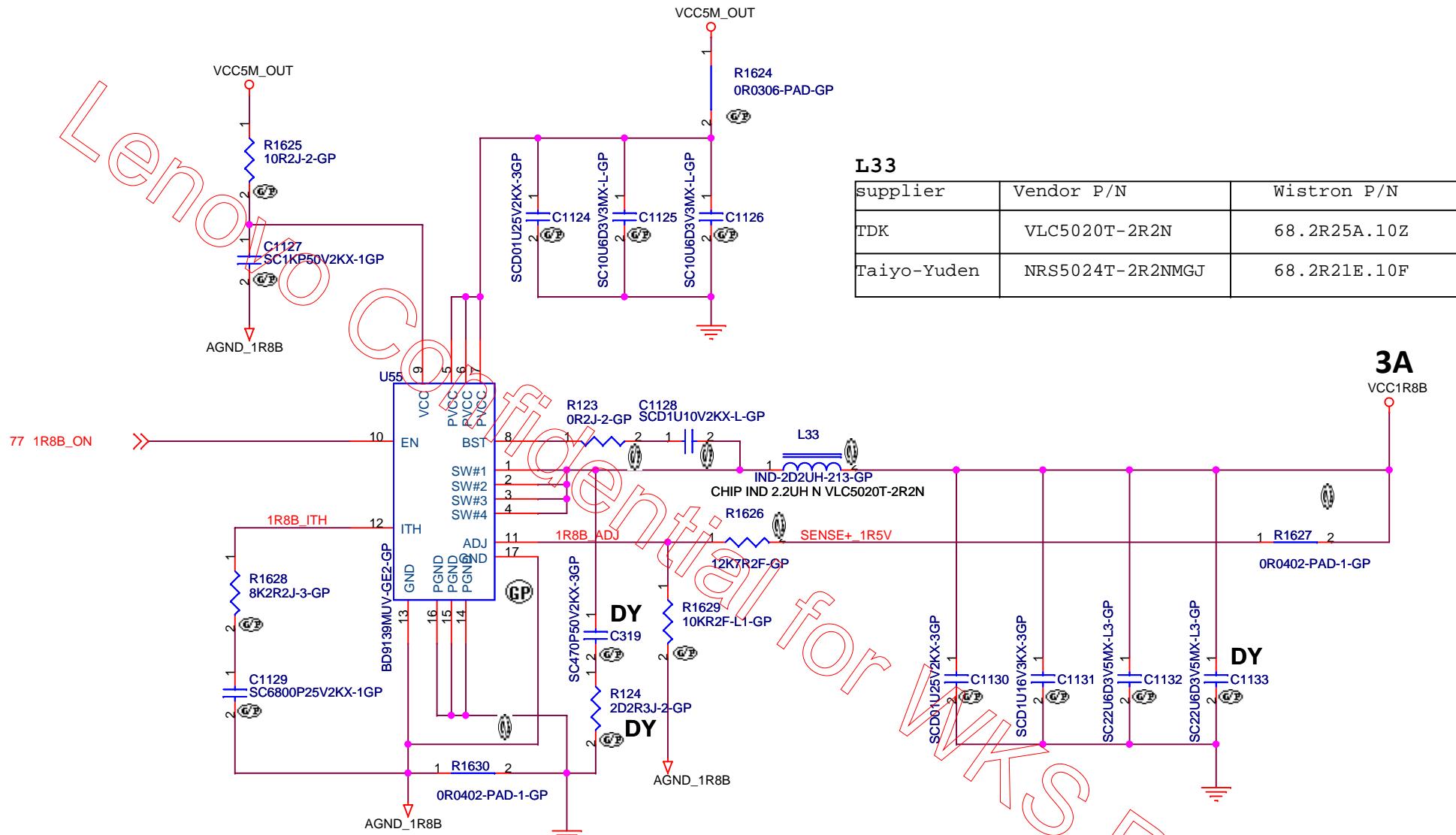
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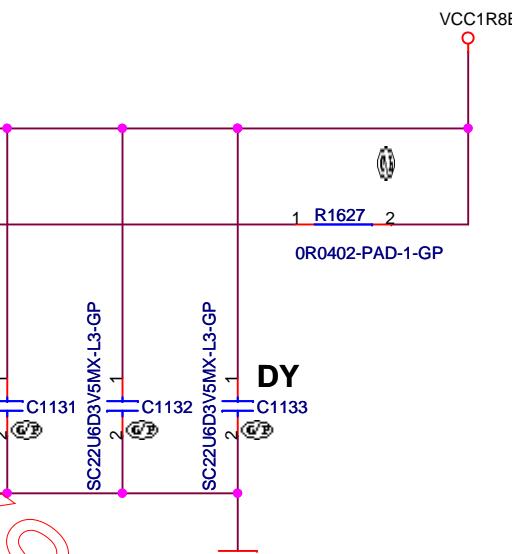
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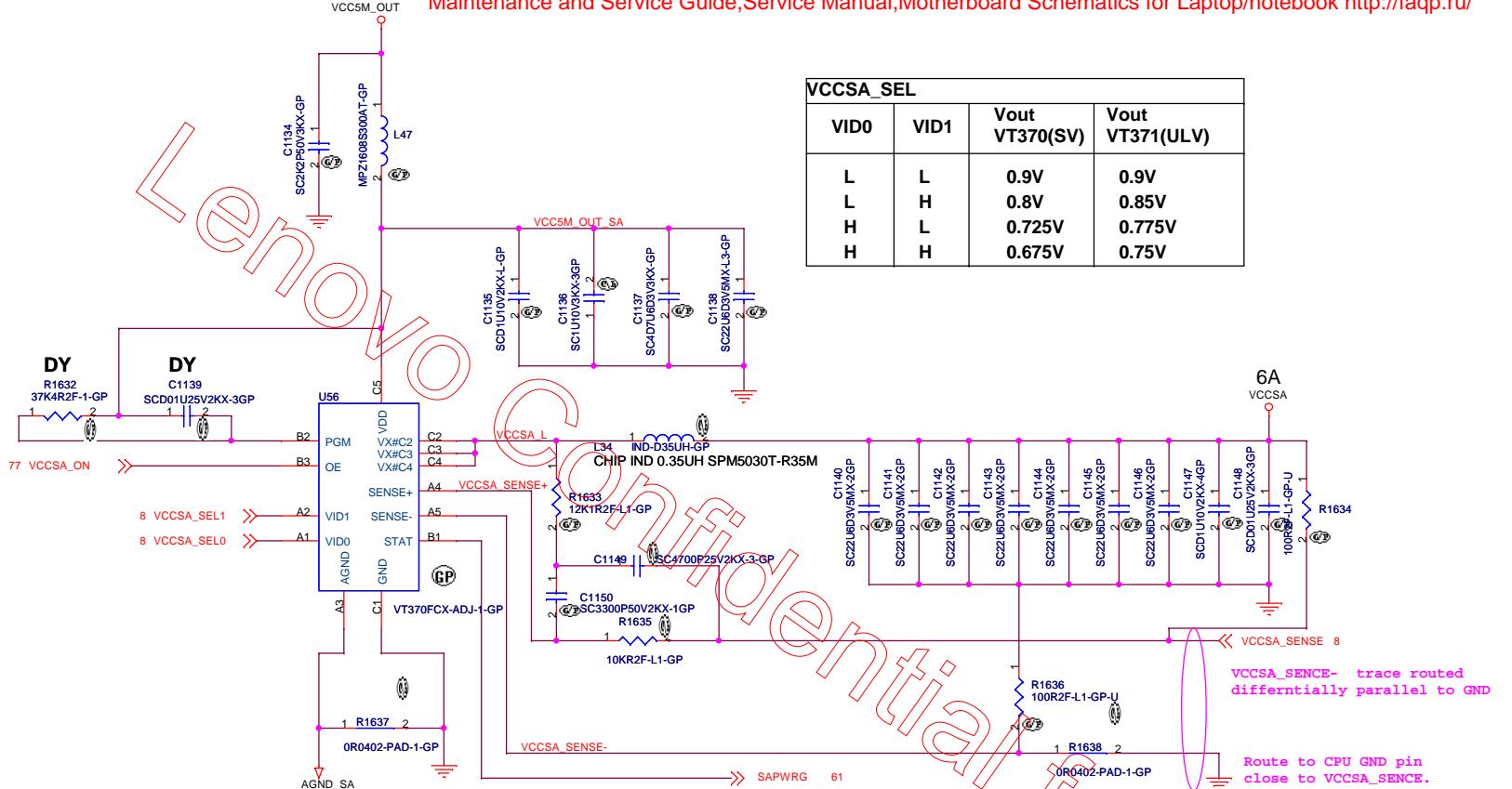
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Taiyo-Yuden	NRS5024T-2R2NMGJ	68.2R21E.10F

**3A**

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21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
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VCCSA_SEL		Vout VT370(SV)	Vout VT371(ULV)
VID0	VID1		
L	L	0.9V	0.9V
L	H	0.8V	0.85V
H	L	0.725V	0.775V
H	H	0.675V	0.75V

### 1) Orient Name

**緯創資通** Wistron Corporation  
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,  
Taiwan, R.O.C. Tel: (02) 262-1211

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DG/DG VGGSA

Page 1

**Size** A3 **Document Num**

Date: Friday M

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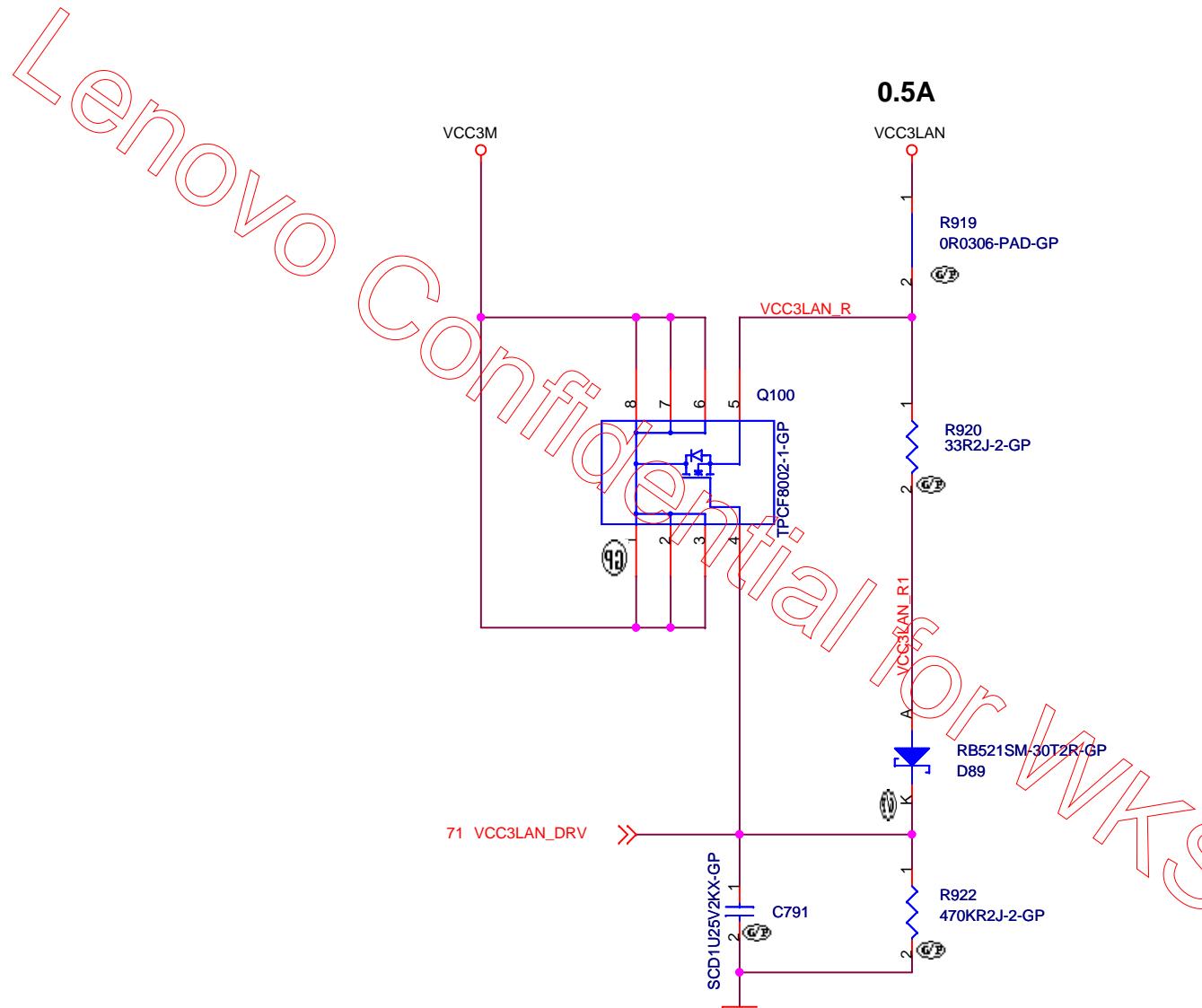
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緯創資通

**Wistron Corporation**  
21F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih,  
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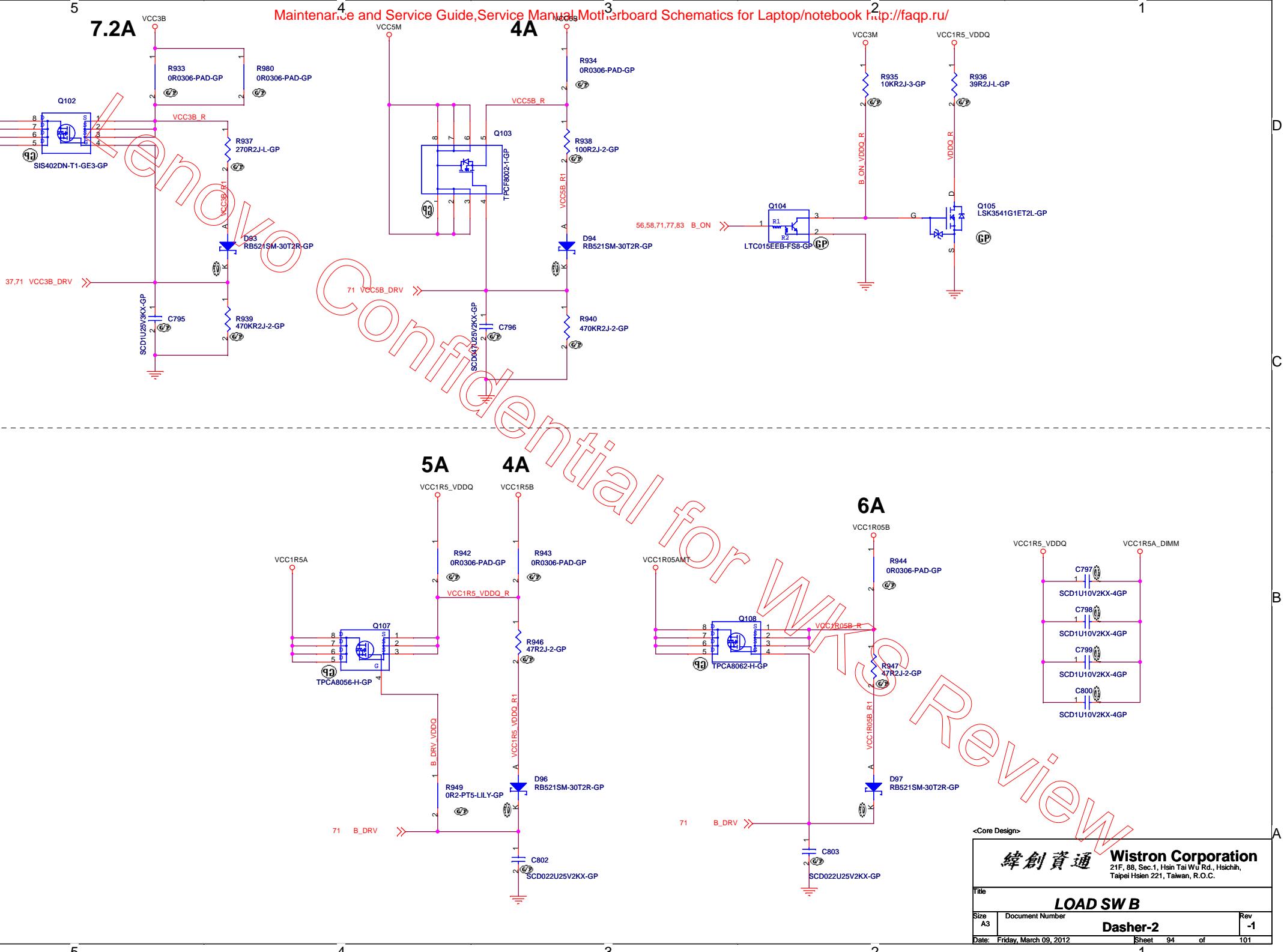
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**Dasher-2**

Rev -1

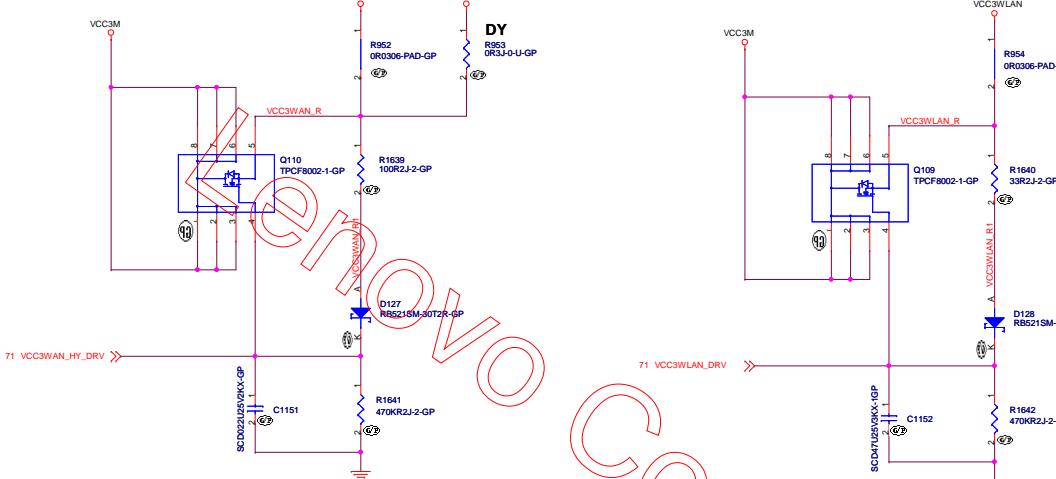
Date: Tuesday, February 21, 2012

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Lenovo Confidential for WKS Review  
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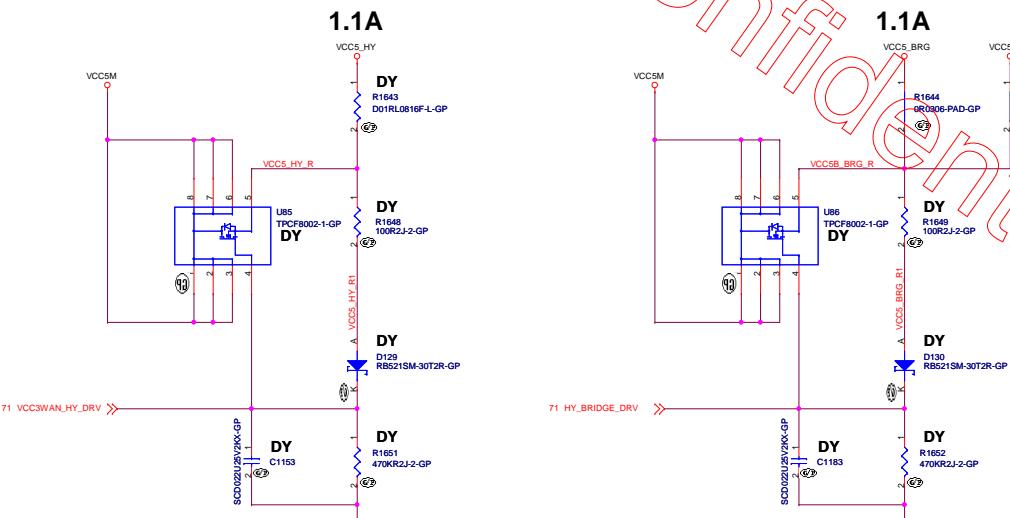
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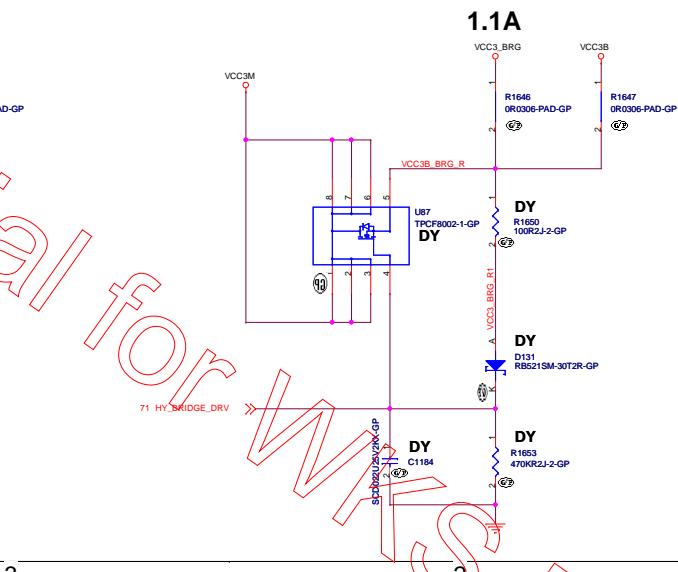
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Logic

## 1.1A



## 1.1A

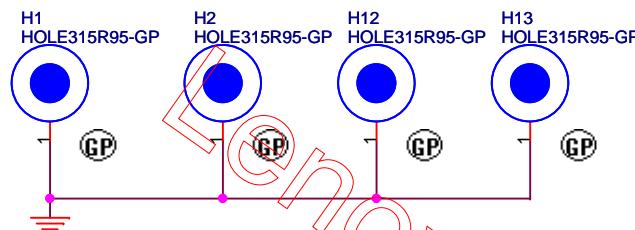


Core Design

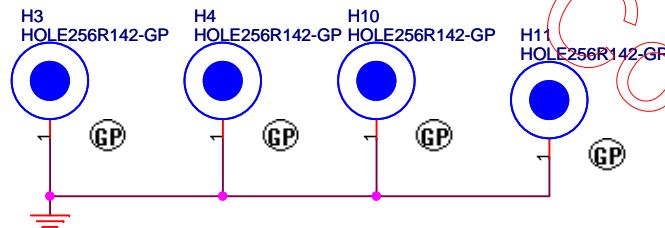
華創資通	Wistron Corporation	
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsin Chu, Taipei Hsin 221, Taiwan, R.O.C.		
Title	LOAD SW WWAN & WLAN	
Size	Document Number	Rev
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Date: Friday, March 09, 2012	Sheet 96 of 101	

Review

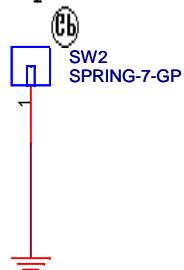
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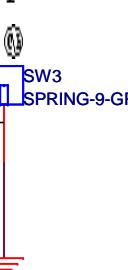
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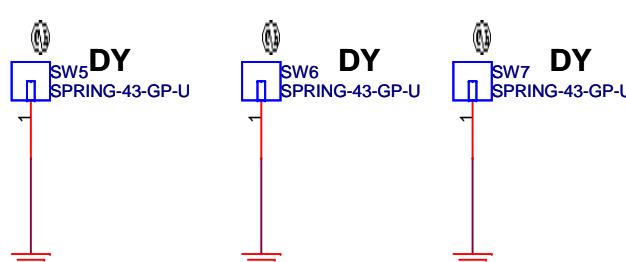
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GND pad for docking connector



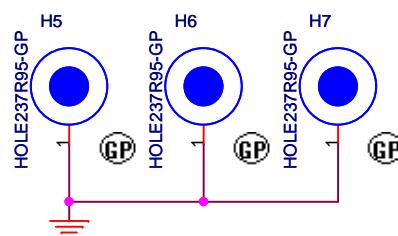
34.49U23.001  
GND pad for docking connector



34.15J03.001  
spring for RF (SW5~SW7)



ZZ.00PAD.921

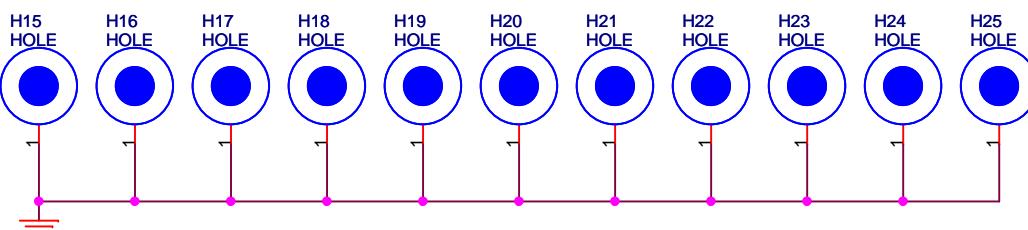


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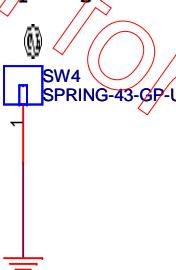
H14

HTSSX105B85R26-S-GP

ZZ.0HOLE.XXX



34.15J03.001  
spring for EMI



&lt;Core Design&gt;

<b>Wistron Corporation</b> 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	
<b>HOLES/GND/PADS</b>	
Size A4	Document Number
Dasher-2	
Rev -1	
Date: Tuesday, February 21, 2012	Sheet 97 of 101

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Taipei Hsien 221, Taiwan, R.O.C.

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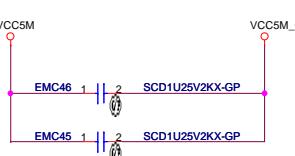
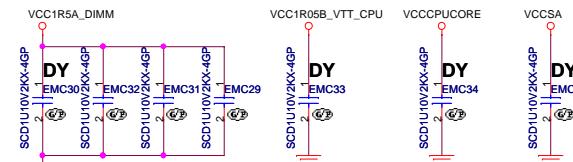
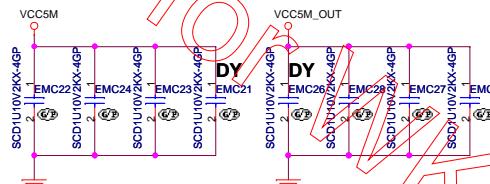
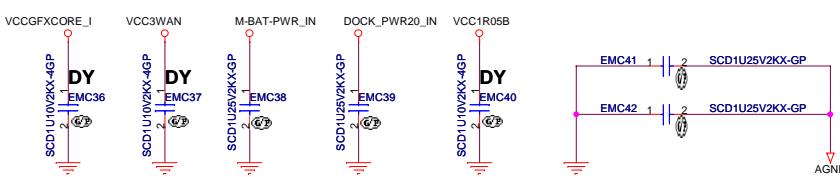
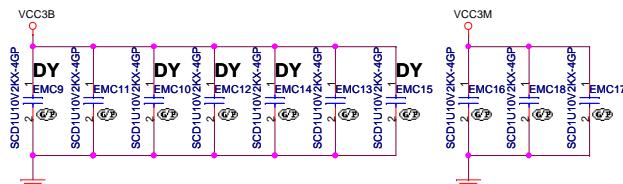
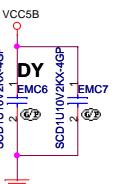
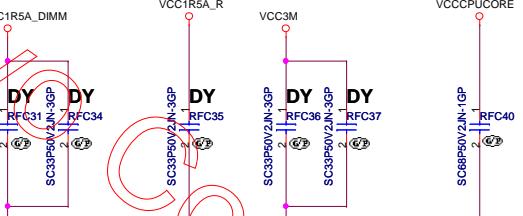
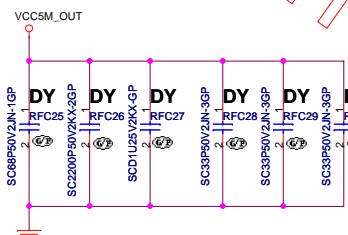
## **SELECT TABLE**

Dasher-2

Sheet 98

# RF decoupling caps

named as RFCxxx



	SV	ULV
Master IC	U48	VT1318M
# of Slave for CPU	2	1
Slave for CPU	U47	VT1324S
U49	VT1324S	no stuff
Inductor for CPU	L28 L14	BPW10040 no stuff
MPCH0730LR12		
# of slave for GPU		1
Slave for GPU	U50	VT1324S
Inductor for GPU	L29	MPCH0730LR12

	SV	ULV
R_SEL[0]	pin 38	R1574 715 0.5% 280 1.0%
R_SEL[1]	pin 37	R1575 887 0.5% 825 0.5%
R_SEL[2]	pin 36	R1576 0 5.0% 0 5.0%
R_SEL[3]	pin 35	R1577 196 0.5% 196 0.5%
R_SEL[4]	pin 44	R1571 825 0.5% 625 0.5%
R_SEL[5]	pin 32	R1579 475 1.0% 402 0.5%
R_SEL[6]	pin 48	R1567 21.5 1.0% 21.5 1.0%
R_REF	pin 34	R1578 20K 0.5% 20K 0.5%
ROSC	pin 39	R1572 75K 1.0% 61.9K 1.0%

	SV	ULV
C1090		4.7uF
R1589		10 1. 0%
C1089		0.1uF
C1082		0.22uF
C1083		1uF
C1080		1uF
C1084		10uF
C1079		10uF
C1081		10uF
C1085		10uF
L50		MPZ1608S300A
L51		MPZ1608S300A
C1078		2200pF

## Vcore Output

		SV	ULV
LL_R1_CPU	pin 15 - pin 16	R1599 10K 0.5% 10K 0.5%	
LL_R2_CPU	pin 16 - pin 17	R1600 20K 0.5% 7.5K 0.5%	
LL_R3_CPU	pin 16 - pin 17	R1601 787 1.0% 453 1.0%	
LL_C1_CPU	pin 15 - pin 16	C1086 56pF 33pF	
LL_C2_CPU	pin 16 - pin 17	C1087 22pF 22pF	
LL_RREAD_CPU	pin 15 - pin 16	R1595 30.1K 1.0% 15K 1.0%	
LL_CLEAD_CPU	pin 15 - pin 16	C1091 220pF 680pF	
LL_RLAG_CPU	pin 16 - pin 17	R1596 no stuff no stuff	
LL_CLAG_CPU	pin 16 - pin 17	R1592 no stuff no stuff	
RDES_CPU	pin 17 - pin 18	R1593 845 0.5% 487 0.5%	
RINT_CPU	pin 18 - pin 19	R1593 1.3K 1.0% 2.74K 1.0%	
CINT_CPU	pin 18 - pin 19	C1088 4700pF 3300pF	
RPH11	IPH1_1 - pin 18	R1598 495 1.0% 750 1.0%	
RPH12	IPH1_2 - pin 18	R1594 495 1.0% no stuff 1.0%	
IPHF11_R	pin 11	R1582 1.96K 1.0% 1.96K 1.0%	
IPHF11_C	pin 11	R1586 10pF no stuff 1.0%	
IPHF12_R	pin 10	R1581 1.96K 1.0% no stuff 1.0%	
IPHF12_C	pin 10	C1075 10pF no stuff 1.0%	
R_MRAMP1	pin 12	R1584 15.8K 1.0% 13K 1.0%	
R_MRAMP1_BU	pin 12	R1587 60.4K 1.0% 43.2K 1.0%	
R_PWM2	Pin 6	R4 no stuff 0 5.0%	
LL_R1_GPU	pin 24 - pin 23	R1609 10K 0.5% 10K 0.5%	
LL_R2_GPU	pin 23 - pin 22	R1610 7.5K 0.5% 7.87K 0.5%	
LL_R3_GPU	pin 23 - pin 22	R1611 237 1.0% 0 5.0%	
LL_C1_GPU	pin 24 - pin 23	C1094 22pF 22pF	
LL_C2_GPU	pin 23 - pin 22	C1095 22pF 22pF	
LL_RREAD_GPU	pin 24 - pin 23	R1606 30K 1.0% 30K 1.0%	
LL_CLEAD_GPU	pin 24 - pin 23	C1097 1200pF 1000pF	
LL_RLAG_GPU	pin 23 - pin 22	R1607 no stuff no stuff	
LL_CLAG_GPU	pin 23 - pin 22	C1098 no stuff no stuff	
RDES_GPU	pin 22 - pin 21	R1604 665 0.5% 665 0.5%	
RINT_GPU	pin 21 - pin 20	R1605 3.24K 1.0% 3.24K 1.0%	
CINT_GPU	pin 21 - pin 20	C1096 10nF 10nF	
RPH21	IPH2_1 - pin 21	R1608 1K 1.0% 1K 1.0%	
IPHF21_R	pin 28	R1580 1.96K 1.0% 1.96K 1.0%	
IPHF21_C	pin 28	C1077 no stuff 1.0%	
R_MRAMP2	pin 27	R1586 15.4K 1.0% 15.4K 1.0%	
R_MRAMP2_BU	pin 27	R1590 56.2K 1.0% 56.2K 1.0%	

	SV	ULV
C687	22uF	0805 22uF 0805
C669	22uF	0603 22uF 0603
C671	22uF	0603 22uF 0603
C673	4.7uF	0603 22uF 0603
C675	22uF	0603 22uF 0603
C676	22uF	0603 22uF 0603
C677	22uF	0603 22uF 0603
C695	4.7uF	0603 22uF 0603
C691	4.7uF	0603 22uF 0603
C682	4.7uF	0603 22uF 0603
C683	22uF	0603 22uF 0603
C750	22uF	0603 22uF 0603
C686	22uF	0603 22uF 0603
C691	22uF	0603 22uF 0603
C670	22uF	0603 22uF 0603
C694	22uF	0603 22uF 0603
C698	4.7uF	0603 22uF 0603
C1112	22uF	0603 22uF 0603
C1113	22uF	0603 22uF 0603
C672	22uF	0603 22uF 0603
C1157	22uF	0603 22uF 0603
C674	22uF	0603 22uF 0603
C1160	22uF	0603 22uF 0603
C689	22uF	0603 22uF 0603
C1167	22uF	0603 22uF 0603
C680	22uF	0603 22uF 0603
C679	4.7uF	0603 10uF 0603
C677	4.7uF	0603 10uF 0603
C1156	4.7uF	0603 10uF 0603
C684	10uF	0603 10uF 0603
C693	4.7uF	0603 10uF 0603
C1159	10uF	0603 10uF 0603
C692	10uF	0603 10uF 0603
C1158	4.7uF	0603 10uF 0603
C1161	4.7uF	0603 10uF 0603
C690	N/A	0603 N/A 0603
C1109	N/A	0603 N/A 0603
C1110	N/A	0603 N/A 0603
C1111	N/A	0603 N/A 0603
C1163	N/A	0603 N/A 0603
C1164	22uF	0603 N/A 0603
C1165	N/A	0603 N/A 0603
C1166	22uF	0603 N/A 0603
C1168	N/A	0603 N/A 0603
C1169	22uF	0603 N/A 0603
C444	2.2uF	0402 2.2uF 0402
C445	2.2uF	0402 2.2uF 0402
C446	2.2uF	0402 2.2uF 0402
C447	2.2uF	0402 2.2uF 0402
C448	2.2uF	0402 2.2uF 0402
C449	2.2uF	0402 2.2uF 0402
C450	2.2uF	0402 N/A 0402
C451	2.2uF	0402 2.2uF 0402
C452	2.2uF	0402 2.2uF 0402
C453	2.2uF	0402 2.2uF 0402

Lenovo

Config	Capability											
	1	2	3	4	5	6	7	8	9	10	11	12
AOAC	Yes	Yes	Yes	Yes	No	No	No	Yes	No	Yes	No	
Anti-Theft	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No
External EEPROM	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes
Duplicity	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
U66	ASM	ASM	DY	DY	DY	DY	DY	ASM	ASM	DY	DY	
U67	ASM	ASM	DY	DY	DY	DY	DY	ASM	ASM	DY	DY	
C864	ASM	ASM	DY	DY	DY	DY	DY	ASM	ASM	DY	DY	
R978	ASM	ASM	DY	DY	DY	DY	DY	ASM	ASM	DY	DY	
R929	ASM	ASM	DY	DY	DY	DY	DY	ASM	ASM	DY	DY	
R901	ASM	ASM	DY	DY	DY	DY	DY	ASM	ASM	DY	DY	
R930	ASM	ASM	DY	DY	DY	DY	DY	ASM	ASM	DY	DY	
R1462	ASM	ASM	DY	DY	DY	DY	DY	ASM	ASM	DY	DY	
Q14	ASM	DY	DY	DY	DY	DY	DY	ASM	ASM	DY	DY	
Q48	ASM	DY	ASM	DY	ASM	DY	ASM	DY	ASM	ASM	ASM	ASM
R624	ASM	DY	ASM	DY	ASM	DY	ASM	DY	ASM	ASM	ASM	ASM
R536	DY	DY	DY	DY	ASM	ASM	DY	DY	DY	DY	DY	DY
R539	DY	DY	DY	DY	ASM	ASM	DY	DY	DY	DY	DY	DY
U42	ASM	DY	ASM	DY	ASM	DY	ASM	DY	ASM	ASM	ASM	ASM
Q47	ASM	DY	ASM	DY	ASM	DY	ASM	DY	ASM	ASM	ASM	ASM
R617	ASM	DY	ASM	DY	ASM	DY	ASM	DY	ASM	ASM	ASM	ASM
C524	ASM	DY	ASM	DY	ASM	DY	ASM	DY	ASM	ASM	ASM	ASM
D111	DY	DY	DY	DY	DY	DY	DY	ASM	ASM	DY	DY	
R1463	DY	DY	DY	DY	DY	DY	DY	ASM	ASM	ASM	ASM	
R1464	DY	DY	DY	DY	DY	DY	DY	ASM	ASM	ASM	ASM	
U83	DY	DY	DY	DY	DY	DY	DY	ASM	ASM	ASM	ASM	
U84	DY	DY	DY	DY	DY	DY	DY	ASM	ASM	ASM	ASM	
C1020	DY	DY	DY	DY	DY	DY	DY	ASM	ASM	ASM	ASM	
R1466	DY	DY	DY	DY	DY	DY	DY	ASM	ASM	ASM	ASM	
R1468	DY	DY	DY	DY	DY	DY	DY	ASM	ASM	ASM	ASM	

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Duplicity	Y	Y	N	N
Battery Authentication	Y	N	Y	N
--> External EEPROM	Y Y Y N			

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