Mocha-3 Block Diagram

08270-2 SOVP

January 27th 2010

Clock Generator CK-LNV09 15

UNBUFFERED DDR3 SODIMM Reverse Socket 12

Channel A DDR3 1067/800

204-PIN DDR3 SODIMM

UNBUFFERED DDR3 SODIMM Reverse Socket 13

Channel B DDR3 1067/800

Intel Arrandale

DDR3 1067/800MHz

INTEGRATED GRAHPICS

3,4,5,6,7,8,9,10

Thermal Sensor MAX6501 11

XDP Conn. 14

Keyboard Light

LVDS 12.1" WXGA LCD 24

RGB CRT CRT SELECTION 25 CRT Port 26

Display Port AC Coupling 27 Media Slice 39

Thermal Sensor MAX6593 11

I2C Bus / SM Bus Bus Switch IC 46

SMBus

DMI x4 FDI

SATA HDD SATA CONN 37 Serial ATA I/F Port0

Media Slice 39 Serial ATA I/F Port1

Intel PCH IBEX PEAK

LVDS
CRT
Display Port
USB 2.0 (14 ports)
LAN Connect I/F (LCI)
Serial ATA 300MB/s
AC97 2.3/Azalia Interface
ACPI 2.0
LPC I/F
PCI Rev 2.3
PCI Express
INT. RTC

16,17,18,19,20,21,22,23

USB 2.0 CH5 Express Card Solt 33 Braidwood ONFI Connector 34

USB 2.0 CH13 Camera (LCD Conn) 24

PCI Express USB 2.0 CH4 Mini PCI-E UWB 32

PCI Express USB 2.0 CH3 Mini PCI-E WWAN Card 31

PCI Express USB 2.0 CH2 Mini PCI-E WLAN Card 31

Media Slice 39 RJ45 Conn 30

PCI Express Intel GLAN HANKSVILLE 28 GBE Switch PI3L500AZFEX 29

3-in-1 Slot Media Card Reader USB 2.0 CH0

USB 3 USB2.0 CH1

IOSUB Card Conn. 38 USB2.0 CH0,1 Azalia bus

RJ 11 Conn Audio Codec

IOSUB Card

Finger Print 35 CH10

Bluetooth (LCD Conn) 24 CH11 USB 2.0

USB 1 35

USB 2 35 CH8,9 CH12

SPI

SPI-FLASH 36

G-Sensor 48

Touch Pad 43

KBC 2112VBG25HV 40,41

Int. KB Track point IV 42

Thinker-1 G/A 44

SUPER I/O WINBOND WPCN385 45

LPC Debug Board Conn 36

TCPA ST19NP18-TPM-A 46

LPC Bus / 33MHz

SATA Port 1 I/F

USB Hub SMSC USB2514

HP OUT MIC IN

Stereo Speaker x 2

UltraSlimBay HDD, Optical Drives,

USB x 4

Media Slice

Display Port CRT RJ45

DC-IN

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

Battery Charger/Selector BQ24741 50

INPUTS	OUTPUTS
DOCK_PWR20_F	M-BAT-PWR

System DC/DC TPS51222 55

VINT20	VCC5M VCC3M

CPU DC/DC ADP3212 56

VINT20	VCCCPUCORE

GMCH GFX CORE ADP3211 58

VINT20	VCCGFXCORE

VCC1R5A VT356FCX 59

VCC5V_OUT	VCC1R5A

VCC0R75B MAX1510 60

VCC1R5A	VCC0R75B

VCC1R8B BD3551HFN 61

VCC3M	VCC1R8B

VCC1R05LAN VT356FCX 62

VCC5V_OUT	VCC1R05LAN

VCC1R05B_VTT VT357FCX 63

VCC5V_OUT	VCC1R05B_VTT

<Core Design>

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

Title: Block Diagram

Size: A3 | Document Number: Mocha-3 | Rev: -2

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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 Ceremic, 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	37	36	Planar ID Version	Planar PCB Version
PLANAR_IDn	3	2	1	0		
	0	0	0	0	Mocha-3 Pre-DV	SA
	0	0	0	1	Mocha-3 DV	SB
	0	0	1	0	Mocha-3 FVT	SC
	0	0	1	1	Mocha-3 SIV	SD
	0	1	0	0	Mocha-3 SIT	SE
	0	1	0	1	Mocha-3 SVT	-1
	0	1	1	0		-2
	0	1	1	1		

EC HISTORY

Stage	Date	EC No.	Page	Note

PCI TABLE

DEVICE	IDSEL	IRQ (Default)	REQ# / GNT#
USB UHCI	AD29	A, C, D	
USB 2.0 EHCI	AD29	H	
DMI-to-PCI/ AC97 Modem/ AC97 Audio	AD30	B B	
LPC Bridge IDE SATA SMBus	AD31	C C B	
PCI Express	AD28	A, B, C, D	

<Core Design>

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

Title: Reference

Size: A3 | Document Number: Mocha-3 | Rev: -2

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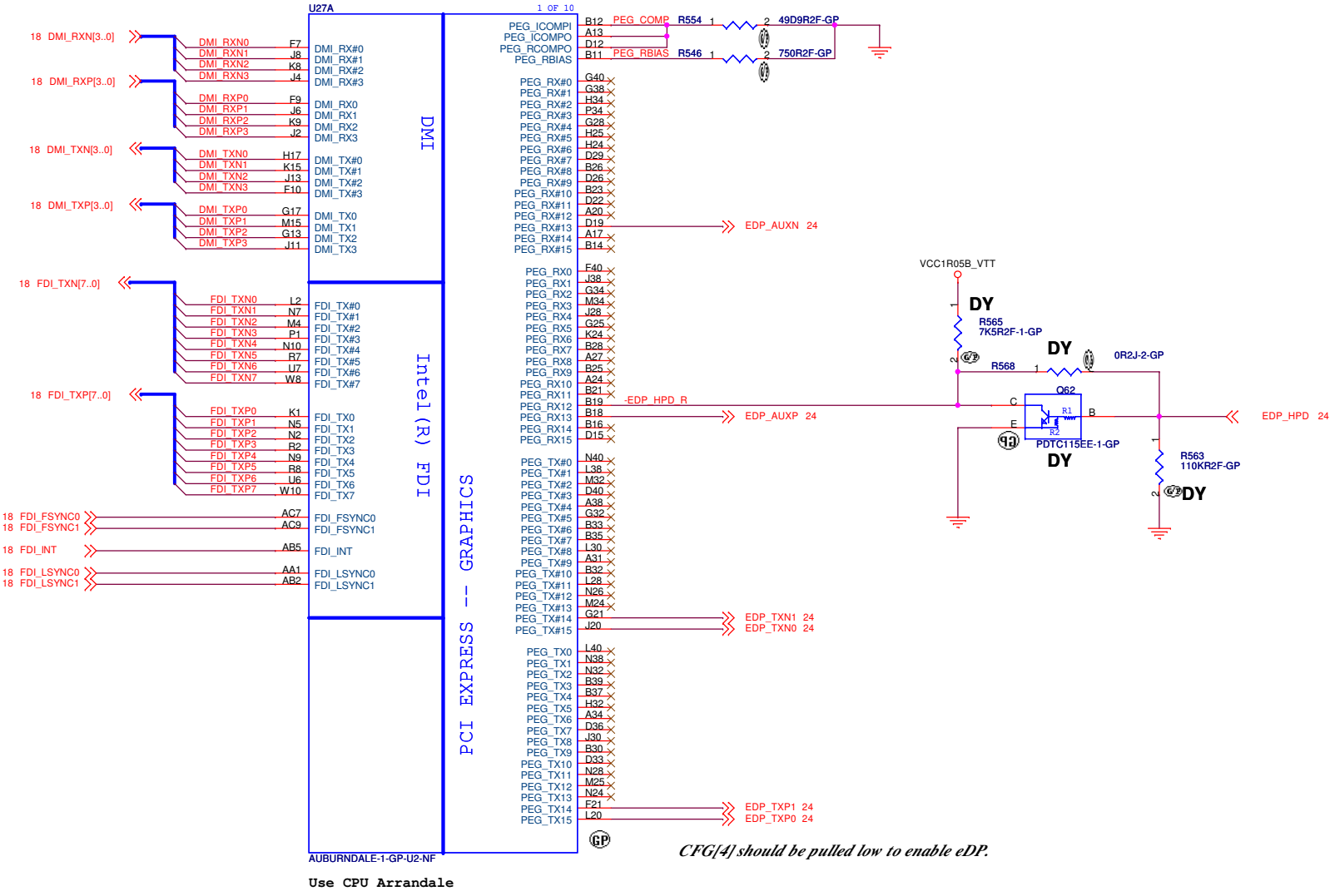

<Core Design>

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

Title: Arrandale CPU(1/8): DMI /PEG/FDI

Size: A3 | Document Number: Mocha-3 | Rev: -2

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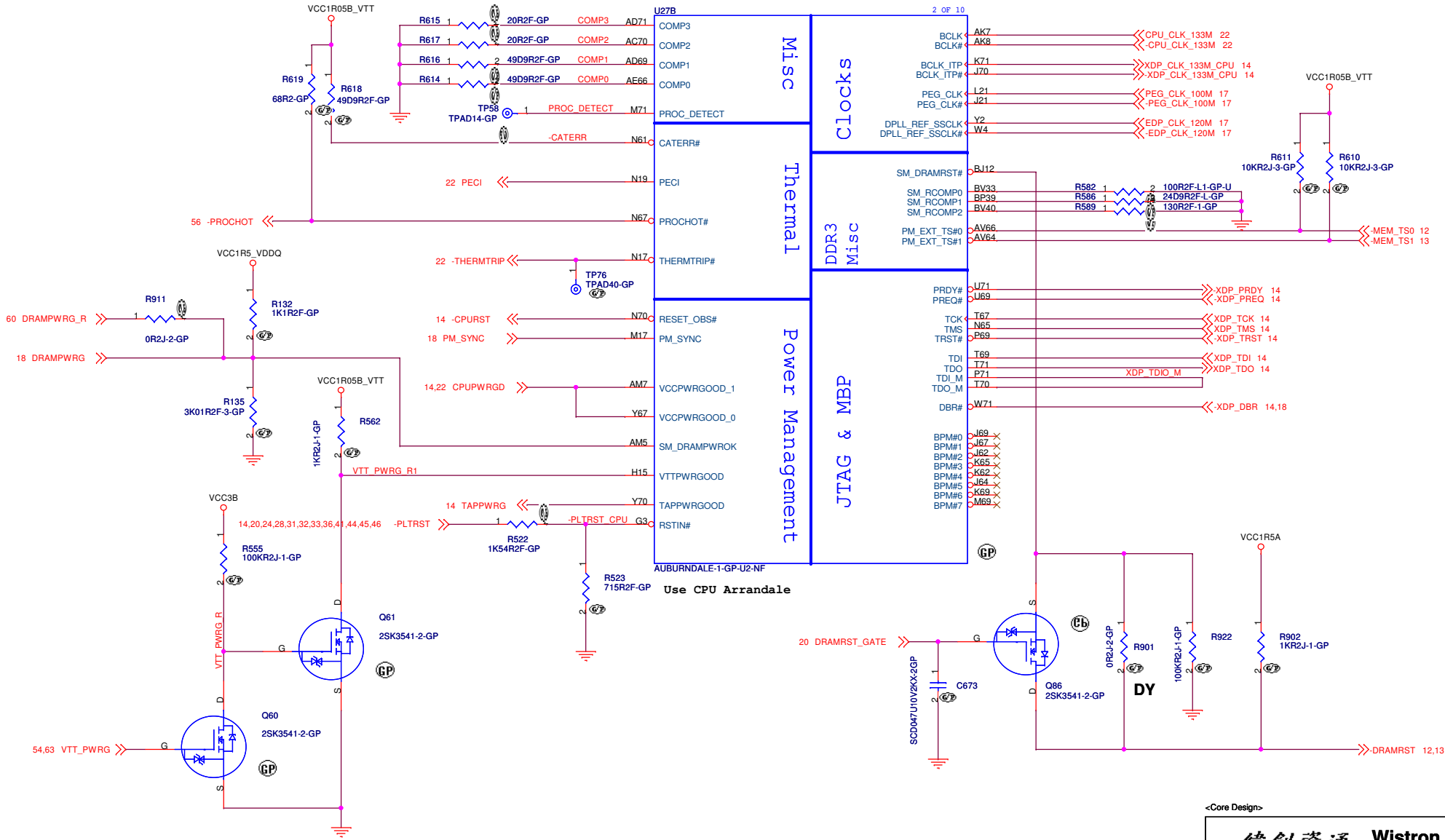
COMP0/1/2/3 : TRACE Length <0.5"

COMP0/1/2/3 : 10mil width traces, 20mil spacing



<Core Design>

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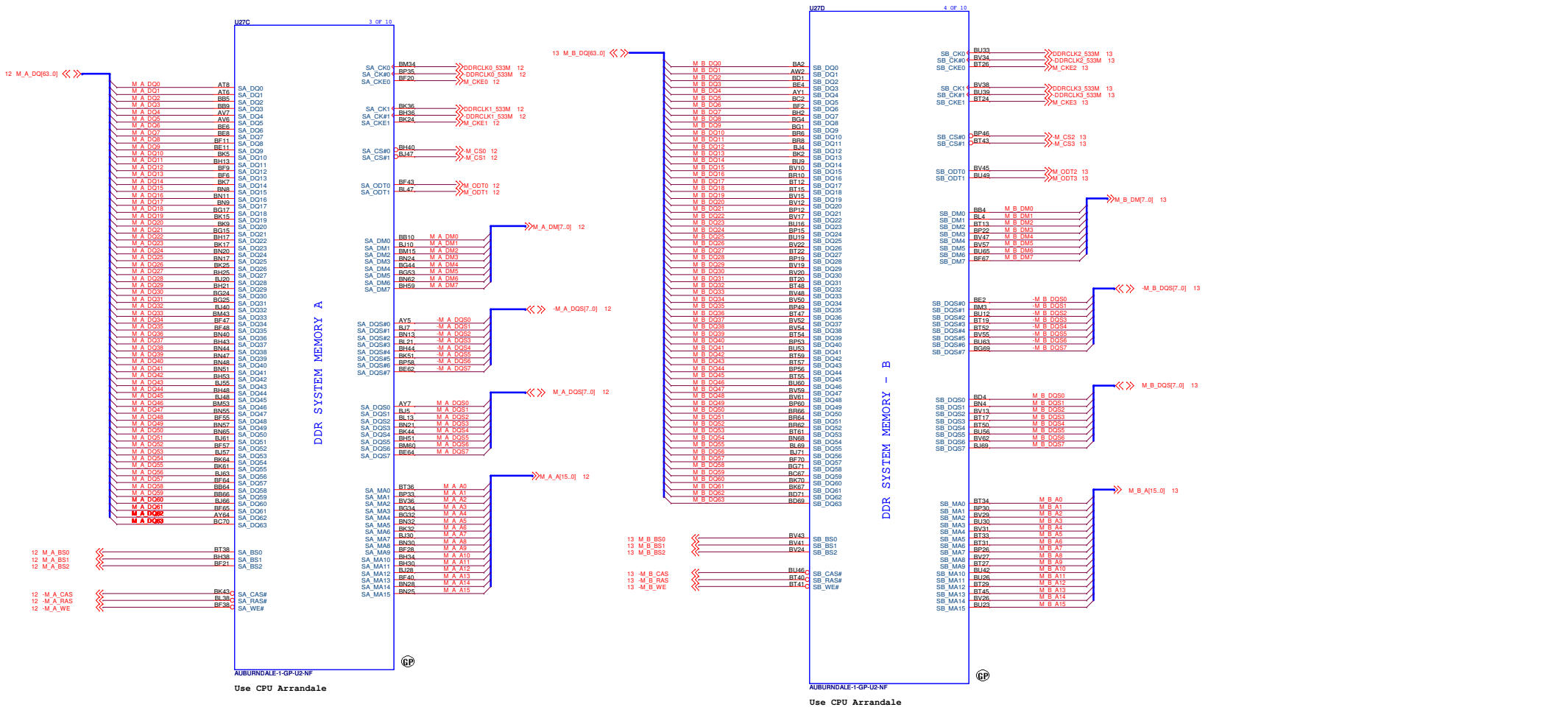
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title	Arrandale CPU(2/8):CLK/MISC/JTAG	
Size A3	Document Number Mocha-3	Rev -2
Date: Wednesday, January 27, 2010	Sheet 4 of 70	



<Core Design>

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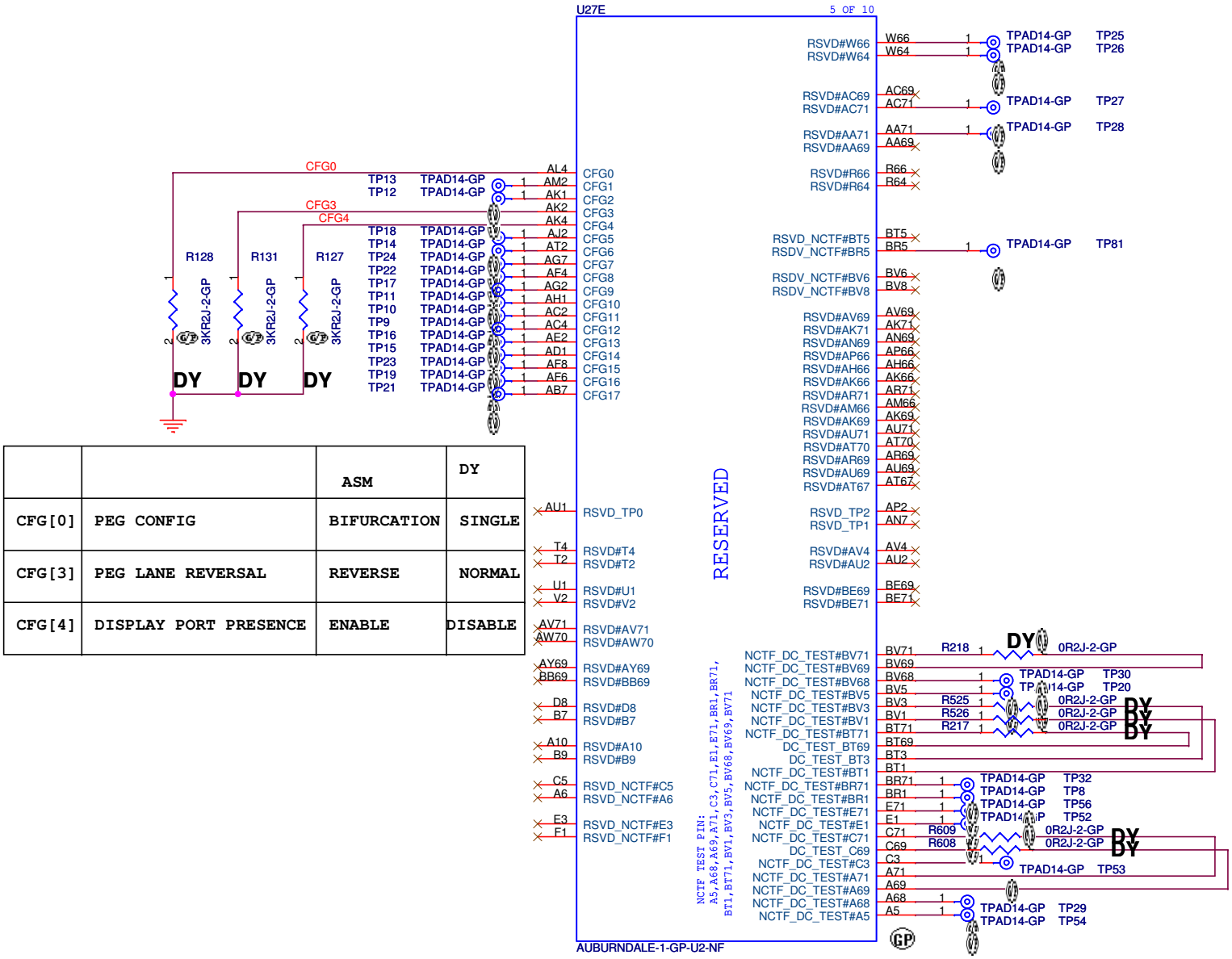
Taipei Hsien 221, Taiwan, R.O.C.

Title: Arrandale CPU(3/8):DDR3 CH-A/CH-B

Size	Document Number	Rev
A2	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 5 of 70



		ASM	DY
CFG[0]	PEG CONFIG	BIFURCATION	SINGLE
CFG[3]	PEG LANE REVERSAL	REVERSE	NORMAL
CFG[4]	DISPLAY PORT PRESENCE	ENABLE	DISABLE

Use CPU Arrandale

<Core Design>

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Title: Arrandale CPU(4/8):CFG/RSVD

Size: Custom | Document Number: Mocha-3 | Rev: -2

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Power On strap value is VID[6:0] = "LHLLHHH" =1.0125 V

IMAX	VID<5..3>
DISABLE	000
20A	001
30A	010
40A	011
50A	100
60A	101
70A	110
90A	111

Current Sense Configuration

(CSC<2..0>)

CPU	VID<5..3>
SV	100
LV	011
ULV	010

R155,R154 should be placed clost to CPU side

Max 0.6A

Use CPU Arrandale

<Core Design>

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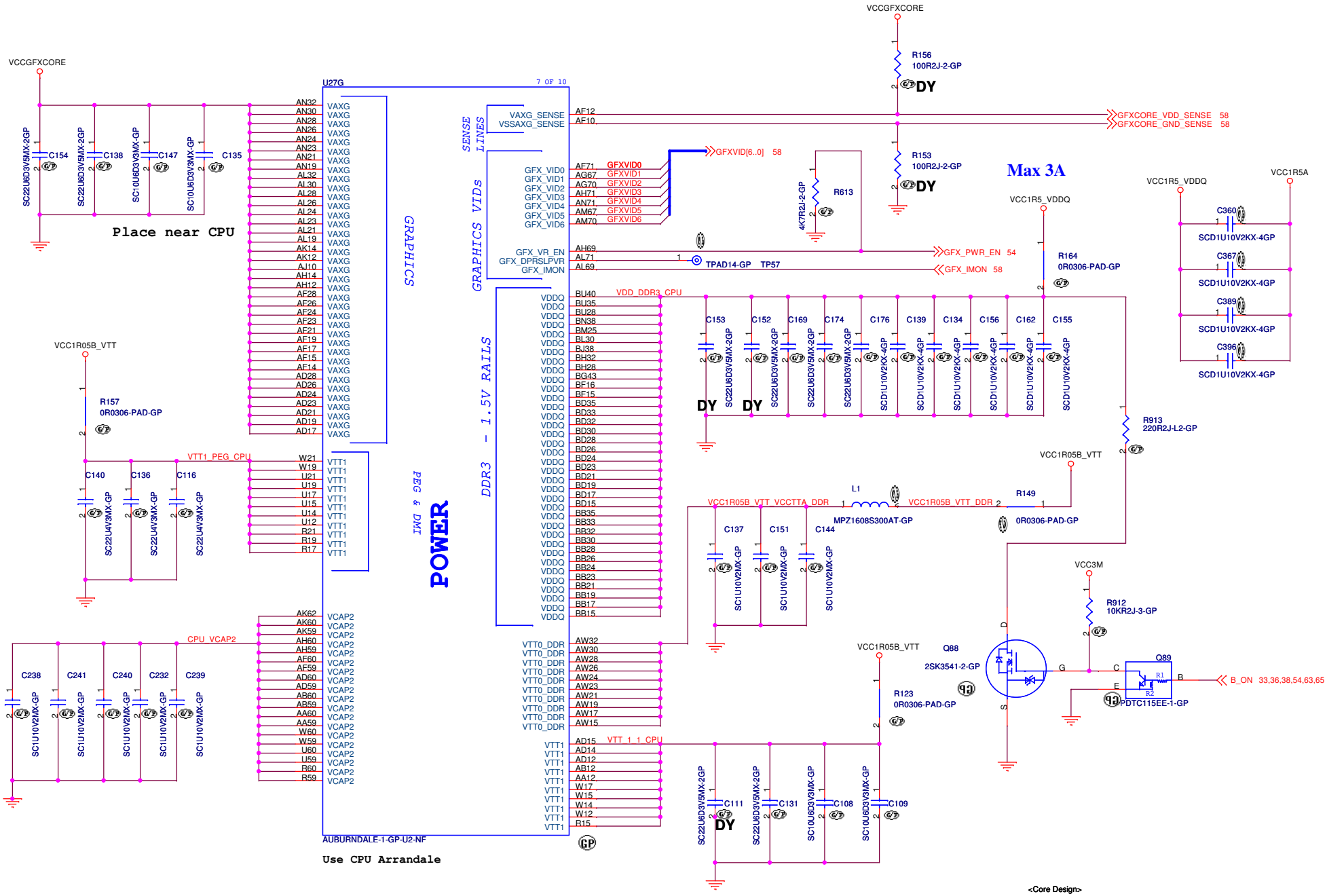
Title: Arrandale CPU(5/8):Power

Size: A3 | Document Number: Mocha-3 | Rev: -2

Date: Wednesday, January 27, 2010 | Sheet 7 of 70



<Core Design>

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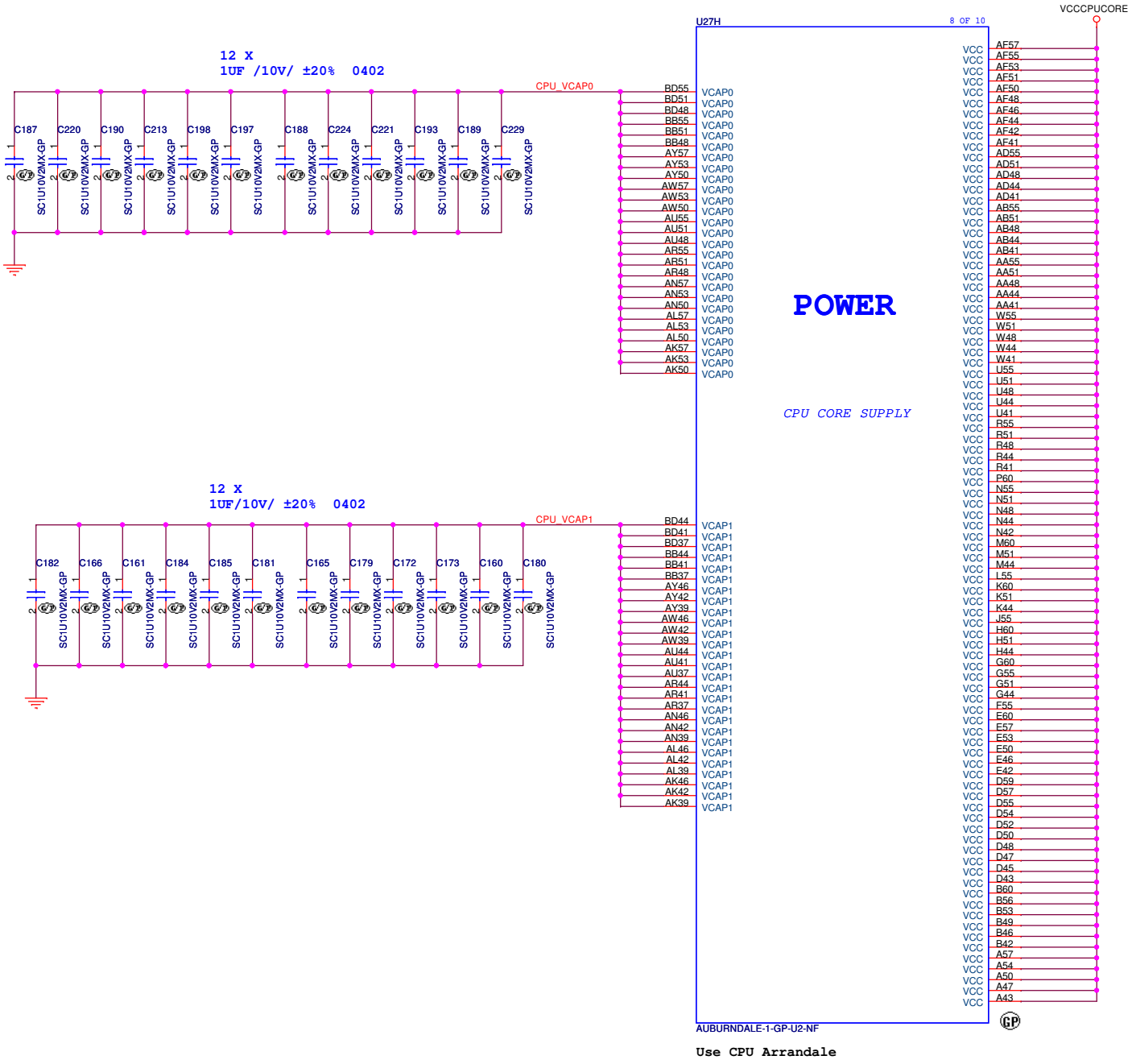
Title	Arrandale CPU(6/8):GFX/PWR	
Size A3	Document Number Mocha-3	Rev -2
Date: Wednesday, January 27, 2010	Sheet 8 of 70	



<Core Design>

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Title: Arrandale CPU(7/8): VCC&VCAP

Size	Document Number	Rev
A3	Mocha-3	-2

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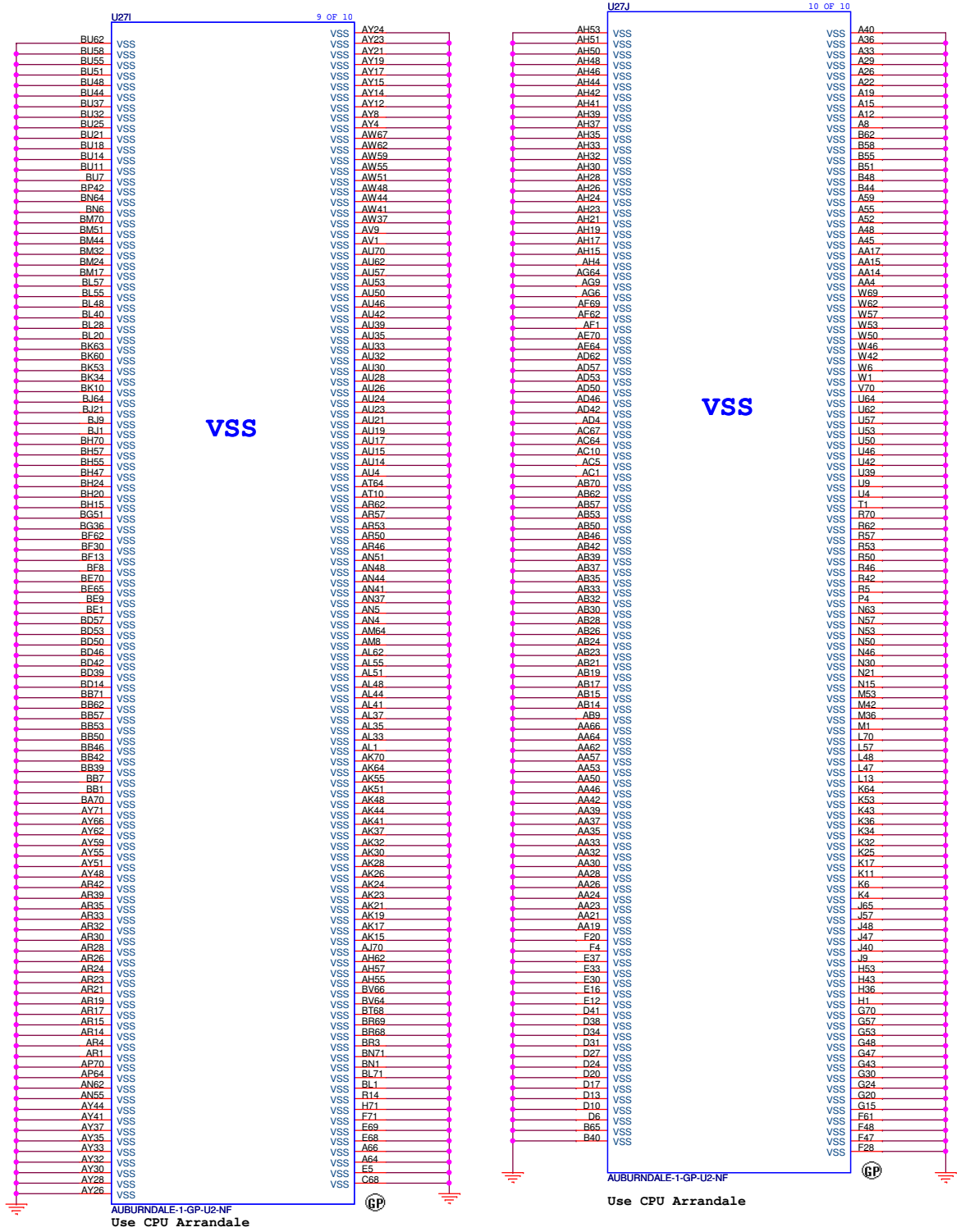
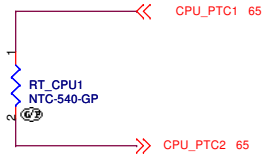
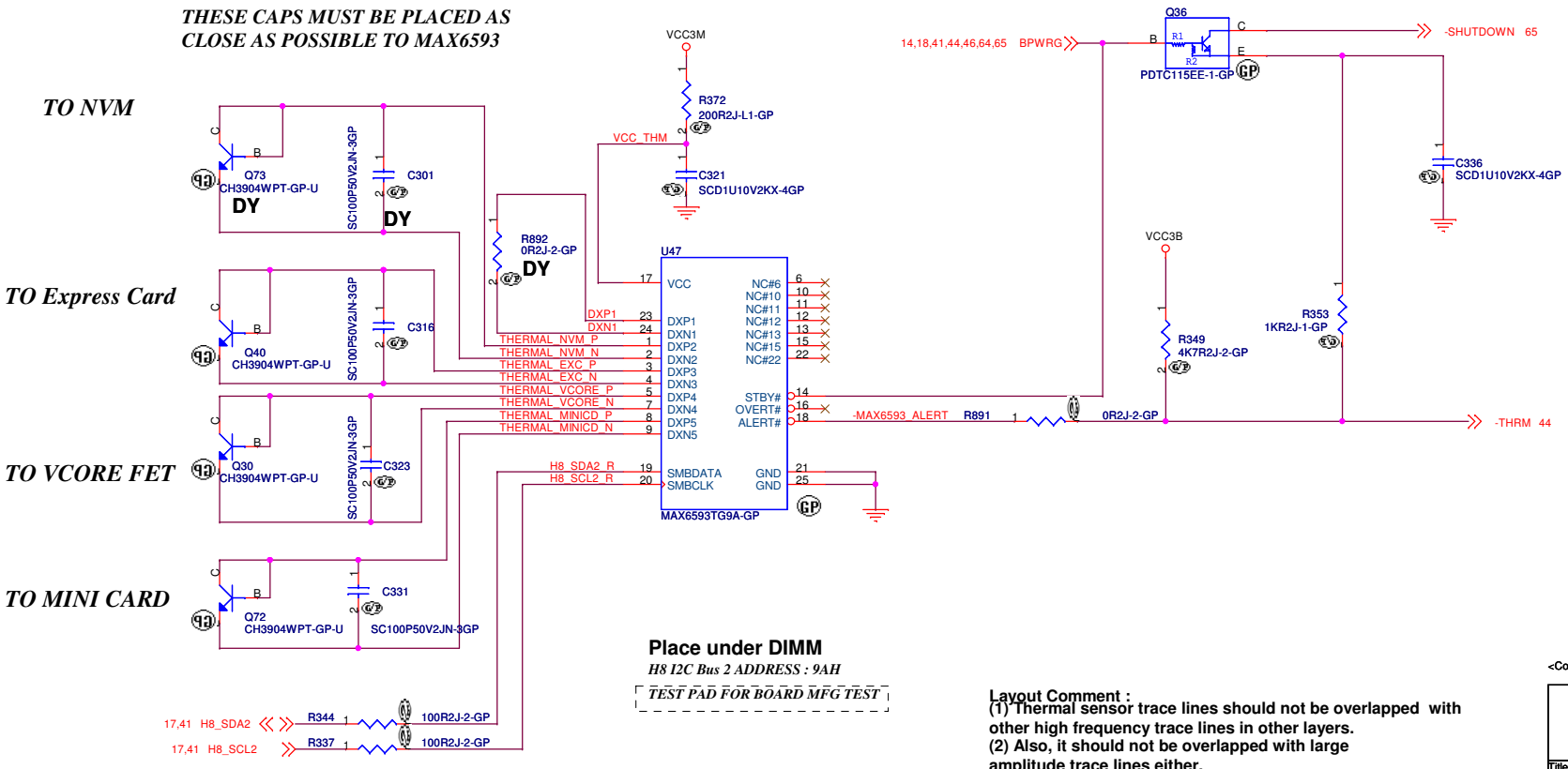


<Core Design>

緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	**Arrandale CPU(8/8): GND**	
Size: Custom	Document Number: **Mocha-3**	Rev: **-2**
Date: Wednesday, January 27, 2010	Sheet 10 of 70	



It should be arranged near CPU instead of CPU thermal sensor



Layout Comment :
(1) Thermal sensor trace lines should not be overlapped with other high frequency trace lines in other layers.
(2) Also, it should not be overlapped with large amplitude trace lines either.

<Core Design>

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Title: **THERMAL SENSOR**

Size	Document Number	Rev
A3	Mocha-3	-2

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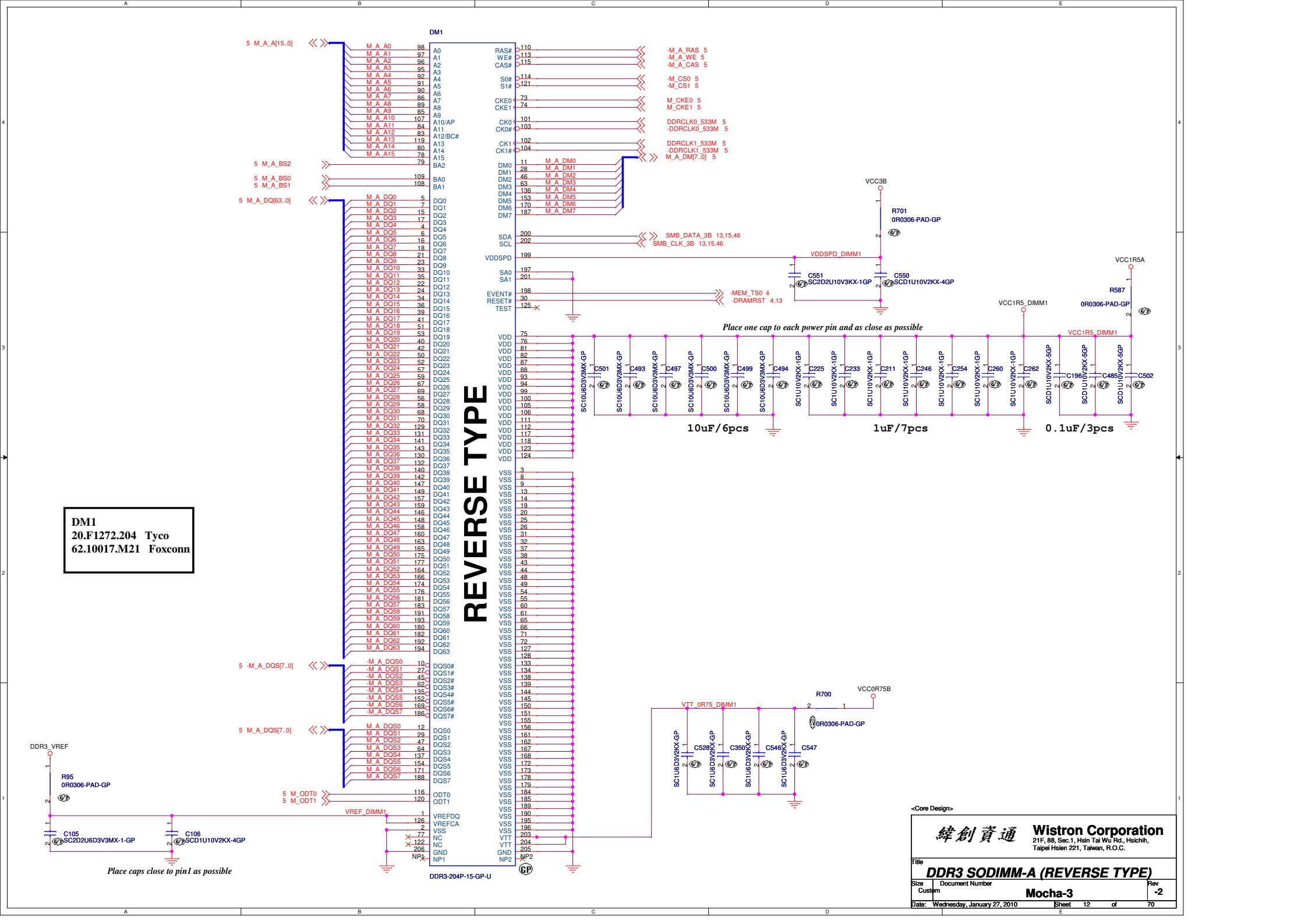
DM1
REVERSE TYPE
DDR3-204P-15-GP-U
DM1
20.F1272.204 Tyco
62.10017.M21 Foxconn
Place caps close to pin1 as possible
Place one cap to each power pin and as close as possible
10uF/6pcs
1uF/7pcs
0.1uF/3pcs
DDR3_VREF
R95
0R0306-PAD-GP
C105
SC2D2U6D3V3MX-1-GP
C106
SCD1U10V2KX-4GP
VREF_DIMM1
VCC3B
R701
0R0306-PAD-GP
VDDSPD_DIMM1
C551
SC2D2U10V3KX-1GP
C550
SCD1U10V2KX-4GP
VCC1R5A
R587
0R0306-PAD-GP
VCC1R5_DIMM1
VCC0R75B
R700
0R0306-PAD-GP
VTT_0R75_DIMM1
<Core Design>
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
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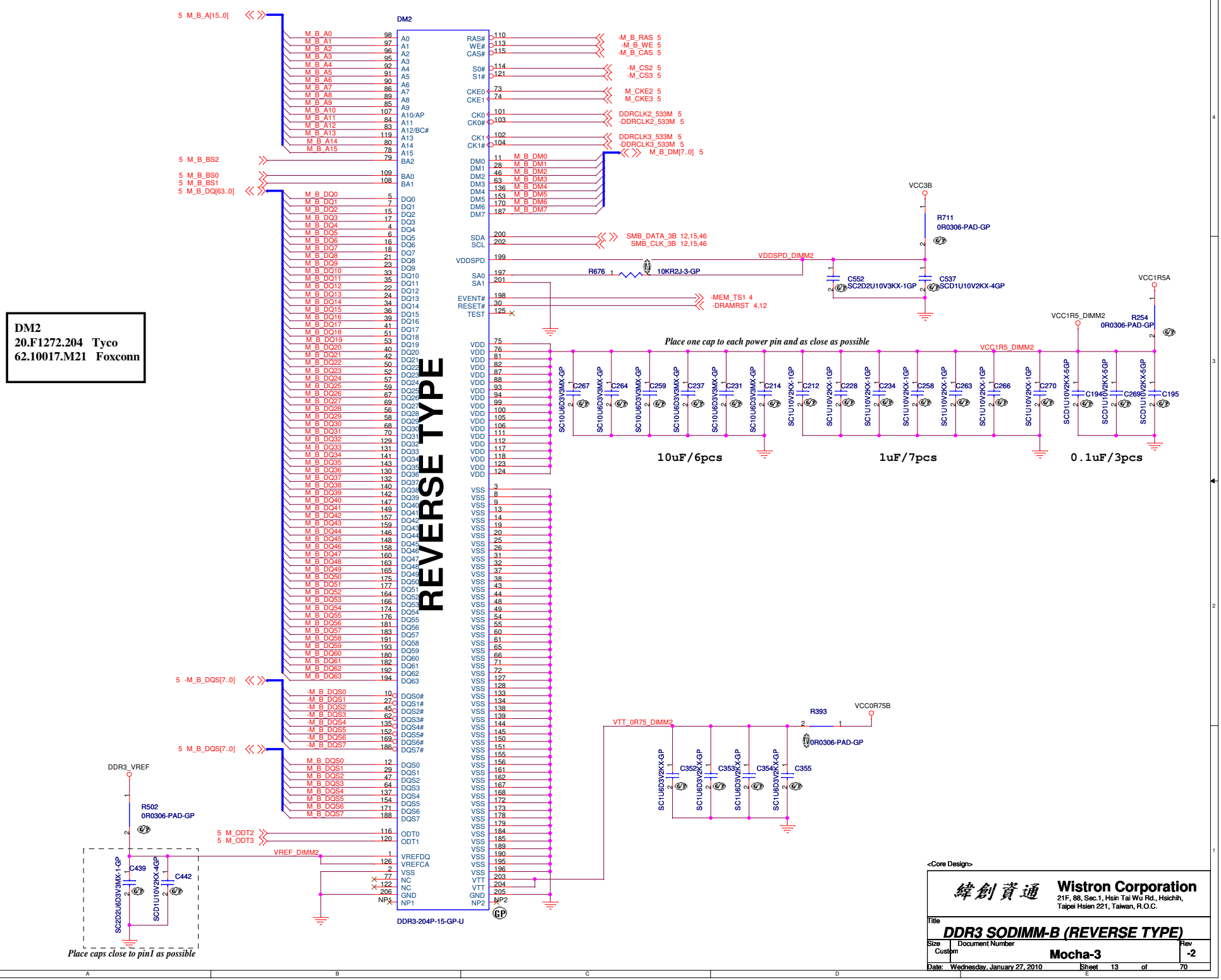
Title
DDR3 SODIMM-A (REVERSE TYPE)
Size
Custom
Document Number
Mocha-3
Rev
-2
Date: Wednesday, January 27, 2010
Sheet 12 of 70


DM2
20.F1272.204 Tyco
62.10017.M21 Foxconn
REVERSE TYPE
DDR3-204P-15-GP-U
Place one cap to each power pin and as close as possible
10uF/6pcs
1uF/7pcs
0.1uF/3pcs
Place caps close to pin1 as possible
VCC3B
VCC1R5A
VCC1R5_DIMM2
VDDSPD_DIMM2
VTT_0R75_DIMM2
VCC0R75B
DDR3_VREF
VREF_DIMM2
R711 0R0306-PAD-GP
R254 0R0306-PAD-GP
R393 0R0306-PAD-GP
R502 0R0306-PAD-GP
R676 10KR2J-3-GP
<Core Design>
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
DDR3 SODIMM-B (REVERSE TYPE)
Size Custom
Document Number Mocha-3
Rev -2
Date: Wednesday, January 27, 2010
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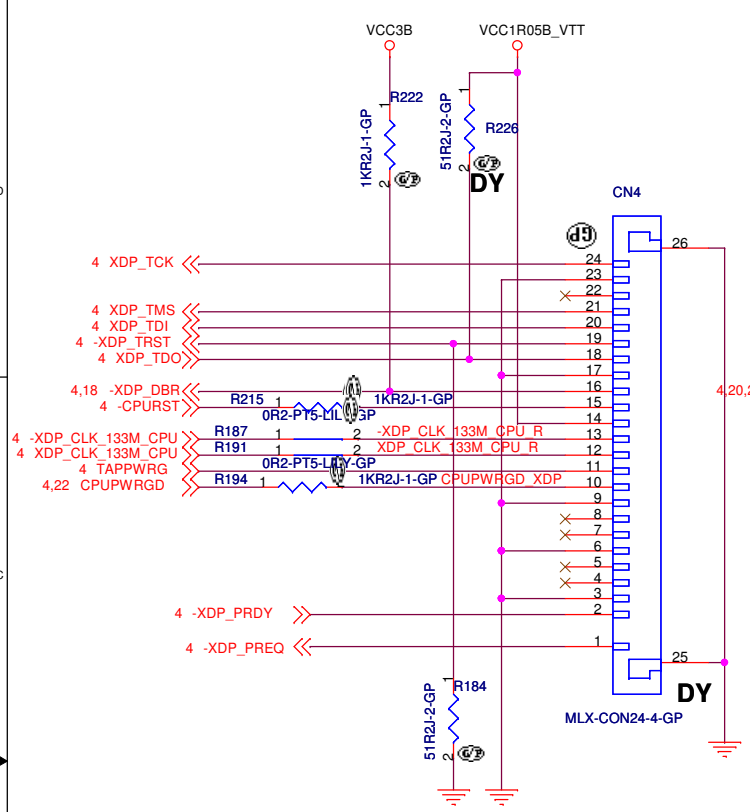
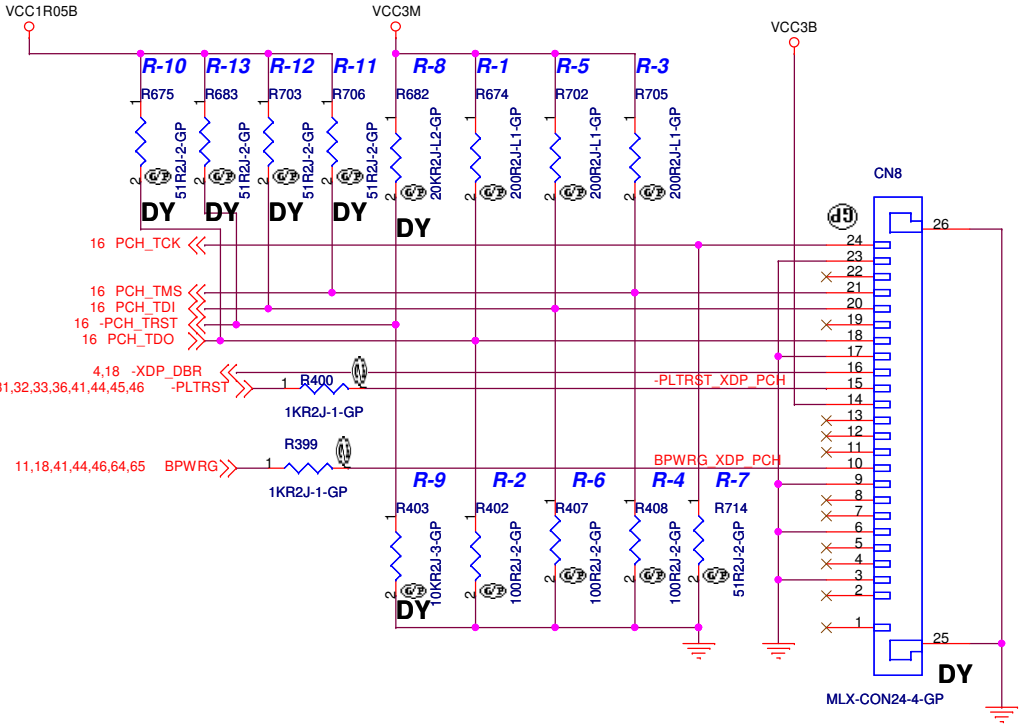


DEBUG Interface for Processor.



DEBUG Interface for PCH.

		PCH JTAG Enable		PCH JTAG Disable		Production	
PCH Pin		**ES1**	**ES2**	**ES1**	**ES2**	**Enable**	**Disable**
TDO	**R-1**	DY	200 Ohms	DY	DY	DY	DY
	R-2	DY	100 Ohms	DY	DY	DY	DY
	R-10	DY	DY	DY	DY	51 Ohms	DY
TMS	**R-3**	200 Ohms	200 Ohms	DY	DY	DY	DY
	R-4	100 Ohms	100 Ohms	DY	DY	DY	DY
	R-11	DY	DY	DY	DY	51 Ohms	DY
TDI	**R-5**	200 Ohms	200 Ohms	20K Ohms	DY	DY	DY
	R-6	100 Ohms	100 Ohms	10K Ohms	DY	DY	DY
	R-12	DY	DY	DY	DY	51 Ohms	DY
TCK	**R-7**	51 Ohms	51 Ohms	51 Ohms	51 Ohms	51 Ohms	51 Ohms
TRST#	**R-8**	20K Ohms	DY	DY	DY	DY	DY
	R-9	10K Ohms	DY	DY	DY	DY	DY
	R-13	DY	DY	DY	DY	DY	DY

<Core Design>

緯創資通 **Wistron Corporation**
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Title: ***XDP CONN***

Size: Custom | Document Number: **Mocha-3** | Rev: **-2**

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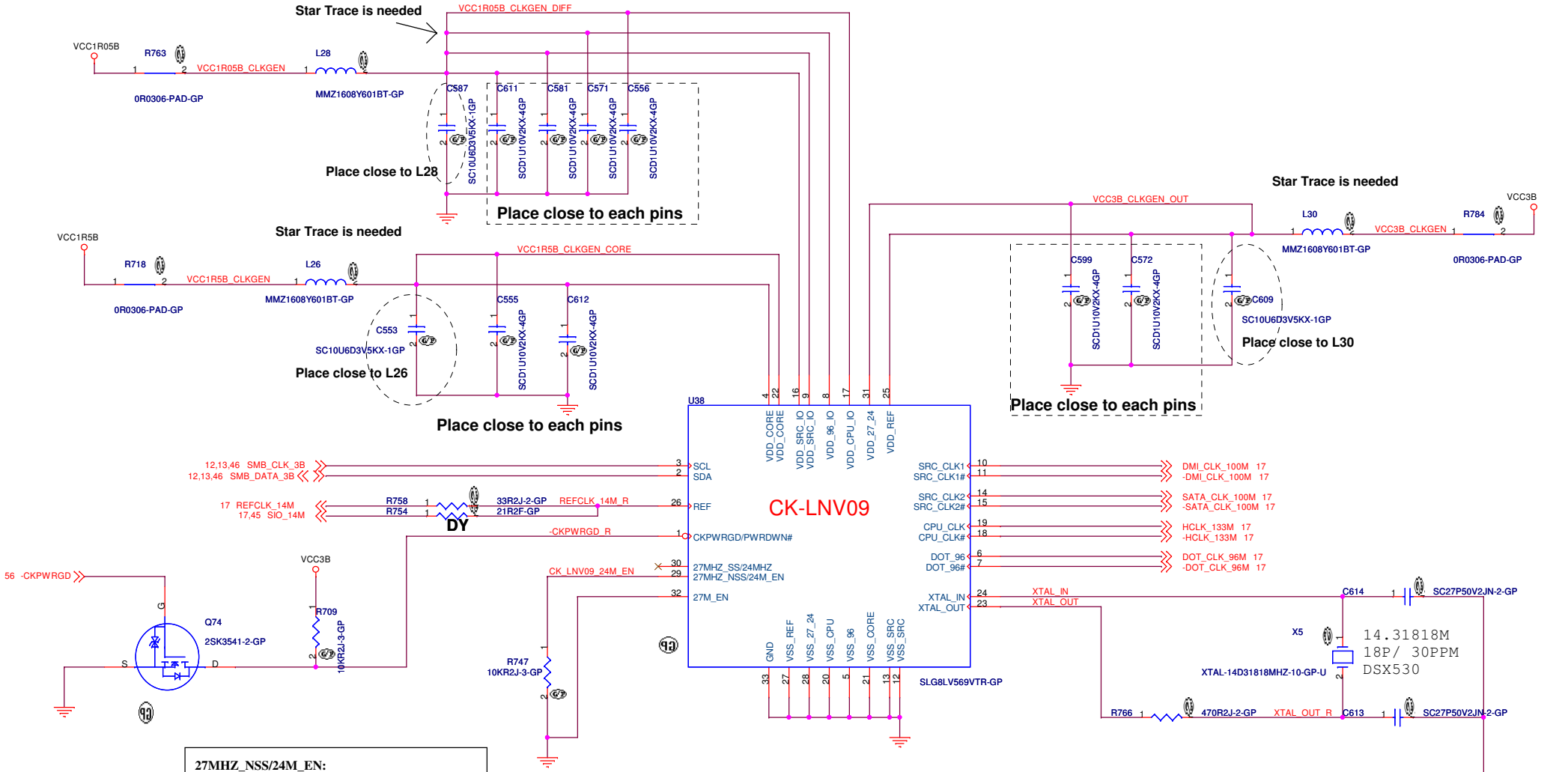

27MHZ_NSS/24M_EN:
1 = Enable 24.576MHz output;
0 = Disable 24.576MHz output;

27M_EN:
1 = Enable 27MHZ_NSS and 27MHZ_SS outputs ;
0 = Disable 27MHZ_NSS and 27MHZ_SS outputs ;

Source	Vendor P/N	Wistron P/N
KDS	1Y714318CE1F /DSX530	82.30005.B41

U38

Primary	Silego	SLG8LV569 Rev:WA	71.08569.A03
2nd	IDT	ICS9LVRS396BKLF	71.09396.A03
3th	Realtek	RTM890N-634 Rev:C	71.00890.A03

<Core Design>

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

Title: ***CLOCK GEN(CK-LNV09)***

Size	Document Number	Rev
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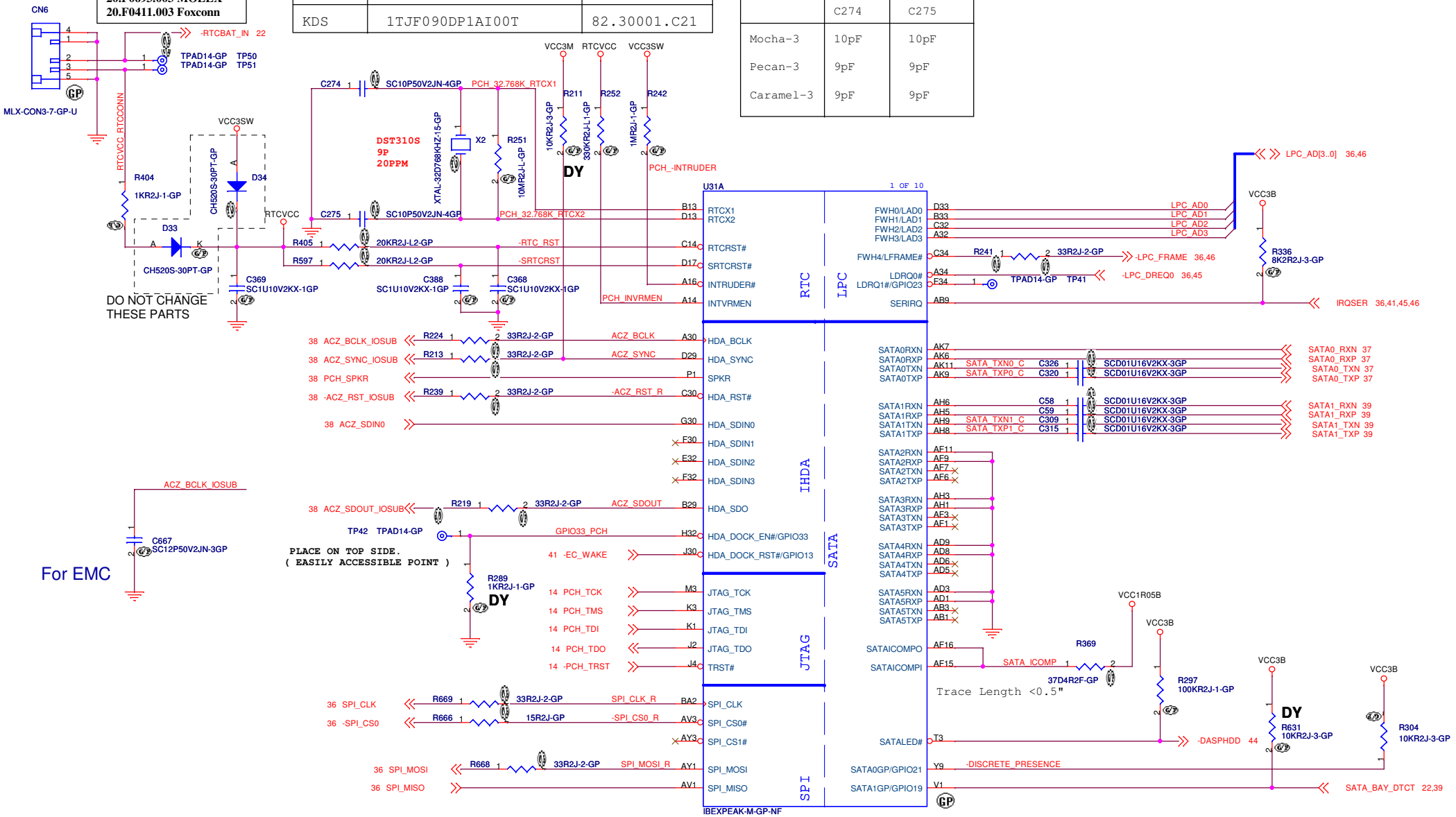
CN6
20.F0693.003 MOLEX
20.F0411.003 Foxconn

Source	Vendor P/N	Wistron P/N
KDS	1TJF090DP1AI00T	82.30001.C21

	C274	C275
Mocha-3	10pF	10pF
Pecan-3	9pF	9pF
Caramel-3	9pF	9pF



AMT	YES	NO	NO
Braidwood	YES	YES	NO
U31	QM57	HM57	HM55

<Core Design>

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

Title: PCH(1/8) : HDA/JTAG/SPI/SATA

Size	Document Number	Rev
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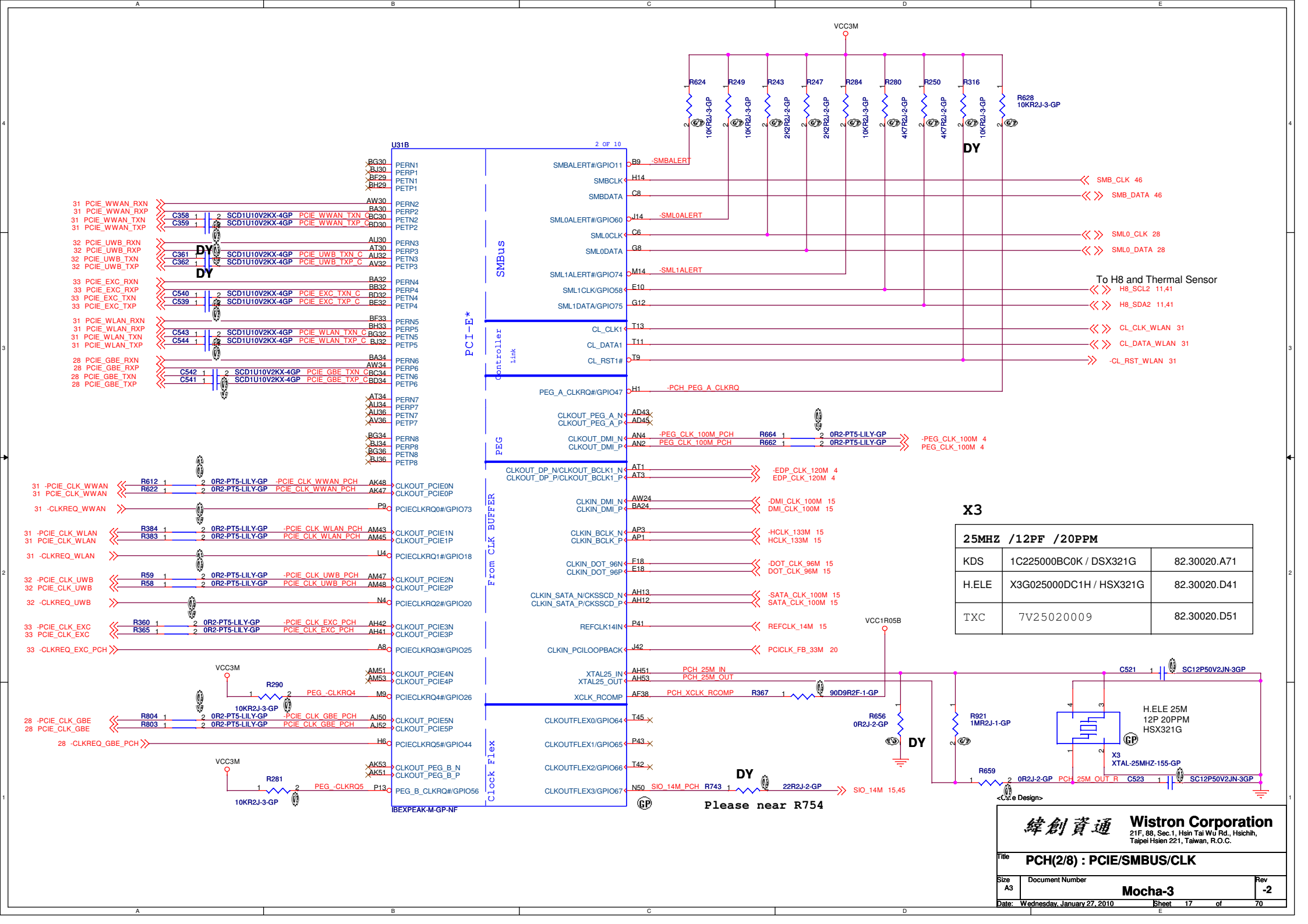
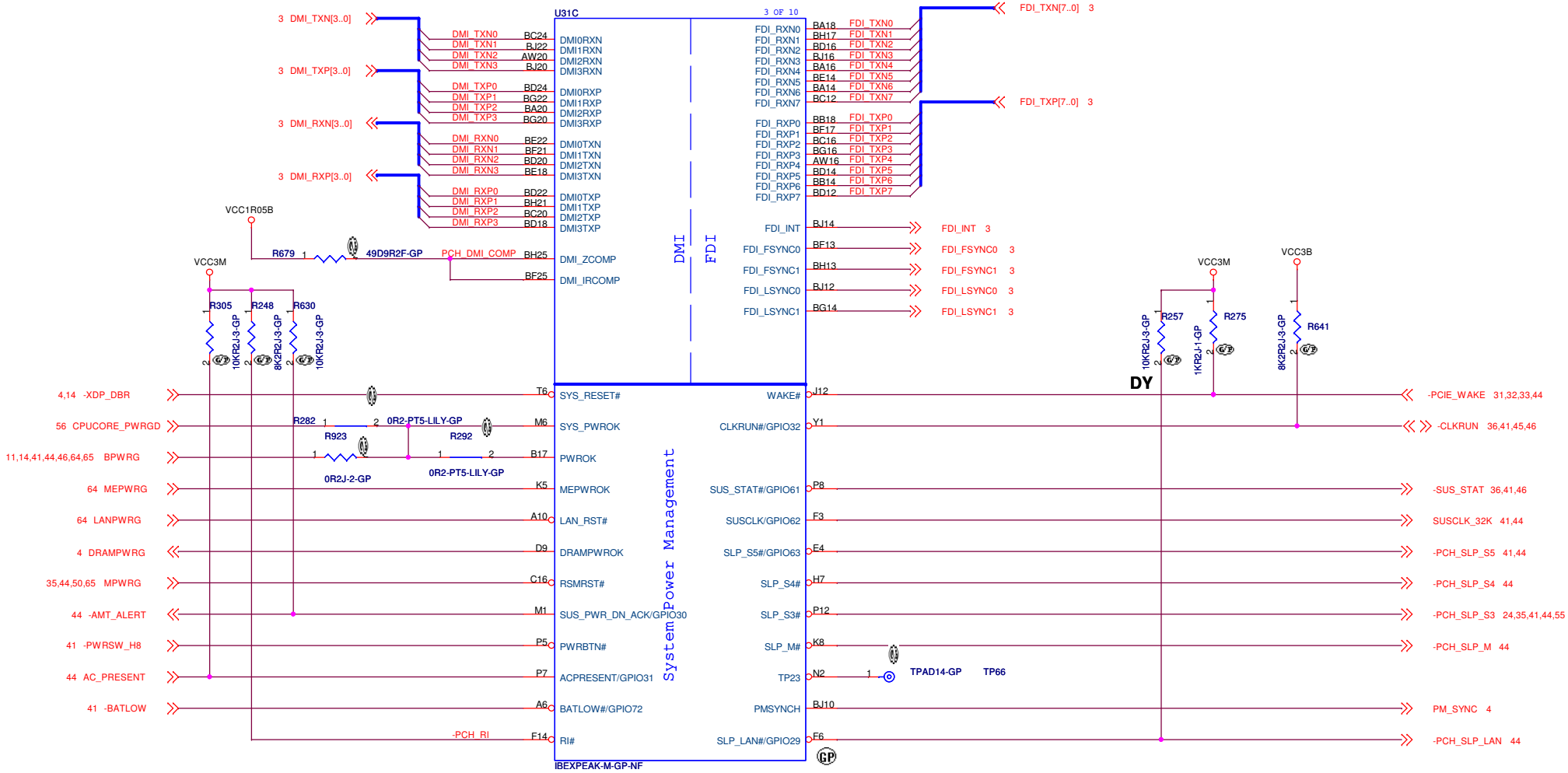
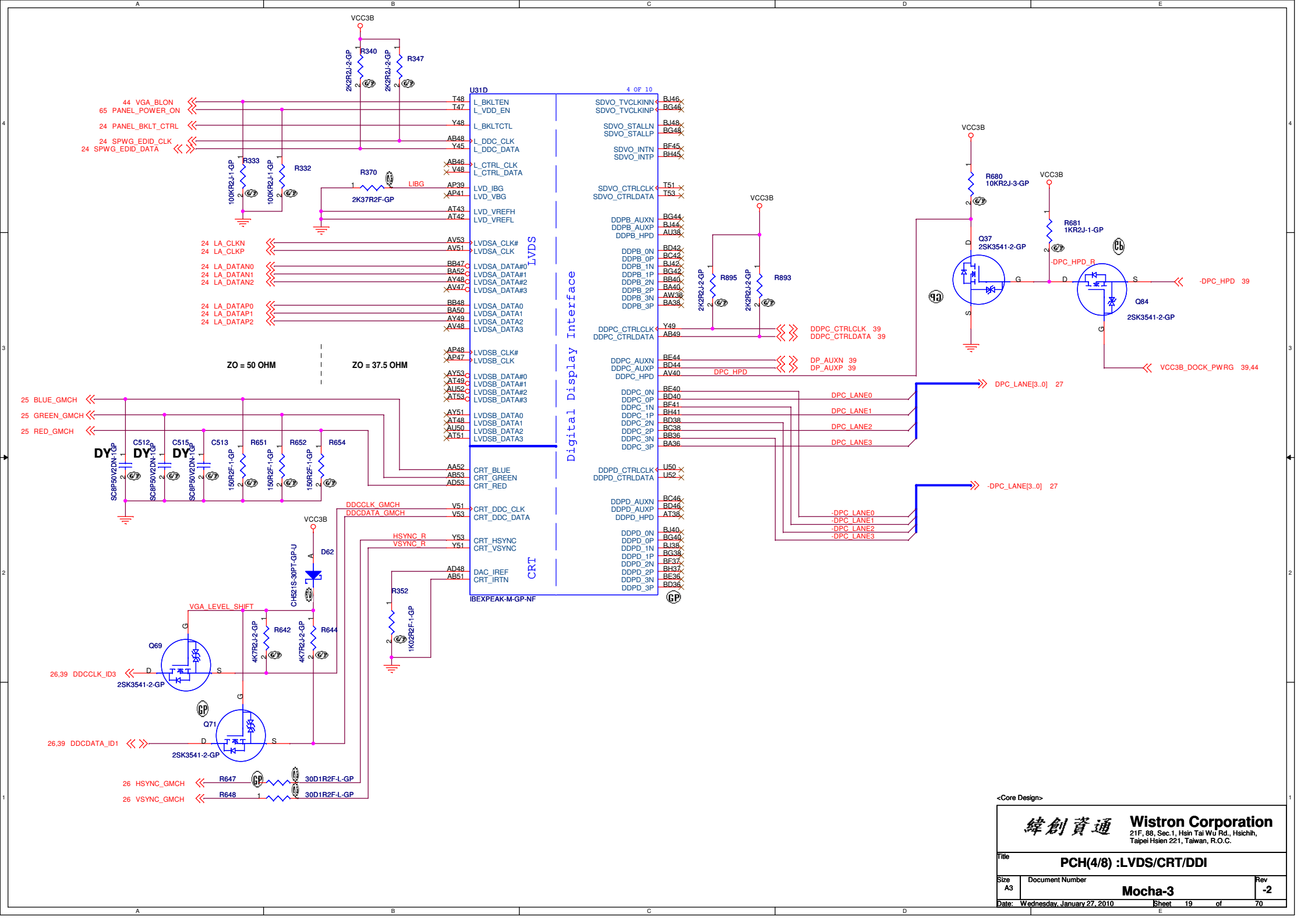

VCC3M
R624 10KR2J-3-GP
R249 10KR2J-3-GP
R243 2KR2J-2-GP
R247 2KR2J-2-GP
R284 10KR2J-3-GP
R280 4K7R2J-2-GP
R250 4K7R2J-2-GP
R316 10KR2J-3-GP
R628 10KR2J-3-GP
DY
U31B
2 OF 10
PCI-E*
SMBus
Controller Link
PEG
From CLK BUFFER
Clock Flex
IBEXPEAK-M-GP-NF
SMBALERT#/GPIO11
SMBCLK
SMBDATA
SML0ALERT#/GPIO60
SML0CLK
SML0DATA
SML1ALERT#/GPIO74
SML1CLK/GPIO58
SML1DATA/GPIO75
CL_CLK1
CL_DATA1
CL_RST1#
PEG_A_CLKRQ#/GPIO47
CLKOUT_PEG_A_N
CLKOUT_PEG_A_P
CLKOUT_DMI_N
CLKOUT_DMI_P
CLKOUT_DP_N/CLKOUT_BCLK1_N
CLKOUT_DP_P/CLKOUT_BCLK1_P
CLKIN_DMI_N
CLKIN_DMI_P
CLKIN_BCLK_N
CLKIN_BCLK_P
CLKIN_DOT_96N
CLKIN_DOT_96P
CLKIN_SATA_N/CKSSCD_N
CLKIN_SATA_P/CKSSCD_P
REFCLK14IN
CLKIN_PCILOOPBACK
XTAL25_IN
XTAL25_OUT
XCLK_RCOMP
CLKOUTFLEX0/GPIO64
CLKOUTFLEX1/GPIO65
CLKOUTFLEX2/GPIO66
CLKOUTFLEX3/GPIO67
To H8 and Thermal Sensor
H8_SCL2 11,41
H8_SDA2 11,41
SMB_CLK 46
SMB_DATA 46
SML0_CLK 28
SML0_DATA 28
CL_CLK_WLAN 31
CL_DATA_WLAN 31
-CL_RST_WLAN 31
-PCH_PEG_A_CLKRQ
-PEG_CLK_100M_PCH
PEG_CLK_100M_PCH
-PEG_CLK_100M 4
PEG_CLK_100M 4
-EDP_CLK_120M 4
EDP_CLK_120M 4
-DMI_CLK_100M 15
DMI_CLK_100M 15
-HCLK_133M 15
HCLK_133M 15
-DOT_CLK_96M 15
DOT_CLK_96M 15
-SATA_CLK_100M 15
SATA_CLK_100M 15
REFCLK_14M 15
PCICLK_FB_33M 20
PCH_25M_IN
PCH_25M_OUT
PCH_XCLK_RCOMP
SIO_14M_PCH
SIO_14M 15,45
Please near R754
VCC1R05B
R656 0R2J-2-GP
R921 1MR2J-1-GP
R659 0R2J-2-GP
PCH_25M_OUT_R
C521 SC12P50V2JN-3GP
C523 SC12P50V2JN-3GP
H.ELE 25M
12P 20PPM
HSX321G
X3
XTAL-25MHZ-155-GP
R367 90D9R2F-1-GP
R743 22R2J-2-GP
PCIE_WWAN_RXN
PCIE_WWAN_RXP
PCIE_WWAN_TXN
PCIE_WWAN_TXP
PCIE_UWB_RXN
PCIE_UWB_RXP
PCIE_UWB_TXN
PCIE_UWB_TXP
PCIE_EXC_RXN
PCIE_EXC_RXP
PCIE_EXC_TXN
PCIE_EXC_TXP
PCIE_WLAN_RXN
PCIE_WLAN_RXP
PCIE_WLAN_TXN
PCIE_WLAN_TXP
PCIE_GBE_RXN
PCIE_GBE_RXP
PCIE_GBE_TXN
PCIE_GBE_TXP
SCD1U10V2KX-4GP
PCIE_WWAN_TXN_C
PCIE_WWAN_TXP_C
PCIE_UWB_TXN_C
PCIE_UWB_TXP_C
PCIE_EXC_TXN_C
PCIE_EXC_TXP_C
PCIE_WLAN_TXN_C
PCIE_WLAN_TXP_C
PCIE_GBE_TXN_C
PCIE_GBE_TXP_C
PERN1
PERP1
PETN1
PETP1
PERN2
PERP2
PETN2
PETP2
PERN3
PERP3
PETN3
PETP3
PERN4
PERP4
PETN4
PETP4
PERN5
PERP5
PETN5
PETP5
PERN6
PERP6
PETN6
PETP6
PERN7
PERP7
PETN7
PETP7
PERN8
PERP8
PETN8
PETP8
R612 0R2-PT5-LILY-GP
R622 0R2-PT5-LILY-GP
-PCIE_CLK_WWAN_PCH
PCIE_CLK_WWAN_PCH
CLKOUT_PCIE0N
CLKOUT_PCIE0P
-CLKREQ_WWAN
PCIECLKRQ0#/GPIO73
R384 0R2-PT5-LILY-GP
R383 0R2-PT5-LILY-GP
-PCIE_CLK_WLAN_PCH
PCIE_CLK_WLAN_PCH
CLKOUT_PCIE1N
CLKOUT_PCIE1P
-CLKREQ_WLAN
PCIECLKRQ1#/GPIO18
R59 0R2-PT5-LILY-GP
R58 0R2-PT5-LILY-GP
-PCIE_CLK_UWB_PCH
PCIE_CLK_UWB_PCH
CLKOUT_PCIE2N
CLKOUT_PCIE2P
-CLKREQ_UWB
PCIECLKRQ2#/GPIO20
R360 0R2-PT5-LILY-GP
R365 0R2-PT5-LILY-GP
-PCIE_CLK_EXC_PCH
PCIE_CLK_EXC_PCH
CLKOUT_PCIE3N
CLKOUT_PCIE3P
-CLKREQ_EXC_PCH
PCIECLKRQ3#/GPIO25
R290 10KR2J-3-GP
PEG_-CLKRQ4
CLKOUT_PCIE4N
CLKOUT_PCIE4P
PCIECLKRQ4#/GPIO26
R804 0R2-PT5-LILY-GP
R803 0R2-PT5-LILY-GP
-PCIE_CLK_GBE_PCH
PCIE_CLK_GBE_PCH
CLKOUT_PCIE5N
CLKOUT_PCIE5P
-CLKREQ_GBE_PCH
PCIECLKRQ5#/GPIO44
R281 10KR2J-3-GP
PEG_-CLKRQ5
CLKOUT_PEG_B_N
CLKOUT_PEG_B_P
PEG_B_CLKRQ#/GPIO56
X3
25MHZ /12PF /20PPM
KDS 1C225000BC0K / DSX321G 82.30020.A71
H.ELE X3G025000DC1H / HSX321G 82.30020.D41
TXC 7V25020009 82.30020.D51
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title PCH(2/8) : PCIE/SMBUS/CLK
Size A3
Document Number Mocha-3
Rev -2
Date: Wednesday, January 27, 2010
Sheet 17 of 70



<Core Design>

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

Title	PCH(3/8) :DMI/FDI/PM	
Size A3	Document Number Mocha-3	Rev -2
Date: Wednesday, January 27, 2010	Sheet 18 of 70	



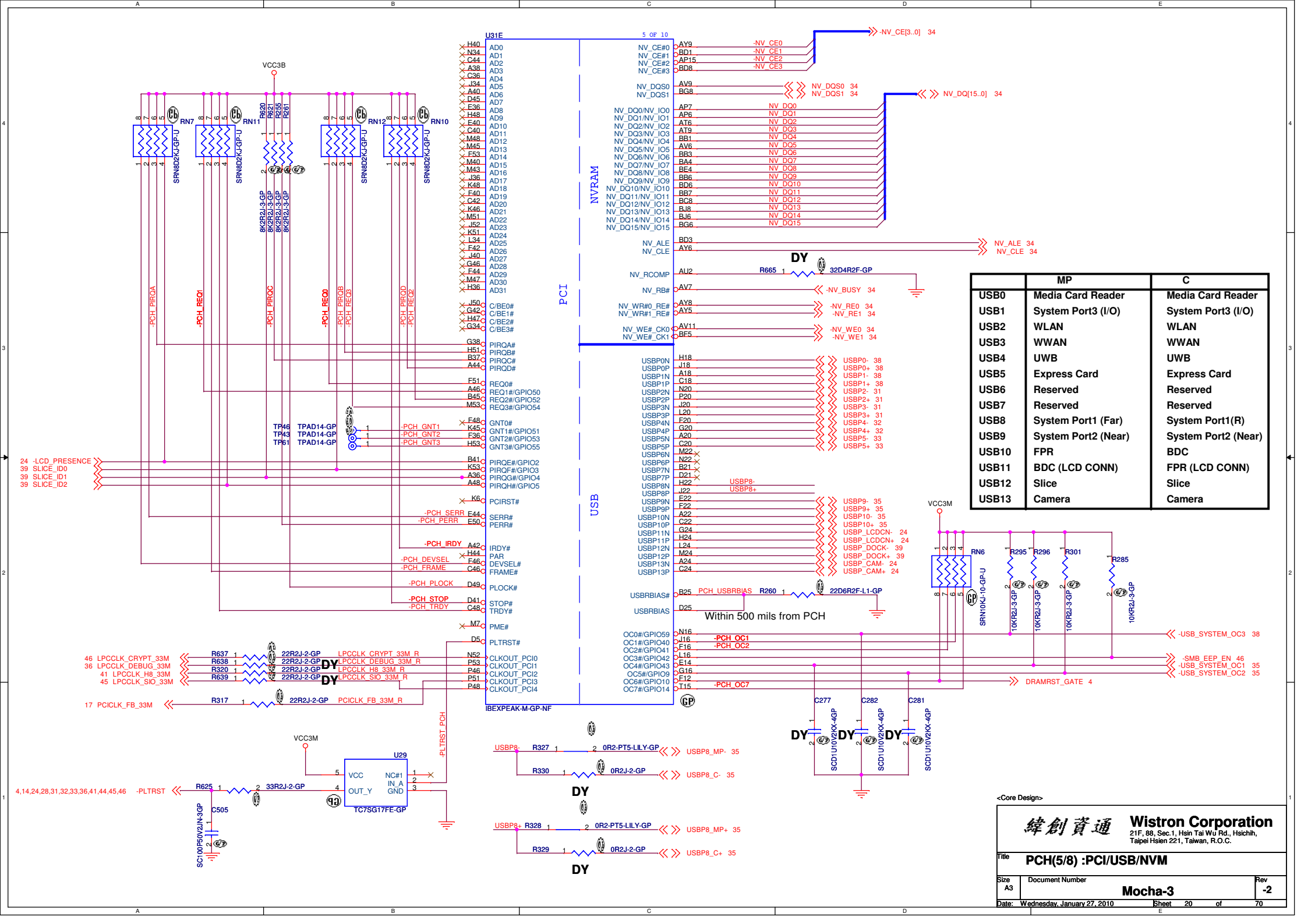
<Core Design>

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

Title: PCH(4/8) :LVDS/CRT/DDI

Size	Document Number	Rev
A3	Mocha-3	-2

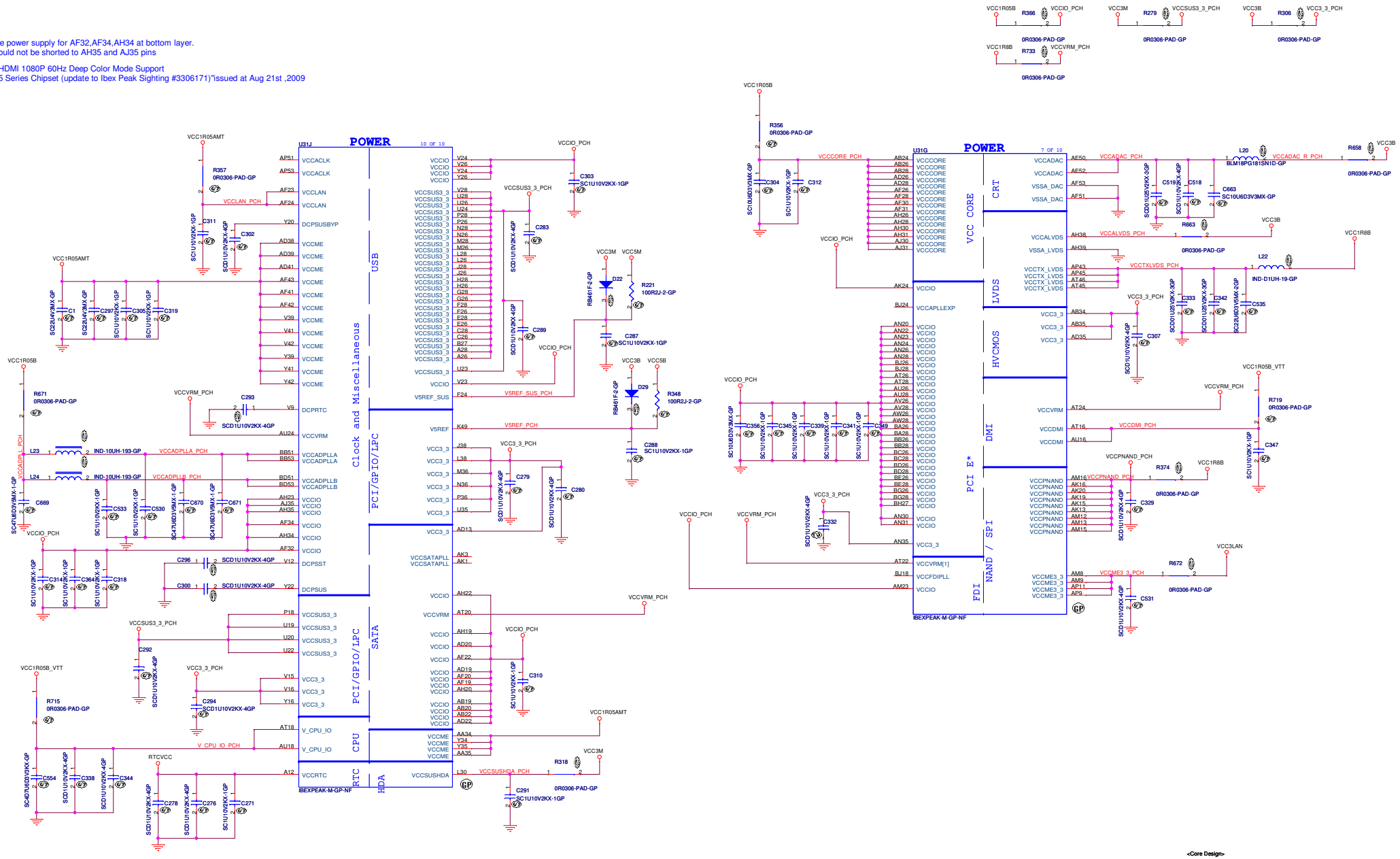
Date: Wednesday, January 27, 2010 Sheet 19 of 70



	MP	C
USB0	Media Card Reader	Media Card Reader
USB1	System Port3 (I/O)	System Port3 (I/O)
USB2	WLAN	WLAN
USB3	WWAN	WWAN
USB4	UWB	UWB
USB5	Express Card	Express Card
USB6	Reserved	Reserved
USB7	Reserved	Reserved
USB8	System Port1 (Far)	System Port1(R)
USB9	System Port2 (Near)	System Port2 (Near)
USB10	FPR	BDC
USB11	BDC (LCD CONN)	FPR (LCD CONN)
USB12	Slice	Slice
USB13	Camera	Camera

Isolate the power supply for AF32,AF34,AH34 at bottom layer.
There should not be shorted to AH35 and AJ35 pins

Refer to"HDMI 1080P 60Hz Deep Color Mode Support
om Intel 5 Series Chipset (update to Ibex Peak Sighting #3306171)"issued at Aug 21st ,2009



<Core Design>

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

Title: PCH(6/8) :Power

Size	Document Number	Rev
A2	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 21 of 70

Caramel ID	Pecan ID	System
1	1	Mocha-3
1	0	Pecan-3
0	1	Reserved
0	0	Caramel-3

GPIO15 ME Crypt Strap
HIGH : WITH CONFIDENTIALITY
LOW : NO CONFIDENTIALITY

Level	Planar ID			
	3	2	1	0
1	R288	R319	R325	R312
0	R278	R315	R334	R309

Phase	PLANARID[3..0]
PreDV	0000B
DV	0001B
FVT	0010B
SIV	0011B
SIT	0100B
SVT/SOVP	0101B
-2	0110B
	0111B

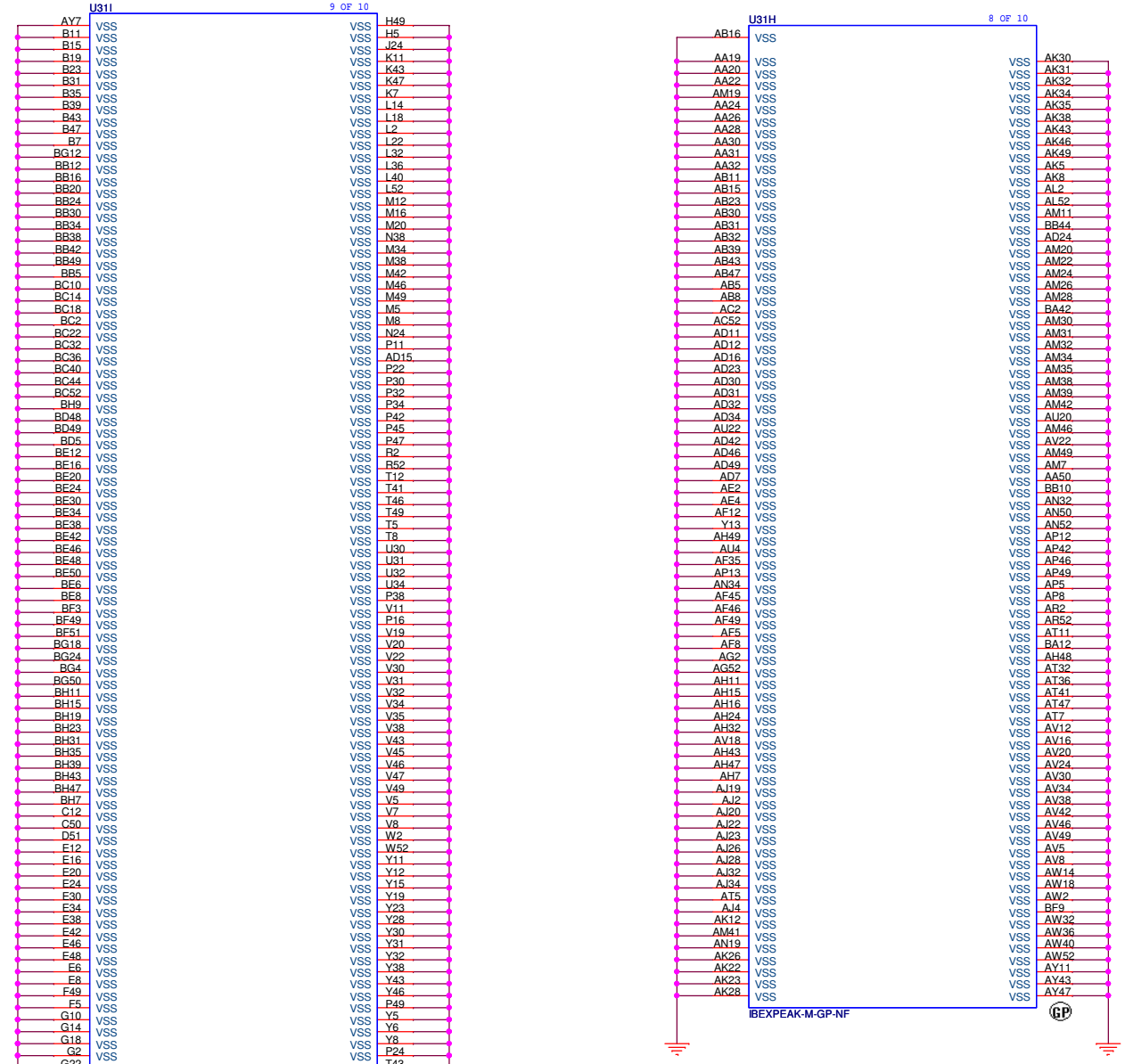
<Core Design>

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

Title: PCH(7/8) GPIO/NCTF/RSVD

Size: A3 | Document Number: Mocha-3 | Rev: -2

Date: Wednesday, January 27, 2010 | Sheet 22 of 70

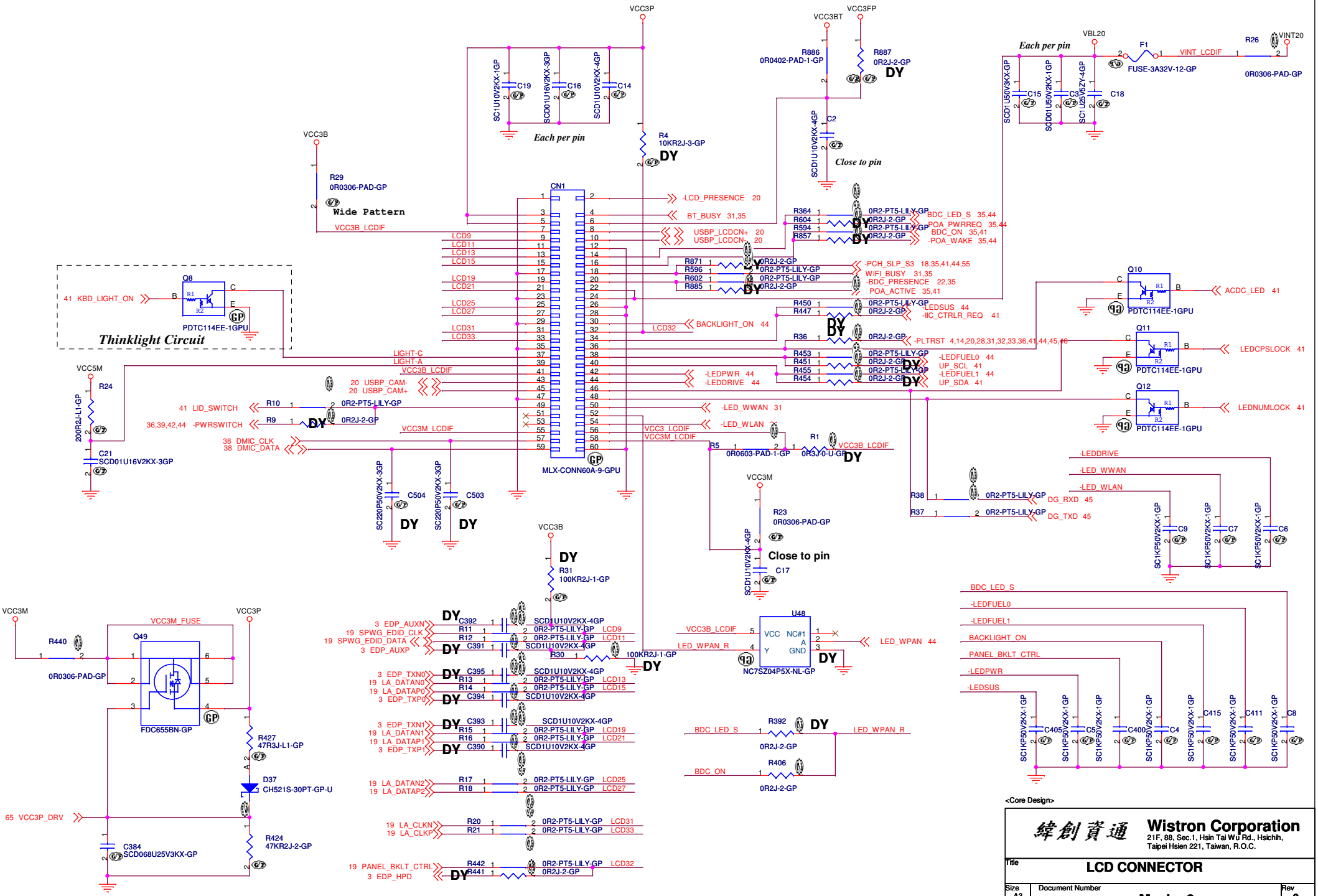


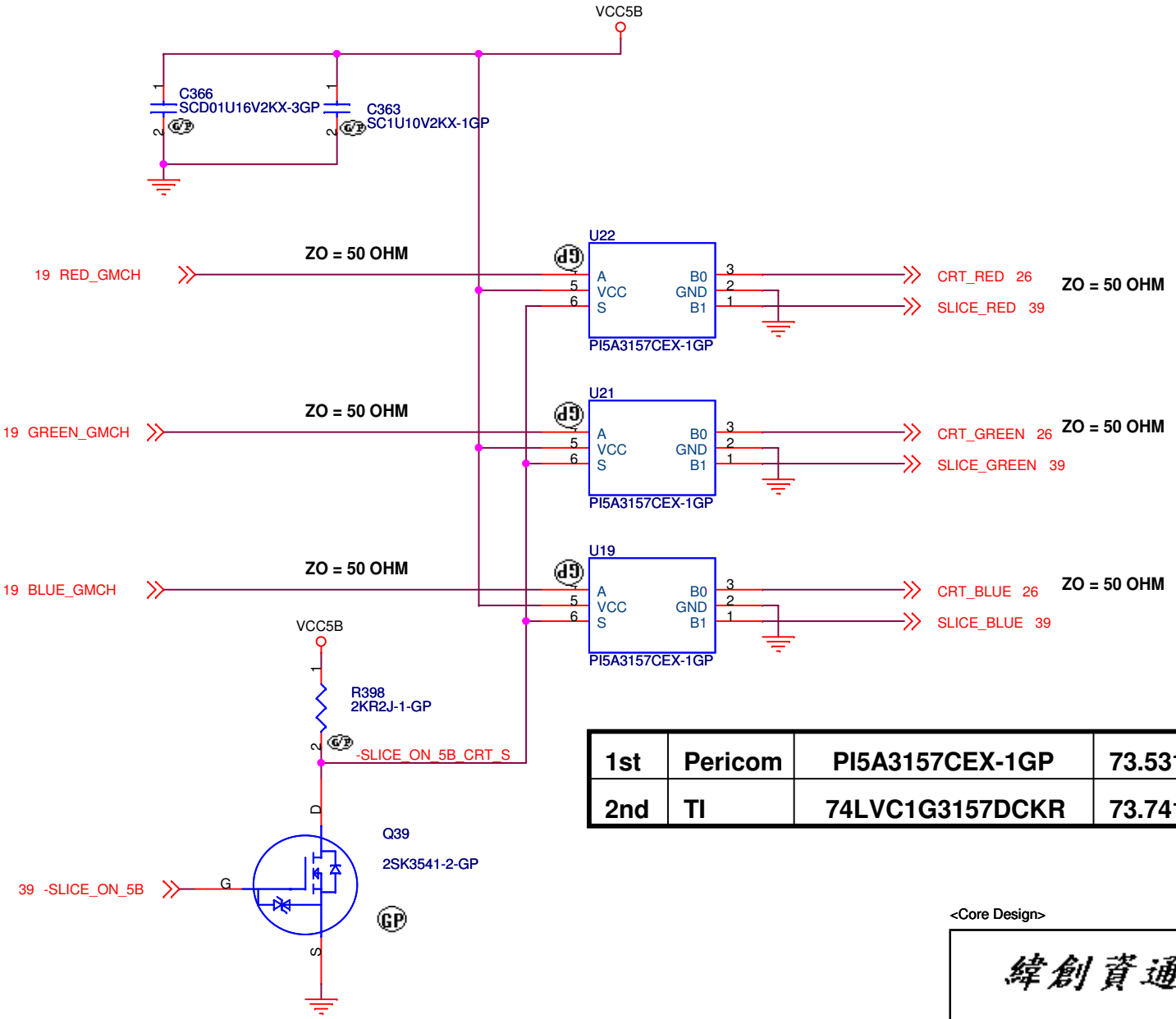
<Core Design>

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

Title	PCH(8/8) :GND	
Size A3	Document Number Mocha-3	Rev -2
Date: Wednesday, January 27, 2010	Sheet 23 of 70	

LCD / Inverter Connector





1st	Pericom	PI5A3157CEX-1GP	73.53157.A0J
2nd	TI	74LVC1G3157DCKR	73.74157.CHH

<Core Design>

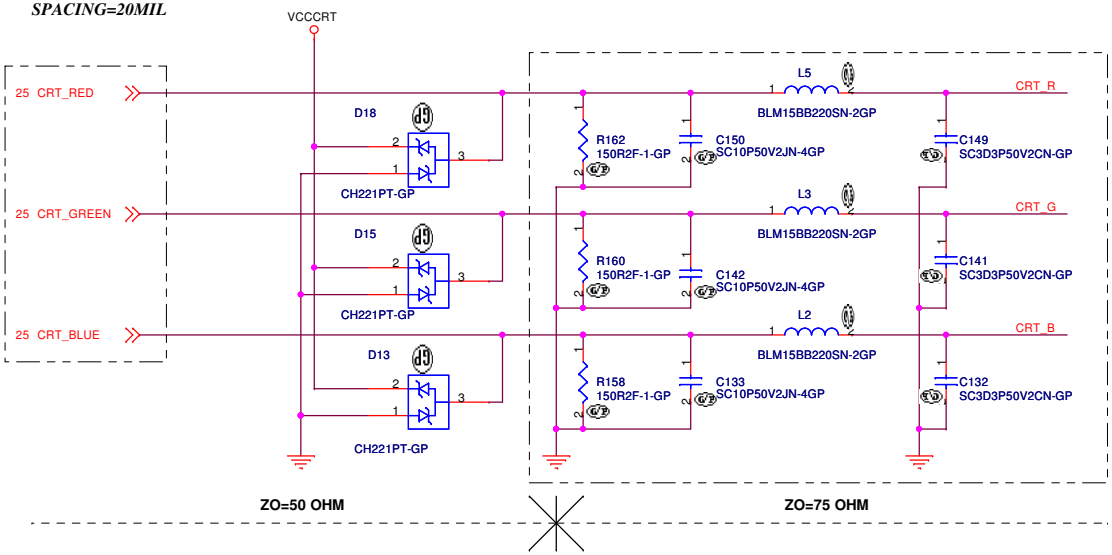
緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

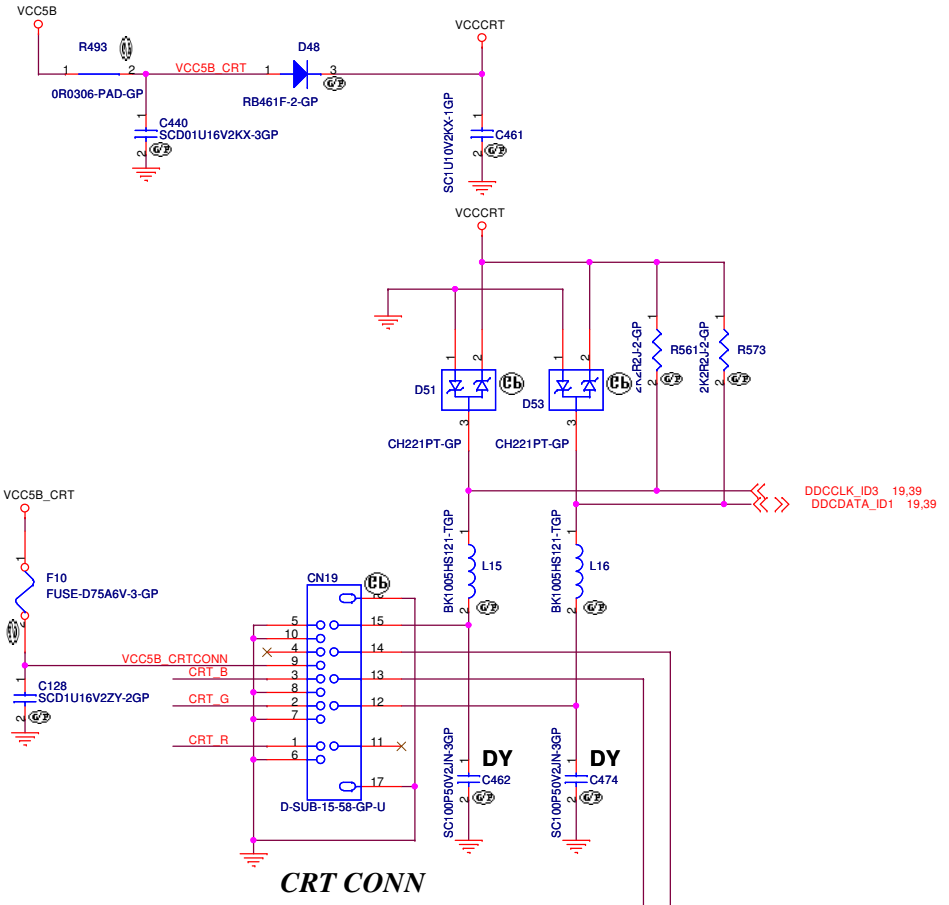
Title: **CRT SELECTOR**

Size	Document Number	Rev
A4	Mocha-3	-2

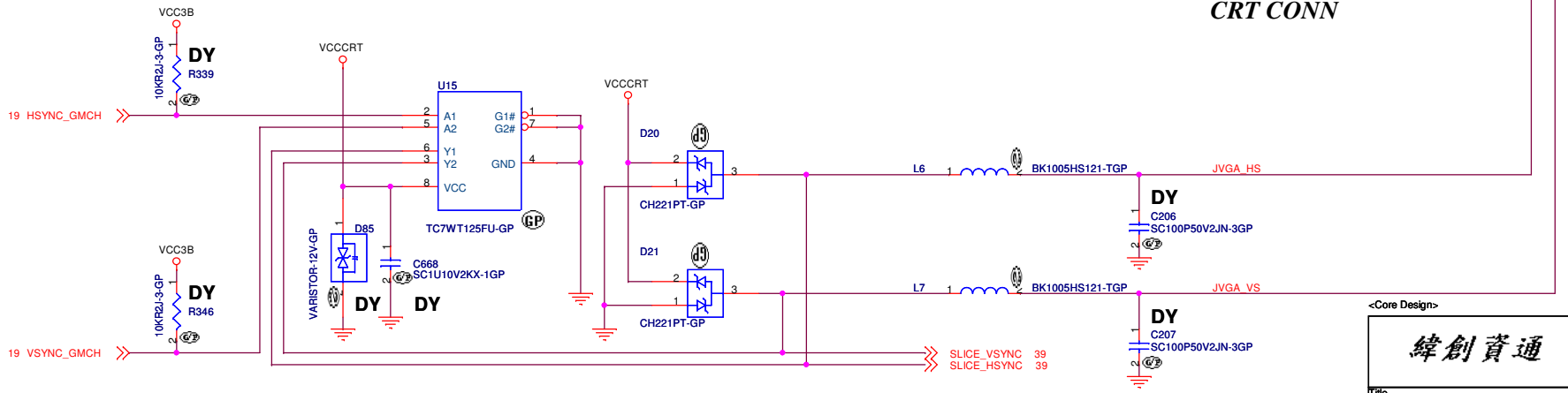
Date: Wednesday, January 27, 2010 Sheet 25 of 70

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





CRT CONN



<Core Design>

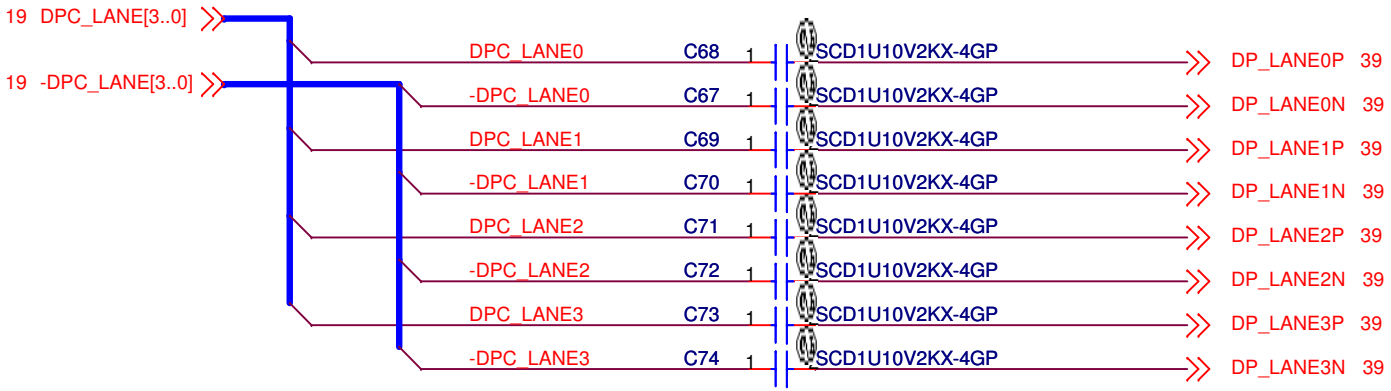
緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: **EXT CRT INTERFACE**

Size	Document Number	Rev
A3	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 26 of 70

System DP: GMCH to SLICE Connector



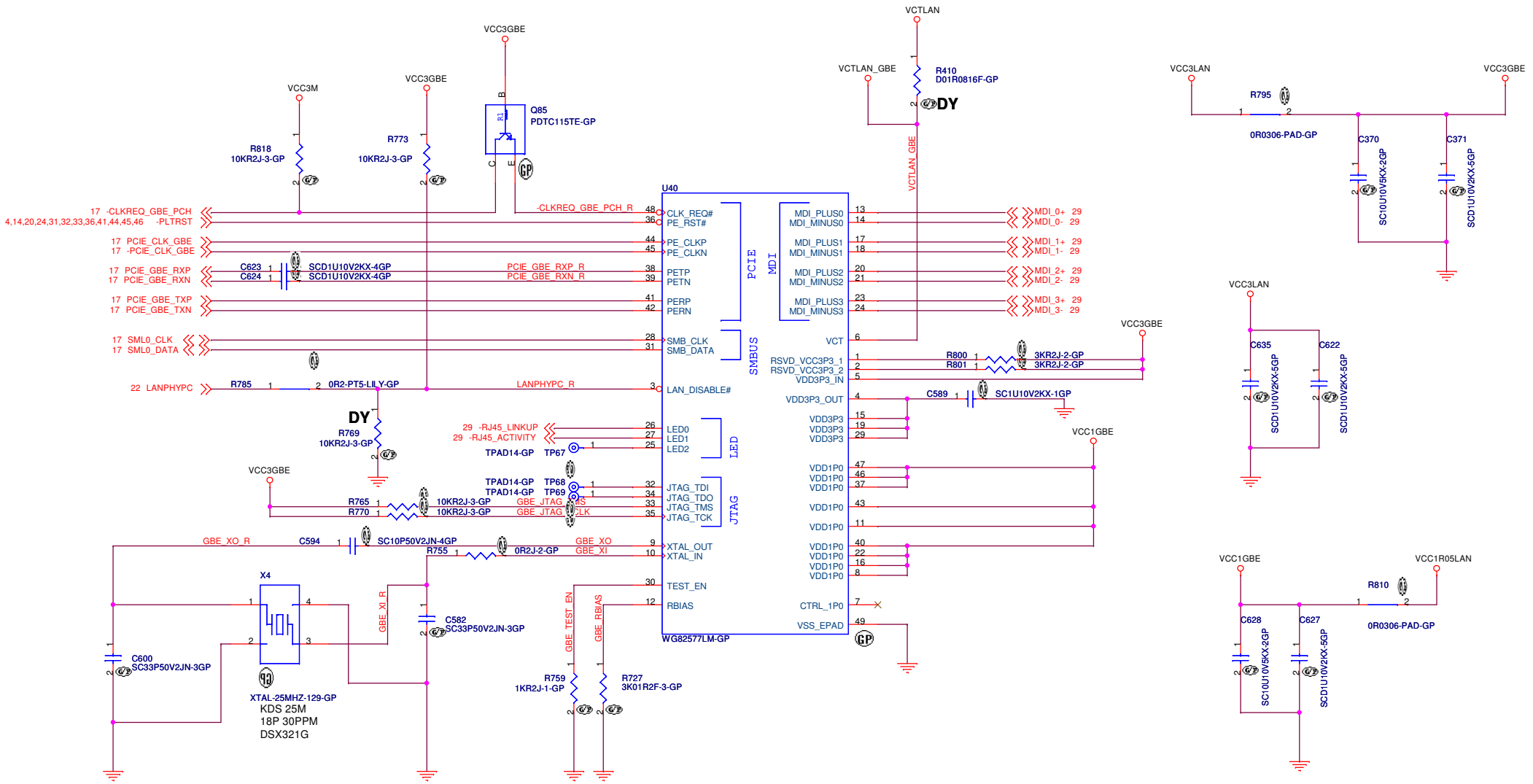
<Core Design>

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

Title: ***Display Port AC Coupling***

Size	Document Number	Rev
A	**Mocha-3**	**-2**

Date: Wednesday, January 27, 2010 Sheet 27 of 70



X4

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

AMT	YES	NO
U40	82577LM	82577LC

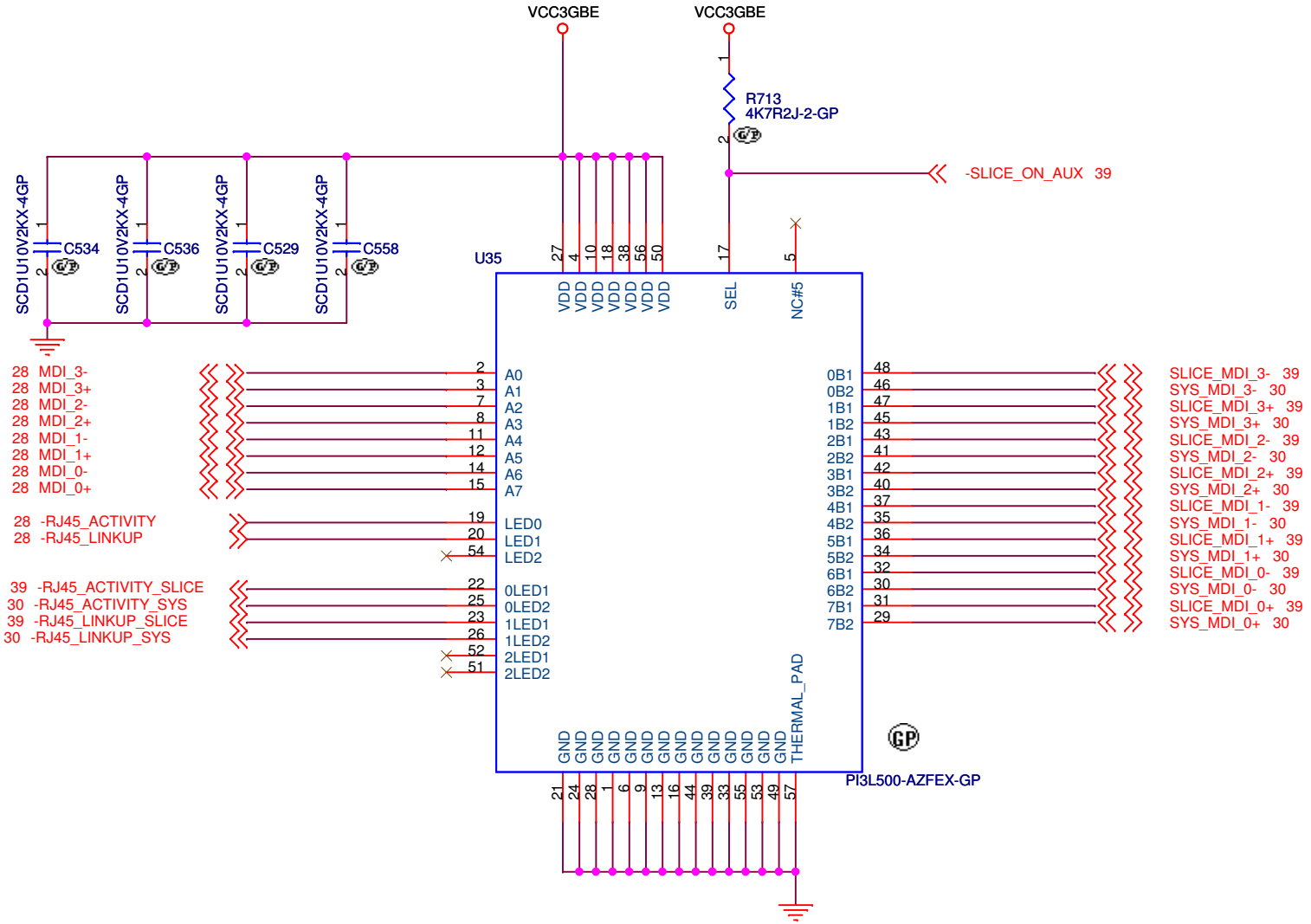
<Core Design>

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

Title: **GBE Hanksville**

Size	Document Number	Rev
A3	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 28 of 70



		Vendor P/N	Wistron P/N
1st	Pericom	PI3L500AZFEX	73.3L500.003
2nd	TI	TS3L500AERHUR	73.3L500.A0V

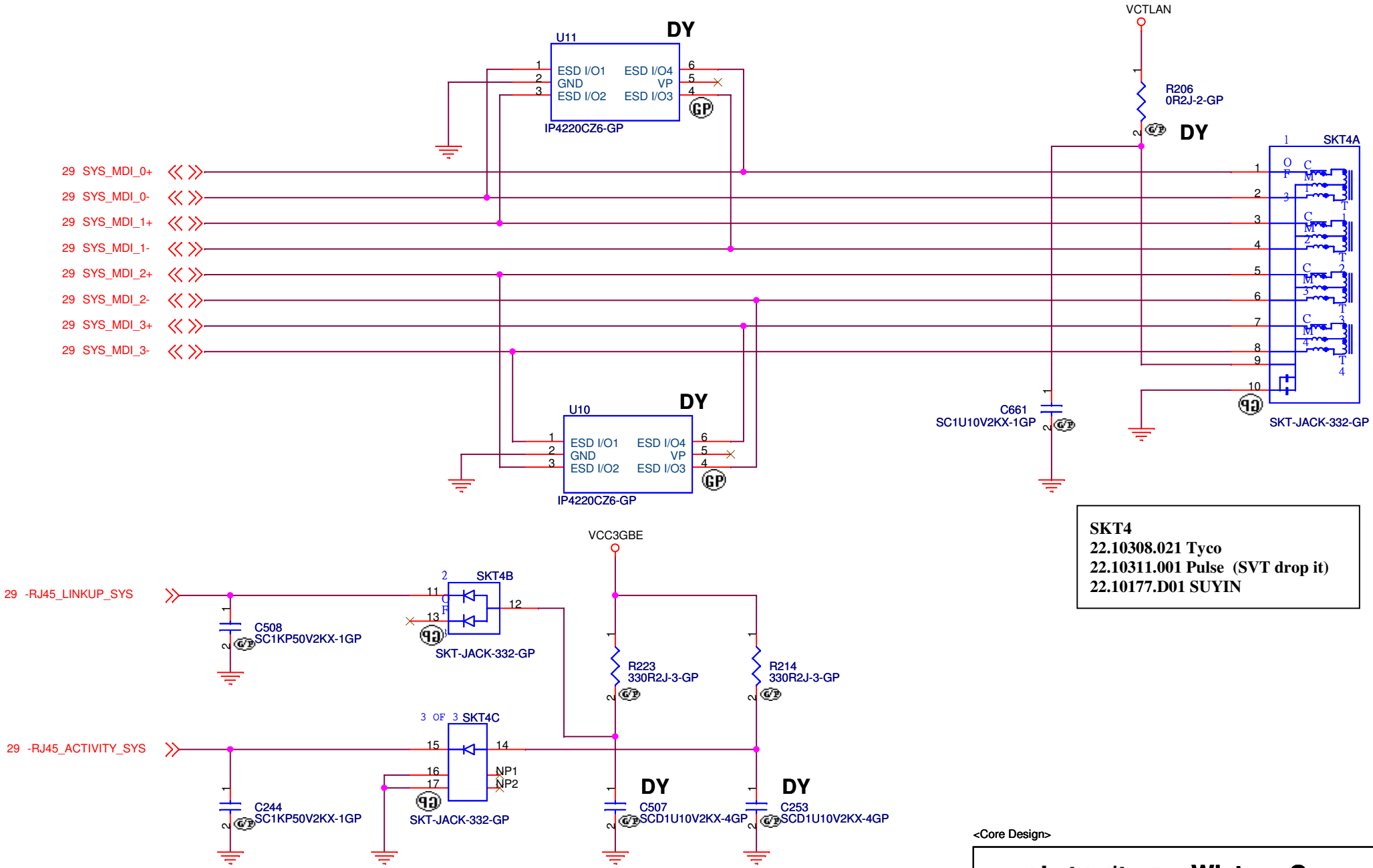
<Core Design>

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

Title: **GBE LAN SW**

Size	Document Number	Rev
A4	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 29 of 70



SKT4
22.10308.021 Tyco
22.10311.001 Pulse (SVT drop it)
22.10177.D01 SUYIN

<Core Design>

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

Title: ***RJ45 CONN***

Size	Document Number	Rev
A4	**Mocha-3**	-2

Date: Wednesday, January 27, 2010 Sheet 30 of 70

Constant Connect	Regular	Lite/BB/No
U33	ASM	NoASM
R387	NoASM	ASM
R388	NoASM	ASM

Bypass U33 as short as possible

U33	
1st	TS3USB221RSER (73.03221.003)

WWAN CONTROL TABLE

PAGE	LOCATION	YES	NO
31	CN20 SKT2 D2 C22 C509 R22 R27 R25 C498 C511 C495 C506 R623 R653 R598 R597	ASM	NON_ASM
66	Q24 R163 D16 R161 C143	ASM	NON_ASM

CN20 and CN21

1st: 20.80966.052(TYCO)

2nd: 62.10043.751(ARGOSY)

<Core Design>

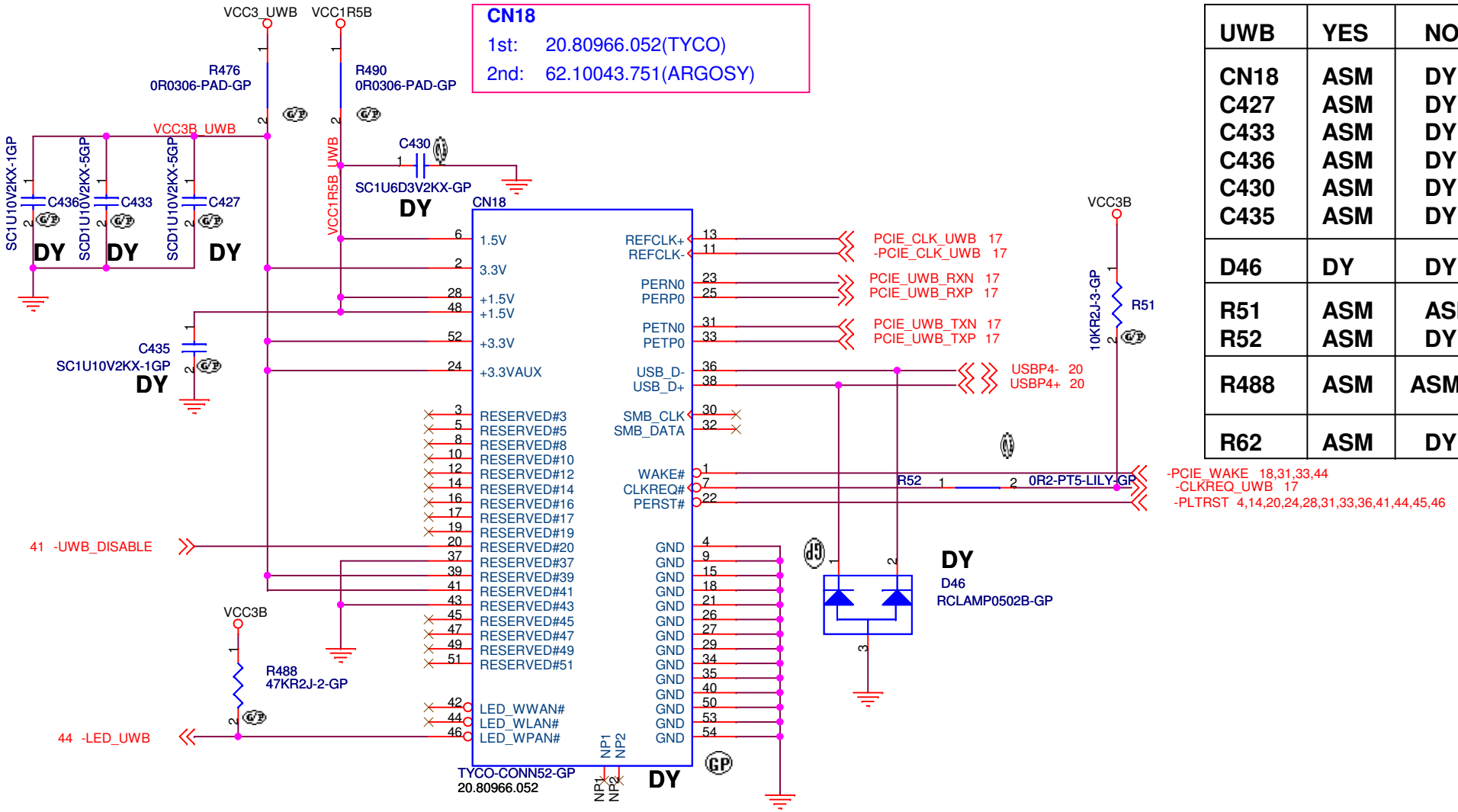
緯創資通 **Wistron Corporation**

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

Title: ***MINI CARD SLOT***

Size: A3 | Document Number: **Mocha-3** | Rev: -2

Date: Wednesday, January 27, 2010 | Sheet 31 of 70



UWB	YES	NO
CN18	ASM	DY
C427	ASM	DY
C433	ASM	DY
C436	ASM	DY
C430	ASM	DY
C435	ASM	DY
D46	DY	DY
R51	ASM	ASM
R52	ASM	DY
R488	ASM	ASM
R62	ASM	DY

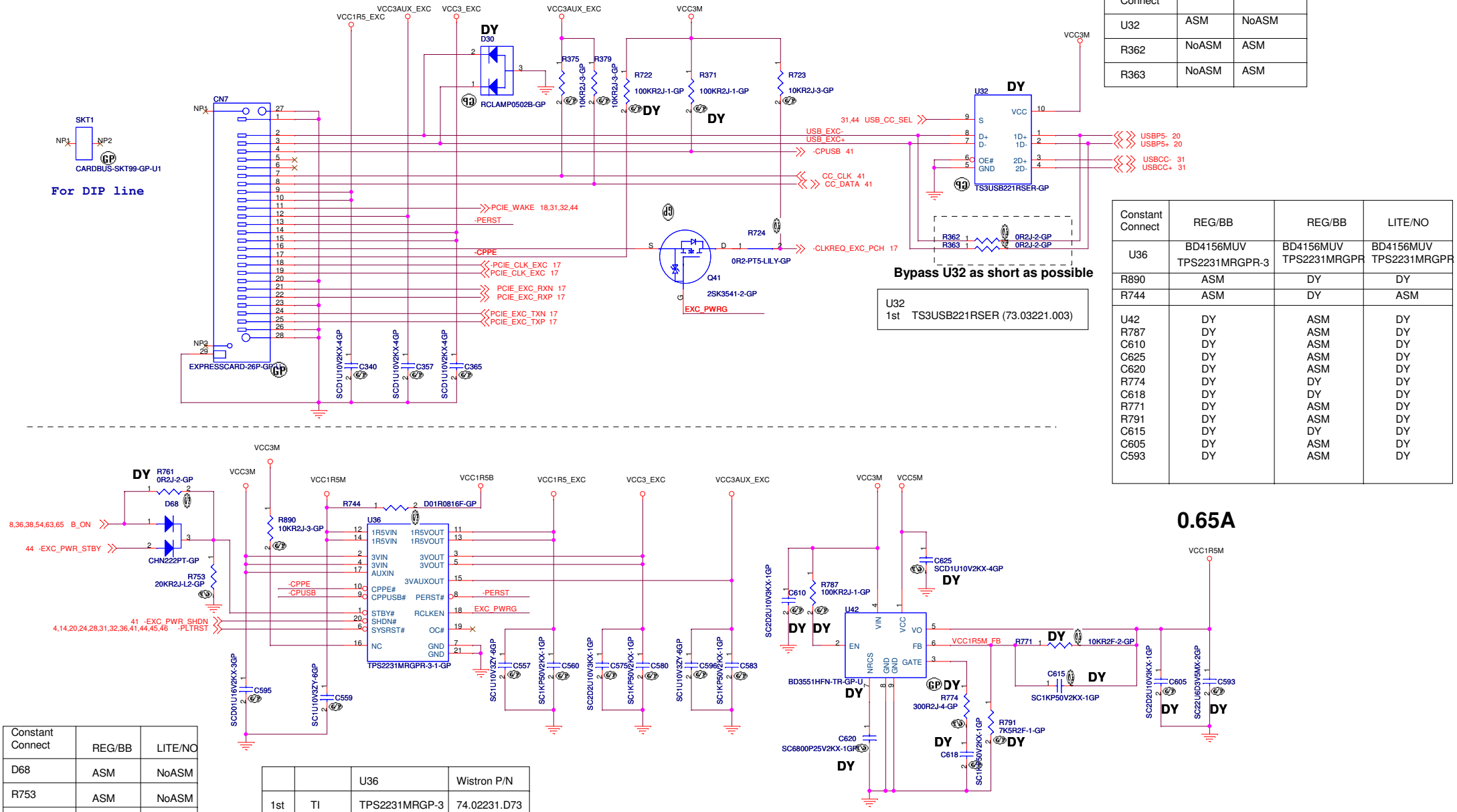
<Core Design>

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

Title: ***MINI CARD SLOT 2***

Size	Document Number	Rev
A4	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 32 of 70



Constant Connect	REG	LITE/BB/NO
U32	ASM	NoASM
R362	NoASM	ASM
R363	NoASM	ASM

Constant Connect	REG/BB	REG/BB	LITE/NO
U36	BD4156MUV TPS2231MRGPR-3	BD4156MUV TPS2231MRGPR	BD4156MUV TPS2231MRGPR
R890	ASM	DY	DY
R744	ASM	DY	ASM
U42	DY	ASM	DY
R787	DY	ASM	DY
C610	DY	ASM	DY
C625	DY	ASM	DY
C620	DY	ASM	DY
R774	DY	DY	DY
C618	DY	DY	DY
R771	DY	ASM	DY
R791	DY	ASM	DY
C615	DY	DY	DY
C605	DY	ASM	DY
C593	DY	ASM	DY

Constant Connect	REG/BB	LITE/NO
D68	ASM	NoASM
R753	ASM	NoASM
R761	NoASM	ASM

		U36	Wistron P/N
1st	TI	TPS2231MRGP-3	74.02231.D73
2nd	Rohm	BD4156MUV-E2	74.04156.07T
3rd			

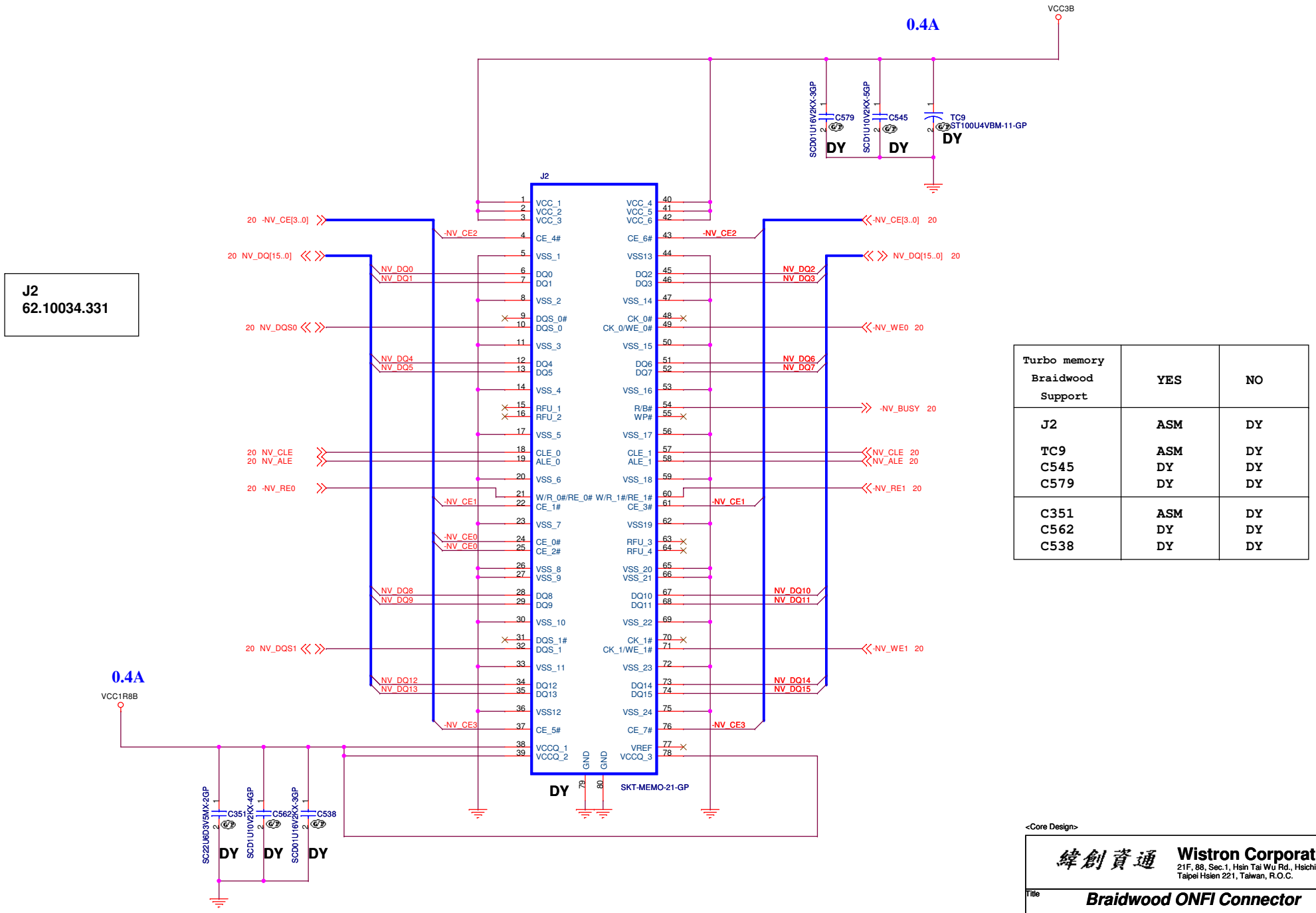
<Core Design>

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

Title: Express Card Slot/PWR

Size: Custom | Document Number: Mocha-3 | Rev: -2

Date: Wednesday, January 27, 2010 | Sheet 33 of 70



Turbo memory Braidwood Support	YES	NO
J2	ASM	DY
TC9	ASM	DY
C545	DY	DY
C579	DY	DY
C351	ASM	DY
C562	DY	DY
C538	DY	DY

<Core Design>

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

Title: Braidwood ONFI Connector

Size: A3 | Document Number: Mocha-3 | Rev: -2

Date: Wednesday, January 27, 2010 | Sheet 34 of 70

Del these circuits for Caramel-3

WIDE PATTERN (MIN 500MA)
PLACE NEAR USB CONNECTOR

Near SKT3

R40,R41 Dual layout with FL1

R645,R640 Dual layout with FL2

WIDE PATTERN (MIN 500MA)
PLACE NEAR USB CONNECTOR

Near J4

	INT DIVIDER	EXT DIVIDER
R632 R633	DY 0	75K 51K
R657 R655	DY DY	43K 51K

CB1 (USB_A0_SEL1)	CB0 (USB_A0_SEL0)	Function Mode
Low	Low	Auto
Low	High	Force Resistor
High	Low	Force Short
High	High	Pass Through

U34 (Need the discharge function)

	Vendor	Vendor P/N	Wistron P/N
1st	TI	TPS2065DGN-1-GP	74.02065.A79
2nd	Rohm	BD8014FVJ	74.08014.07G

U1,U18

	Vendor	Vendor P/N	Wistron P/N
1st	NXP	IP4223CZ6	83.42236.0AE
2nd	SEMTECH	SRV05-4.TCT	83.00005.BAE /41U5451AA
3rd	AOS	AOZ8904CIL	83.08904.0AE

C516 C32

	Vendor	Vendor P/N	Wistron P/N
1st	NEC/TOKIN	TLPSLV0J157M(40)12RE	77.C1571.02L
2nd	SANYO	6TPC150M	77.21571.03L
3rd	PANASONIC	EEFCX0J151R	79.15710.2BL

U23 U24

	Vendor	Vendor P/N	Wistron P/N
1st	TI	TPS2065DGN-1-GP	74.02065.A79
2nd	TI	TPS2065DGN-GP	41A1229AA
3rd	Rohm	BD8014FVJ	74.08014.07G

For Caramel

Near J1

For Caramel

Bluetooth Module

Place near CN10

For Caramel

Fingerprint Reader / Touch PAD

CN3
MOLEX 54722-0204
20.F0717.020

This trace (VCC3M_FP) should be routed by wide pattern for POWER.

F11 is polyswitch

Please put CN3 on TOP side

<Core Design>

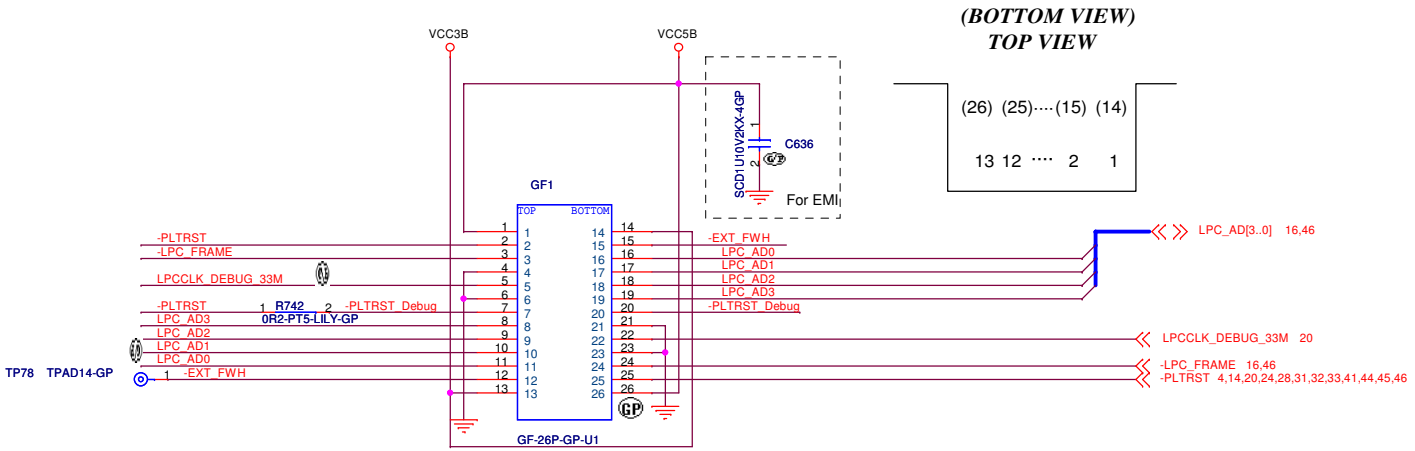
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: USB POWER / CONNECTOR

Size	Document Number	Rev
A2	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 35 of 70

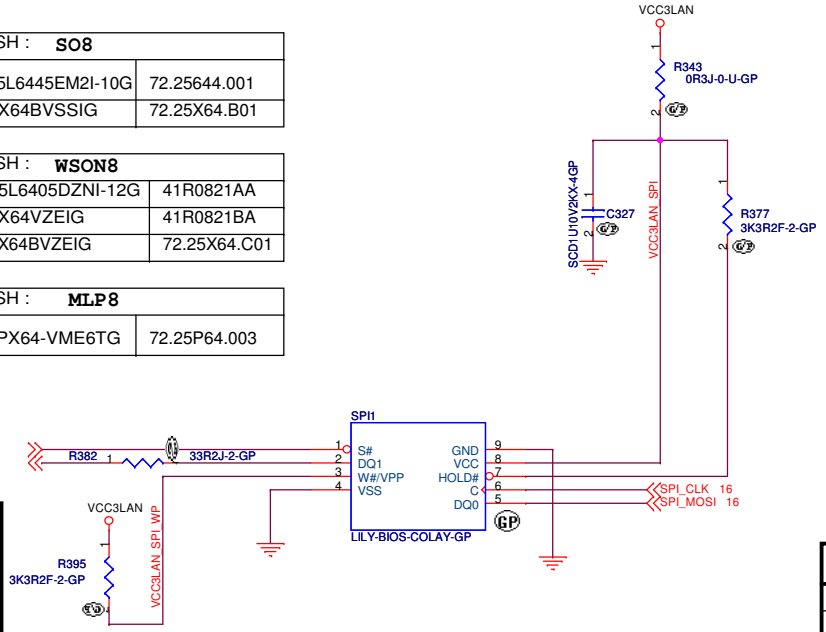
Golden Finger for Debug Board



64Mbit SPI FLASH : SO8		
MXIC	MX25L6445EM2I-10G	72.25644.001
Winbond	W25X64BVSSIG	72.25X64.B01

64Mbit SPI FLASH : WSON8		
MXIC	MX25L6405DZNI-12G	41R0821AA
Winbond	W25X64VZEIG	41R0821BA
Winbond	W25X64BVZEIG	72.25X64.C01

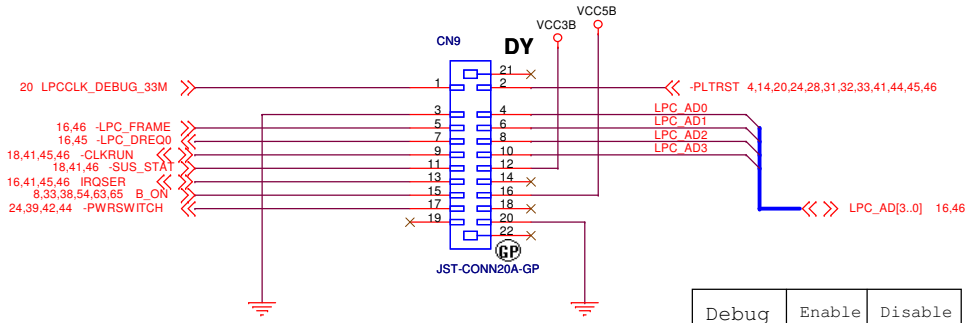
64Mbit SPI FLASH : MLP8		
Numonyx	M25PX64-VME6TG	72.25P64.003



	ICP Enable
R343	RB520S-30
R666	470 5%
R669	470 5%
R668	470 5%
R382	470 5%

SO8 and WSON8 are both supported!

Debug card connector



Put "easy-to -access" place

Debug	Enable	Disable
CN9	ASM	DY
R638	ASM	DY

SF 100 PIN HEADER INTERFACE (Top View)					
1	VCC	R343.2	GND	GND	2
3	CS#	R666.1	R669.1	CLK	4
5	MISO	R382.2	R668.1	MOSI	6
7	(KEY)	N/A	N/A	(RESET)	8

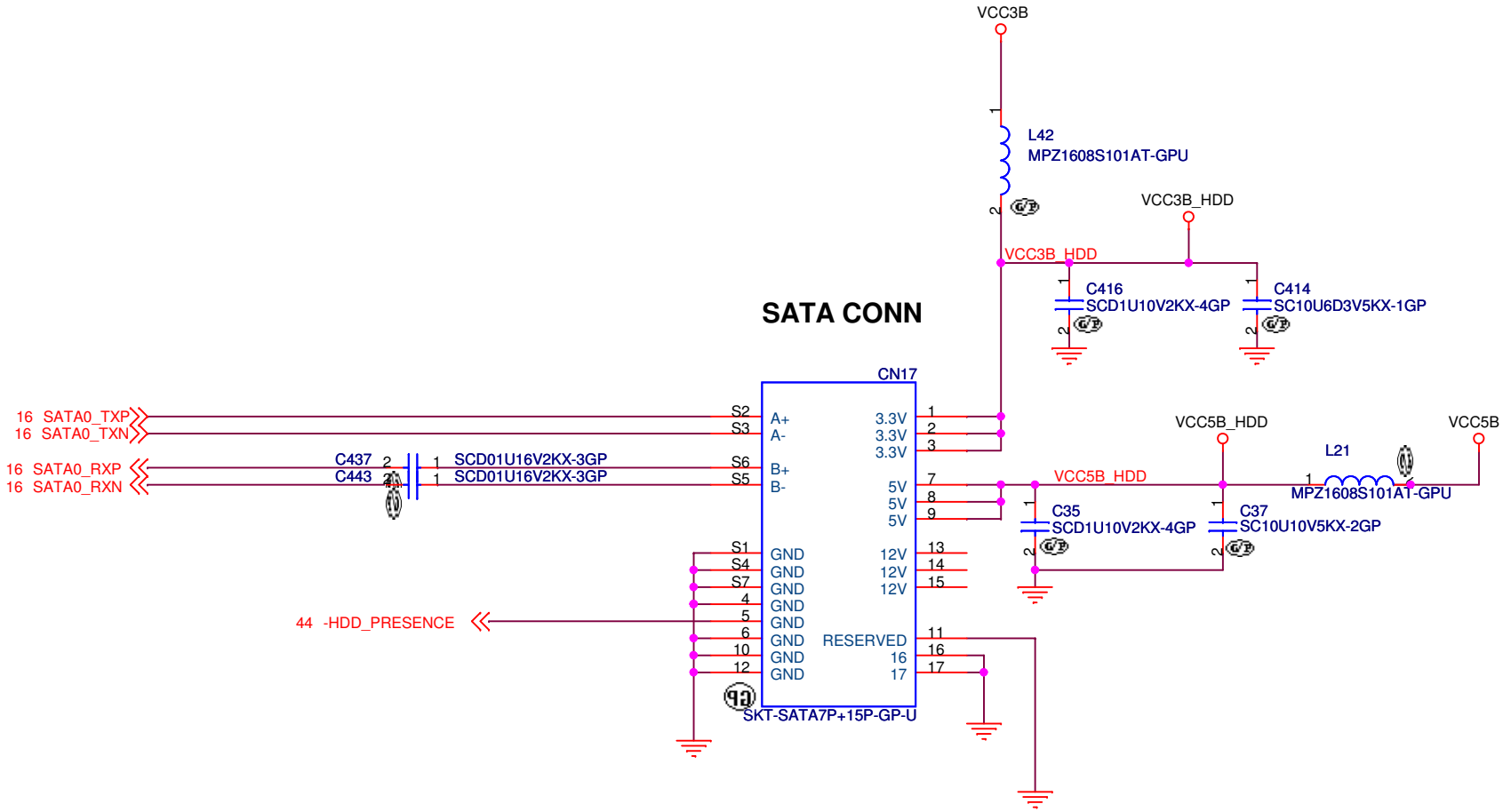
<Core Design>

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

Title: ***SPI&LPC debug card***

Size: A3 | Document Number: **Mocha-3** | Rev: -2

Date: Wednesday, January 27, 2010 | Sheet 36 of 70



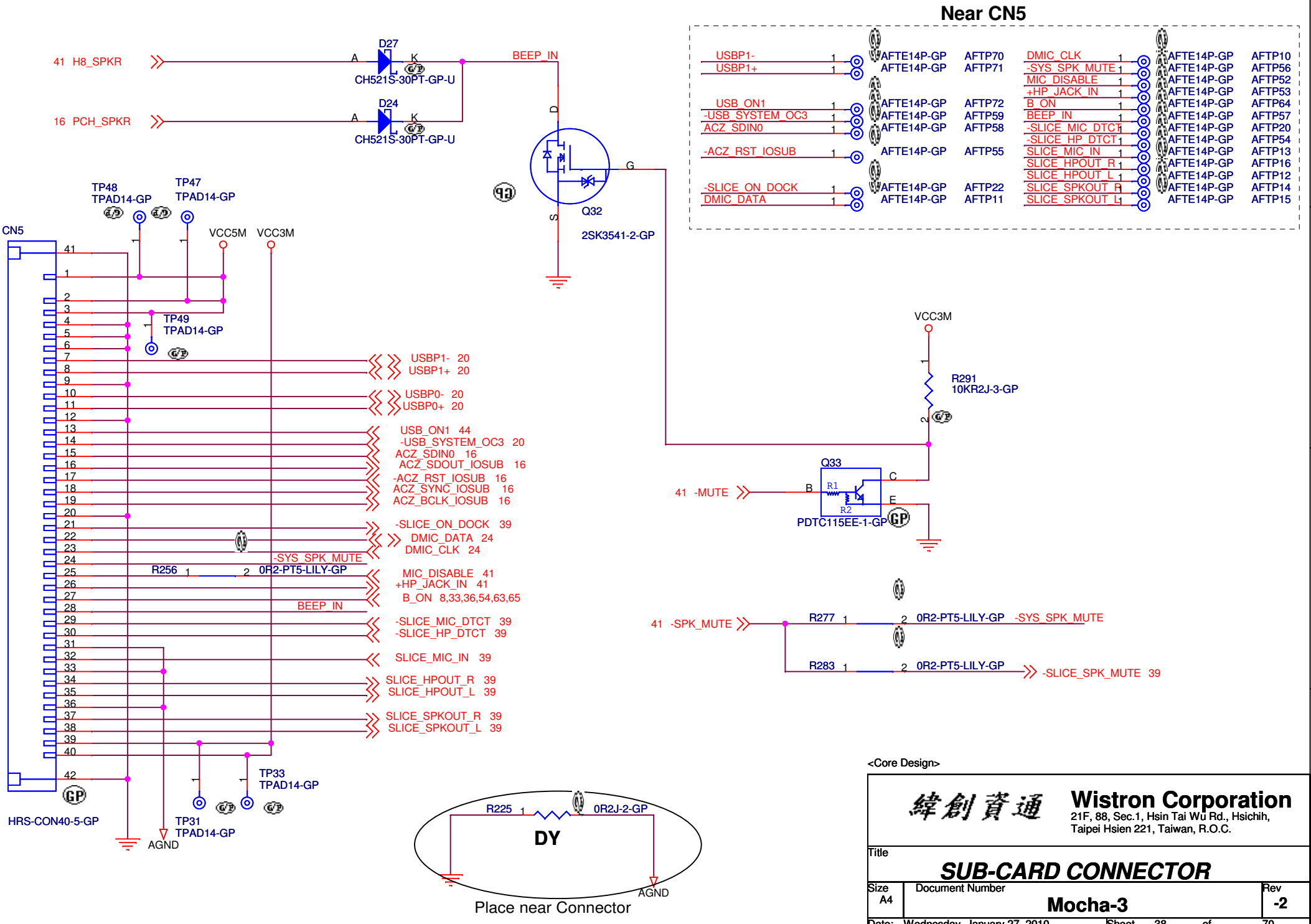
<Core Design>

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

Title: ***2.5 inch SATA Connector***

Size	Document Number	Rev
A4	**Mocha-3**	-2

Date: Wednesday, January 27, 2010 Sheet 37 of 70



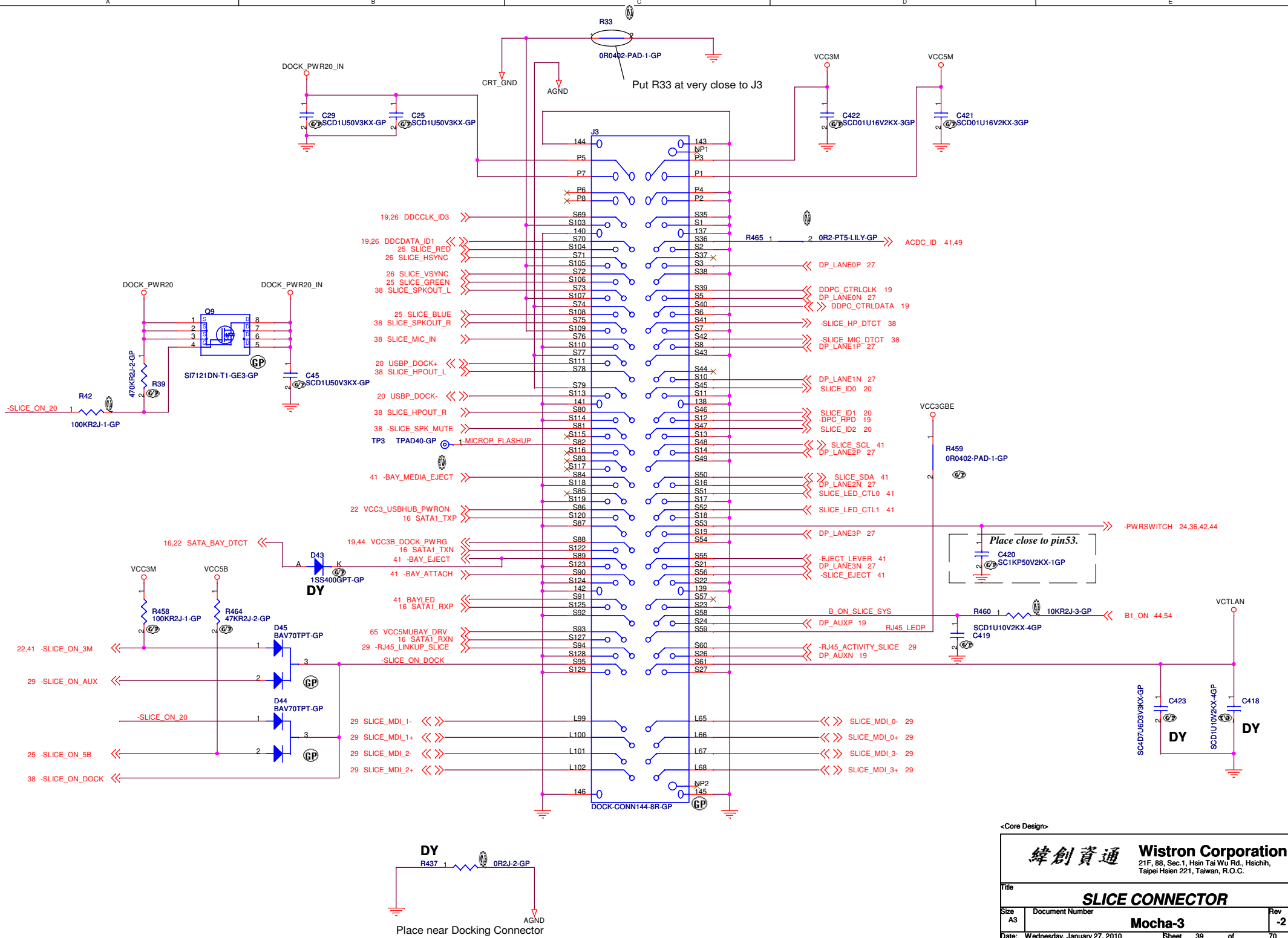
<Core Design>

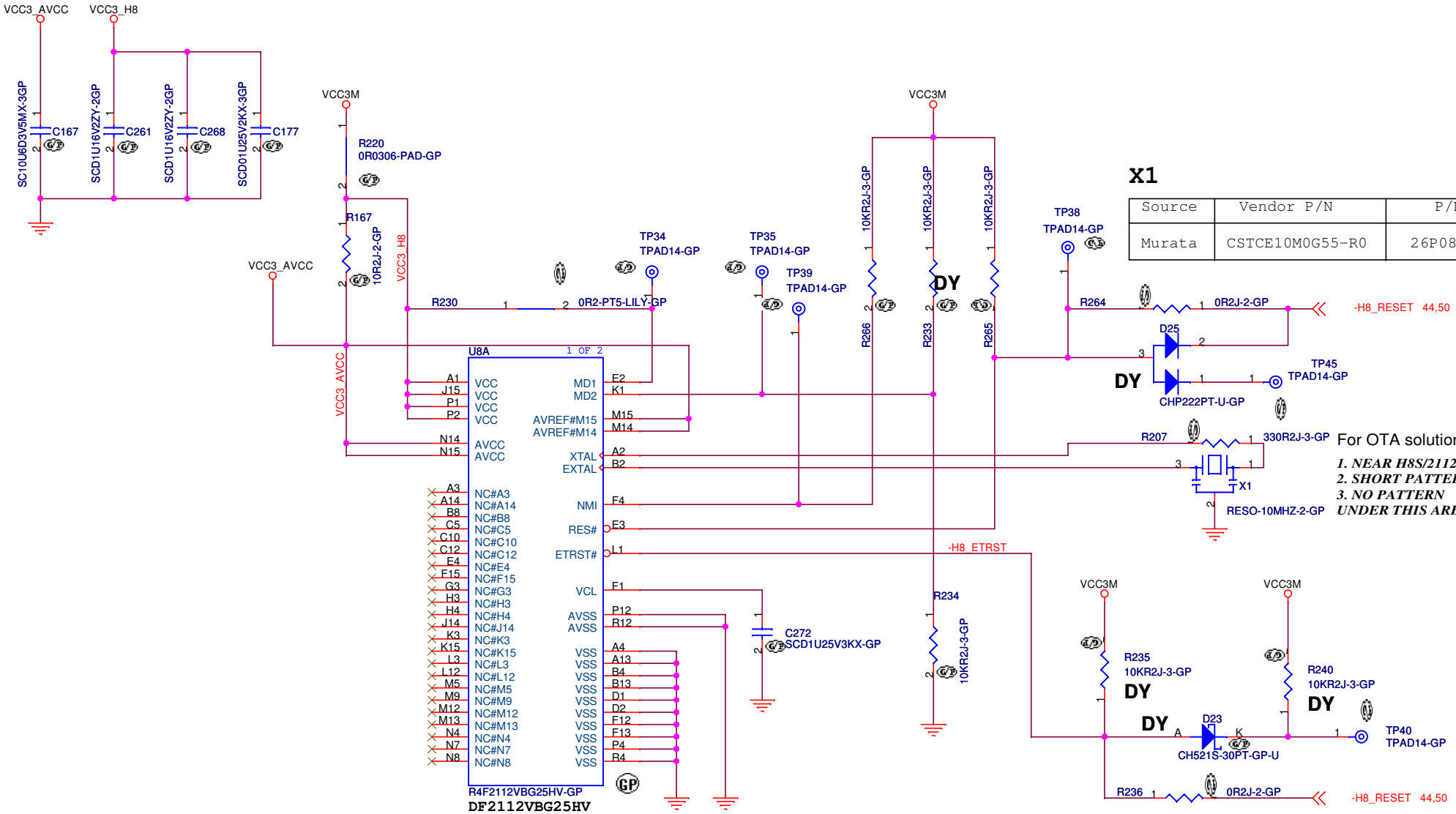
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: **SUB-CARD CONNECTOR**

Size	Document Number	Rev
A4	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 38 of 70


R33
0R0402-PAD-1-GP
Put R33 at very close to J3
DOCK_PWR20_IN
CRT_GND
AGND
C29 SCD1U50V3KX-GP
C25 SCD1U50V3KX-GP
VCC3M
VCC5M
C422 SCD01U16V2KX-3GP
C421 SCD01U16V2KX-3GP
J3
DOCK-CONN144-8R-GP
DOCK_PWR20
DOCK_PWR20_IN
Q9
SI7121DN-T1-GE3-GP
C45 SCD1U50V3KX-GP
R42
100KR2J-1-GP
R39
470KR2J-2-GP
-SLICE_ON_20
19,26 DDCCLK_ID3
19,26 DDCDATA_ID1
25 SLICE_RED
26 SLICE_HSYNC
26 SLICE_VSYNC
25 SLICE_GREEN
38 SLICE_SPKOUT_L
25 SLICE_BLUE
38 SLICE_SPKOUT_R
38 SLICE_MIC_IN
20 USBP_DOCK+
38 SLICE_HPOUT_L
20 USBP_DOCK-
38 SLICE_HPOUT_R
38 -SLICE_SPK_MUTE
TP3 TPAD40-GP
1-MICROP_FLASHUP
41 -BAY_MEDIA_EJECT
22 VCC3_USBHUB_PWRON
16 SATA1_TXP
16,22 SATA_BAY_DTCT
19,44 VCC3B_DOCK_PWRG
16 SATA1_TXN
41 -BAY_EJECT
41 -BAY_ATTACH
41 BAYLED
16 SATA1_RXP
65 VCC5MUBAY_DRV
16 SATA1_RXN
29 -RJ45_LINKUP_SLICE
-SLICE_ON_DOCK
D43
1SS400GPT-GP
DY
VCC3M
VCC5B
R458 100KR2J-1-GP
R464 47KR2J-2-GP
D45 BAV70TPT-GP
D44 BAV70TPT-GP
22,41 -SLICE_ON_3M
29 -SLICE_ON_AUX
-SLICE_ON_20
25 -SLICE_ON_5B
38 -SLICE_ON_DOCK
29 SLICE_MDI_1-
29 SLICE_MDI_1+
29 SLICE_MDI_2-
29 SLICE_MDI_2+
R465 0R2-PT5-LILY-GP
ACDC_ID 41,49
DP_LANE0P 27
DDPC_CTRLCLK 19
DP_LANE0N 27
DDPC_CTRLDATA 19
-SLICE_HP_DTCT 38
-SLICE_MIC_DTCT 38
DP_LANE1P 27
DP_LANE1N 27
SLICE_ID0 20
SLICE_ID1 20
-DPC_HPD 19
SLICE_ID2 20
SLICE_SCL 41
DP_LANE2P 27
SLICE_SDA 41
DP_LANE2N 27
SLICE_LED_CTL0 41
SLICE_LED_CTL1 41
DP_LANE3P 27
-EJECT_LEVER 41
DP_LANE3N 27
-SLICE_EJECT 41
B_ON_SLICE_SYS
DP_AUXP 19
RJ45_LEDP
-RJ45_ACTIVITY_SLICE 29
DP_AUXN 19
VCC3GBE
R459 0R0402-PAD-1-GP
-PWRSWITCH 24,36,42,44
Place close to pin53.
C420 SC1KP50V2KX-1GP
R460 10KR2J-3-GP
B1_ON 44,54
C419 SCD1U10V2KX-4GP
VCTLAN
C423 SC4D7U6D3V3KX-GP
C418 SCD1U10V2KX-4GP
DY
R437 0R2J-2-GP
Place near Docking Connector
<Core Design>
緯創資通
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
SLICE CONNECTOR
Size A3
Document Number
Mocha-3
Rev -2
Date: Wednesday, January 27, 2010
Sheet 39 of 70



X1

Source	Vendor P/N	P/N
Murata	CSTCE10M0G55-R0	26P0832AA

For OTA solution

1. NEAR H8S/2112:
2. SHORT PATTERN
3. NO PATTERN
UNDER THIS AREA

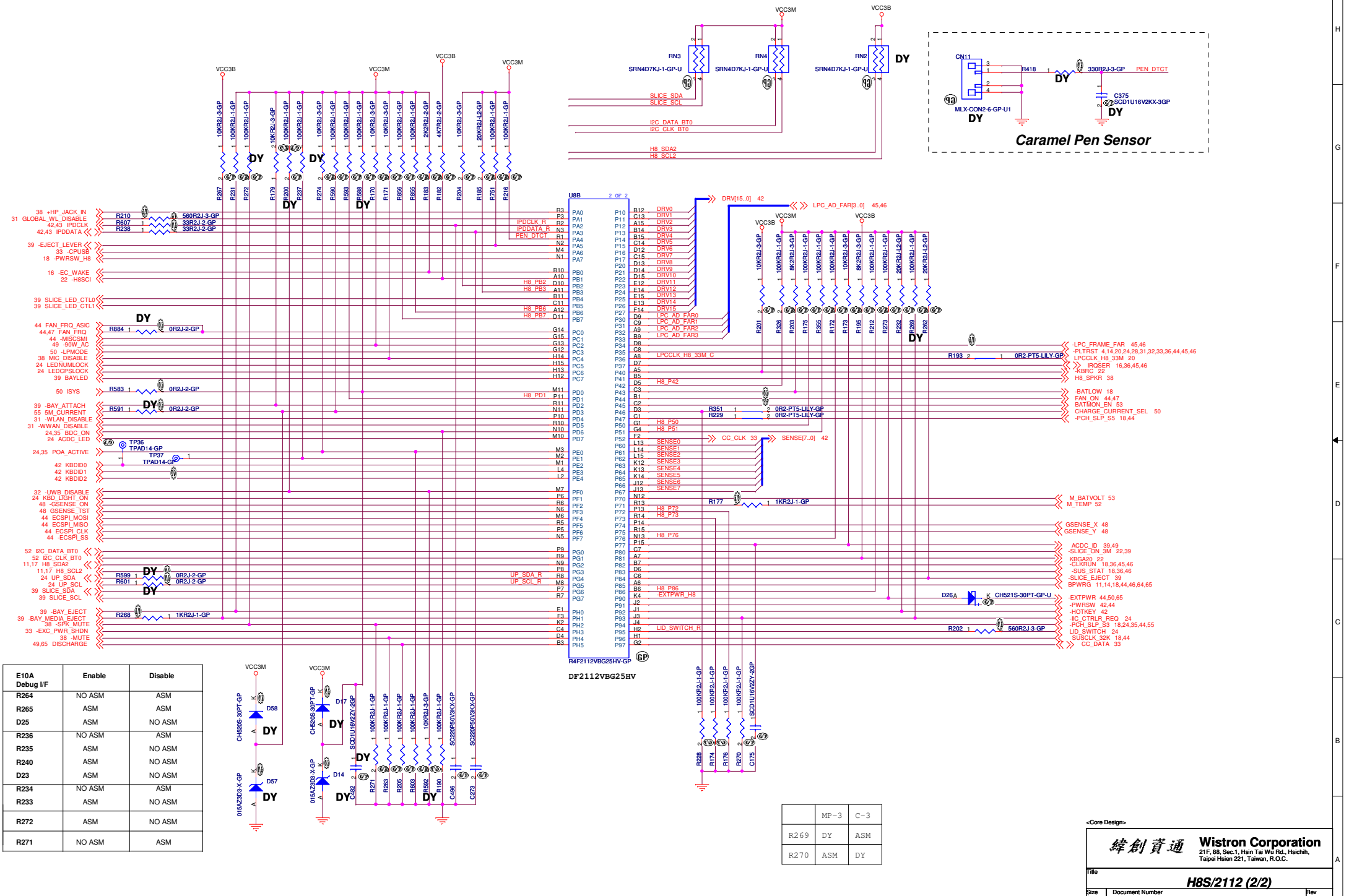
<Core Design>

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

Title: ***H8S/2112 (1/2)***

Size	Document Number	Rev
Custom	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 40 of 70



E10A Debug I/F	Enable	Disable
R264	NO ASM	ASM
R265	ASM	ASM
D25	ASM	NO ASM
R236	NO ASM	ASM
R235	ASM	NO ASM
R240	ASM	NO ASM
D23	ASM	NO ASM
R234	NO ASM	ASM
R233	ASM	NO ASM
R272	ASM	NO ASM
R271	NO ASM	ASM

	MP-3	C-3
R269	DY	ASM
R270	ASM	DY

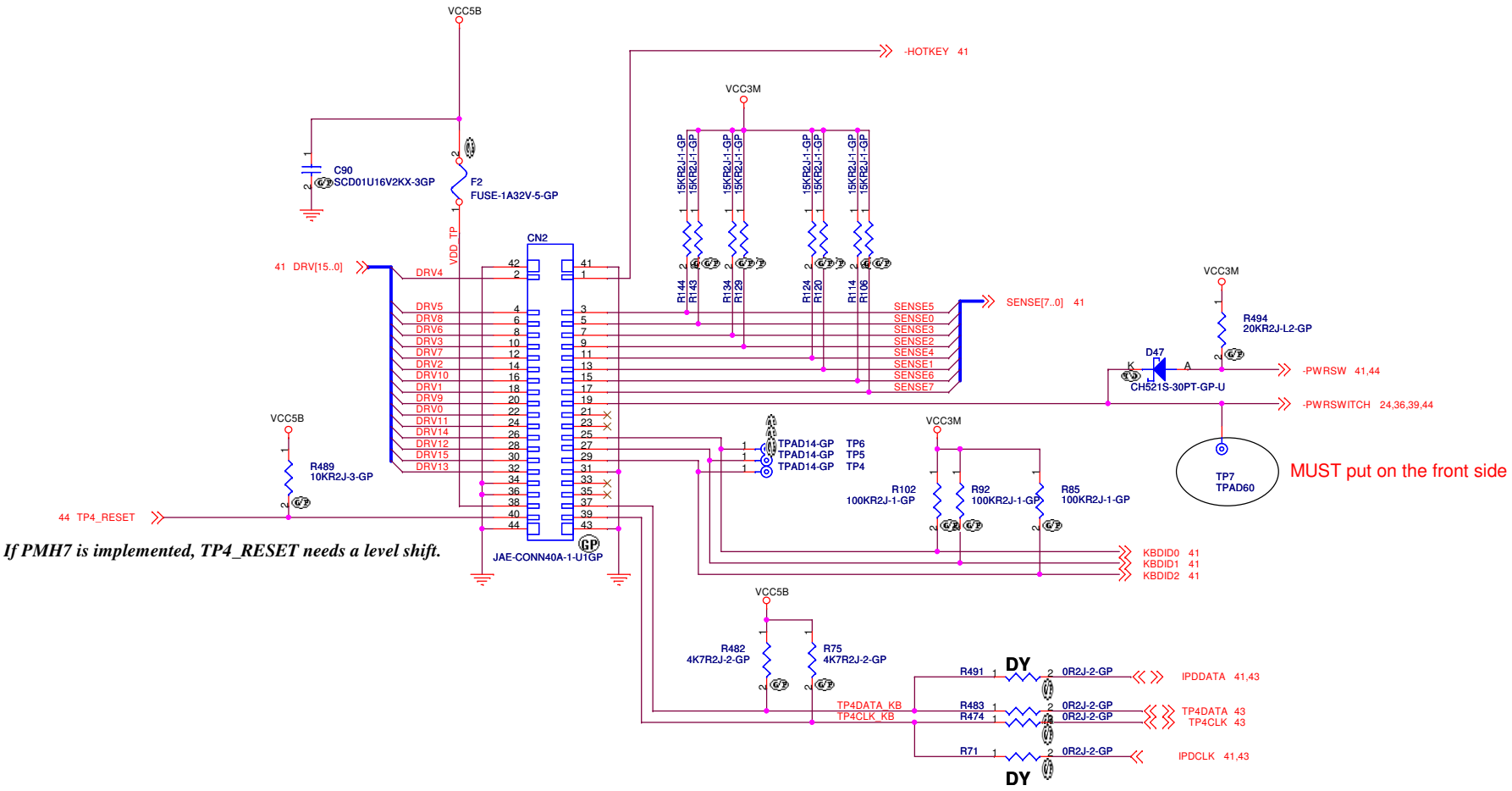
<Core Design>
緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: H8S/2112 (2/2)

Size: Custom | Document Number: Mocha-3 | Rev: -2

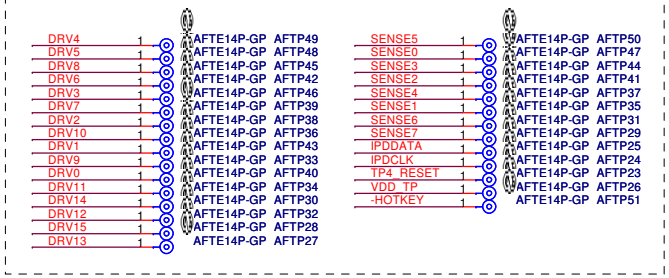
Date: Wednesday, January 27, 2010 | Sheet 41 of 70

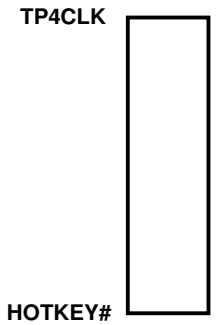
Keyboard Connector



If PMH7 is implemented, TP4_RESET needs a level shift.

Near CN2



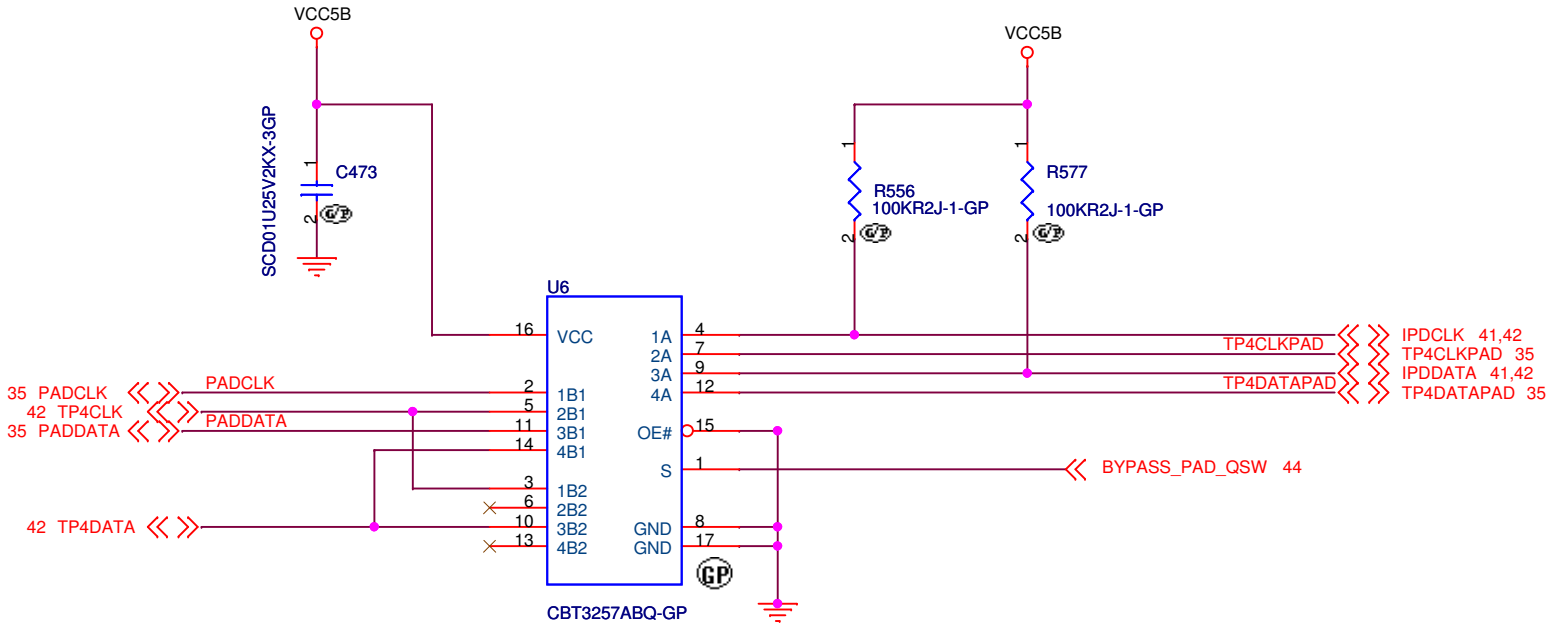


Keyboard Connector Top View

<Core Design>

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

Title			
KEYBOARD CONN			
Size: A3	Document Number: Mocha-3		Rev: -2
Date: Wednesday, January 27, 2010	Sheet 42 of 70		



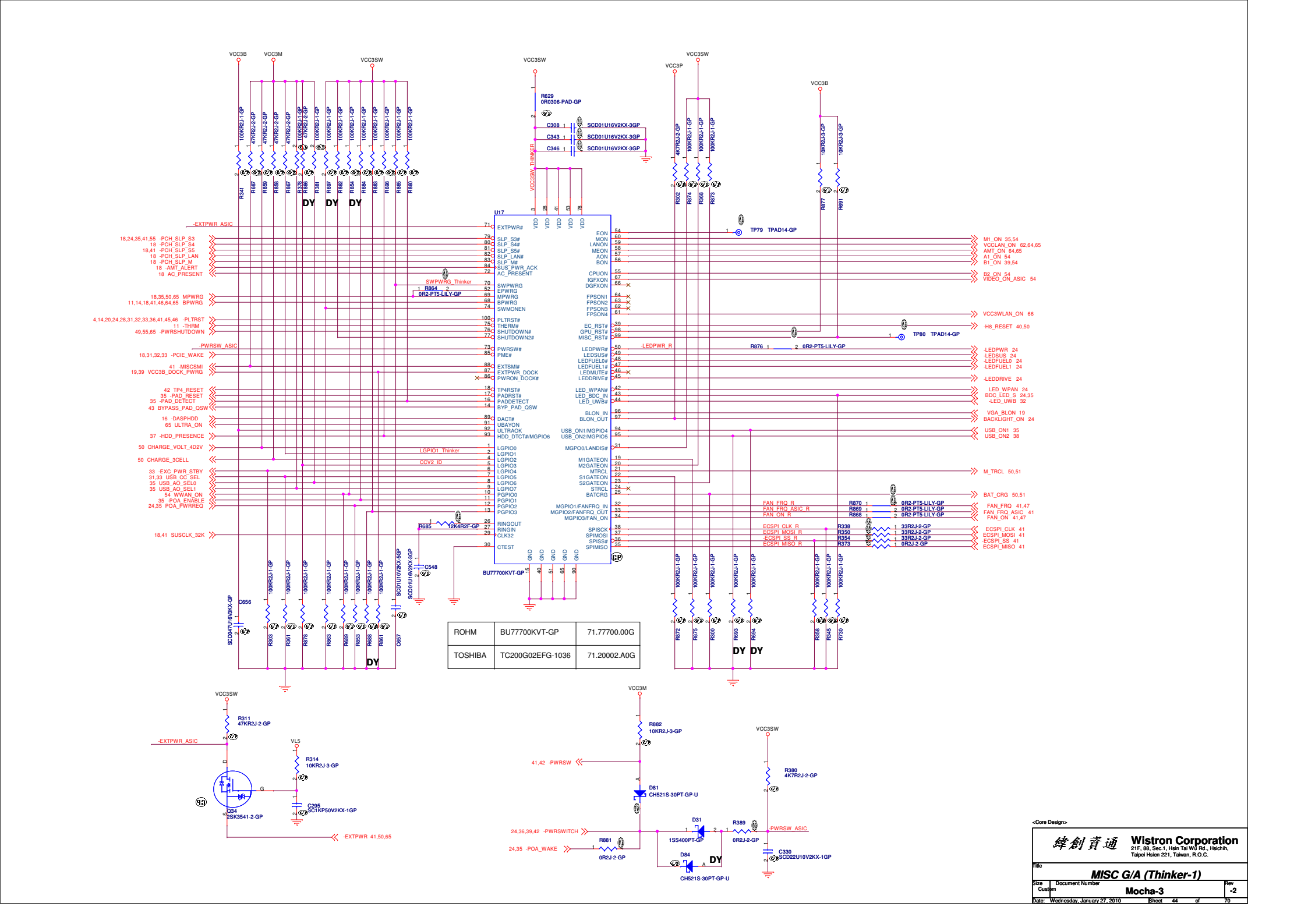
<Core Design>

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 CONNECTOR***

Size	Document Number	Rev
A4	**Mocha-3**	-2

Date: Wednesday, January 27, 2010 Sheet 43 of 70



ROHM	BU77700KVT-GP	71.77700.00G
TOSHIBA	TC200G02EFG-1036	71.20002.A0G

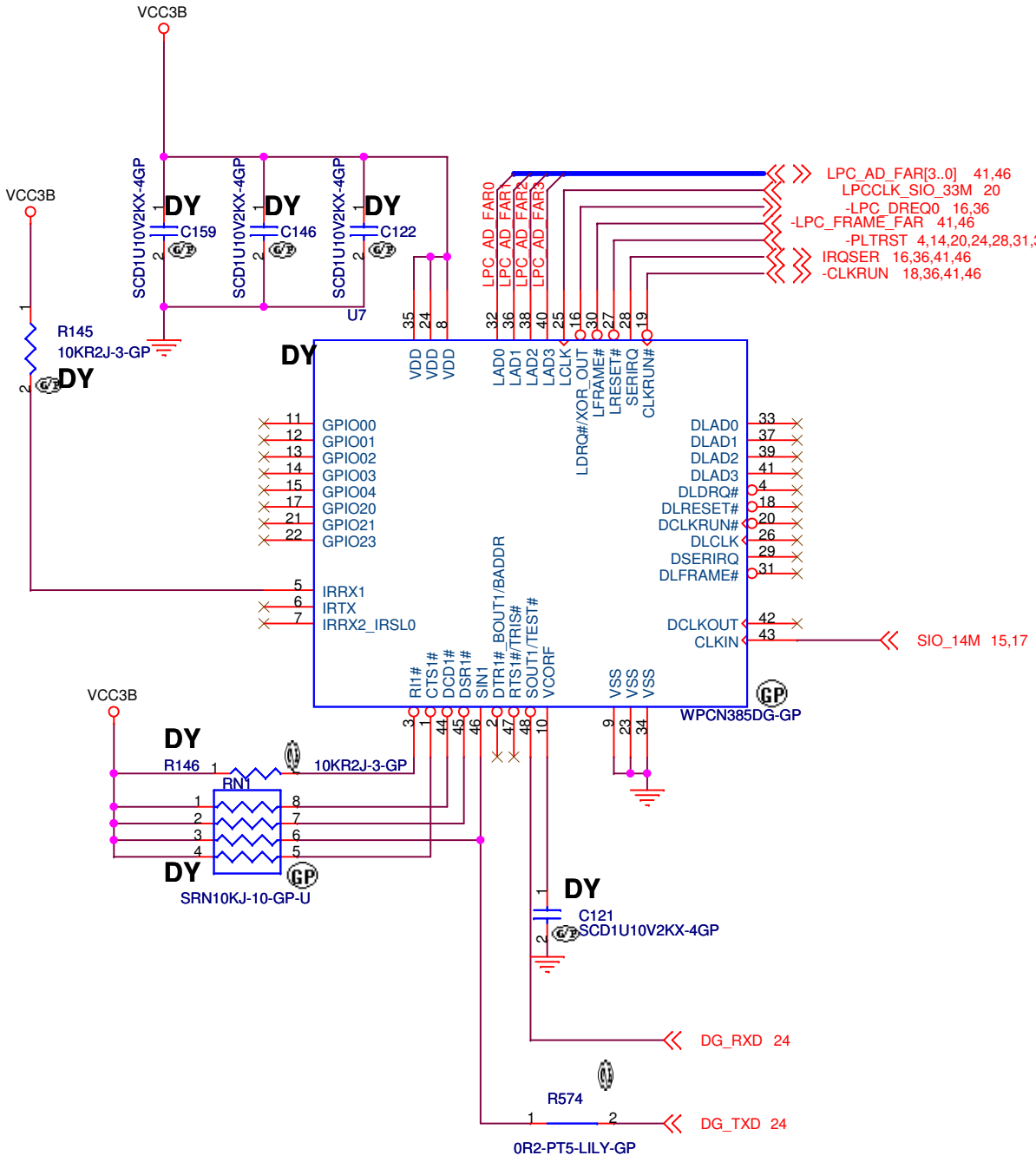
<Core Design>

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

Title: **MISC G/A (Thinker-1)**

Size	Document Number	Rev
Custom	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 44 of 70



	MP	Caramel
U7	DY	ASM
C159	DY	ASM
C146	DY	ASM
C122	DY	ASM
R145	DY	ASM
R146	DY	ASM
RN1	DY	ASM
R574	DY	ASM
C121	DY	ASM

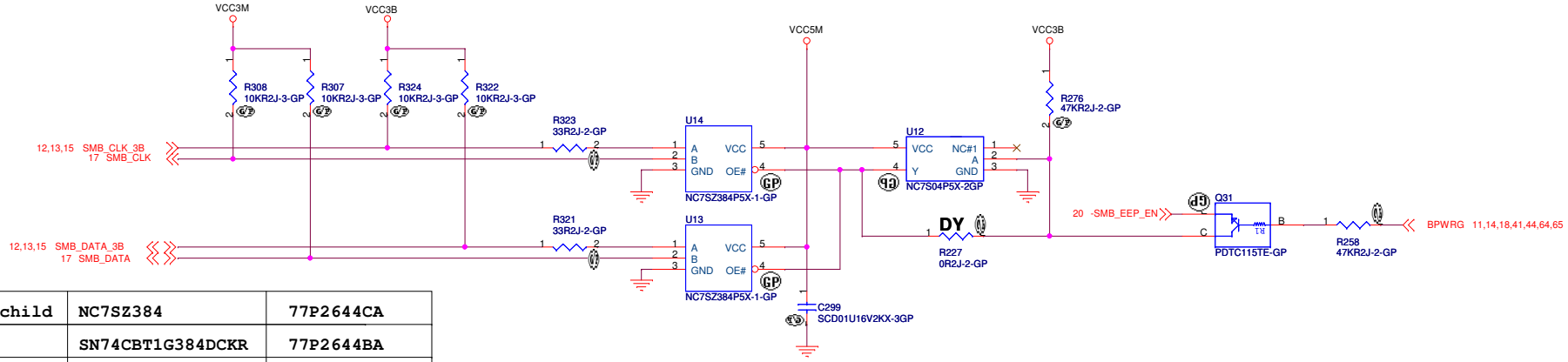
<Core Design>

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

Title: ***WPCN385SDG***

Size	Document Number	Rev
A4	Mocha-3	-2

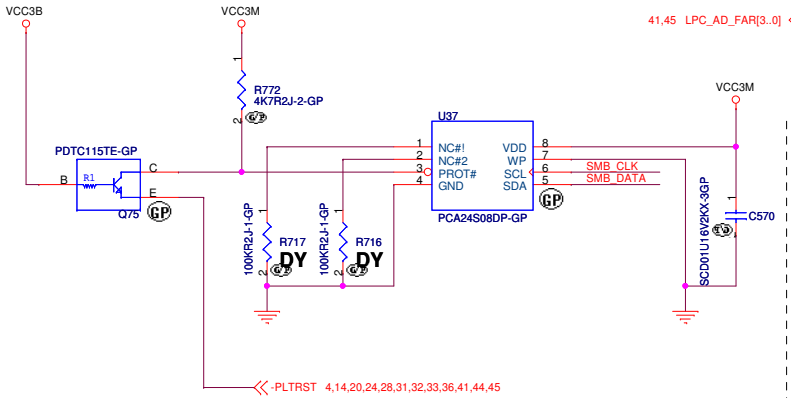
Date: Wednesday, January 27, 2010 Sheet 45 of 70



U13,U14

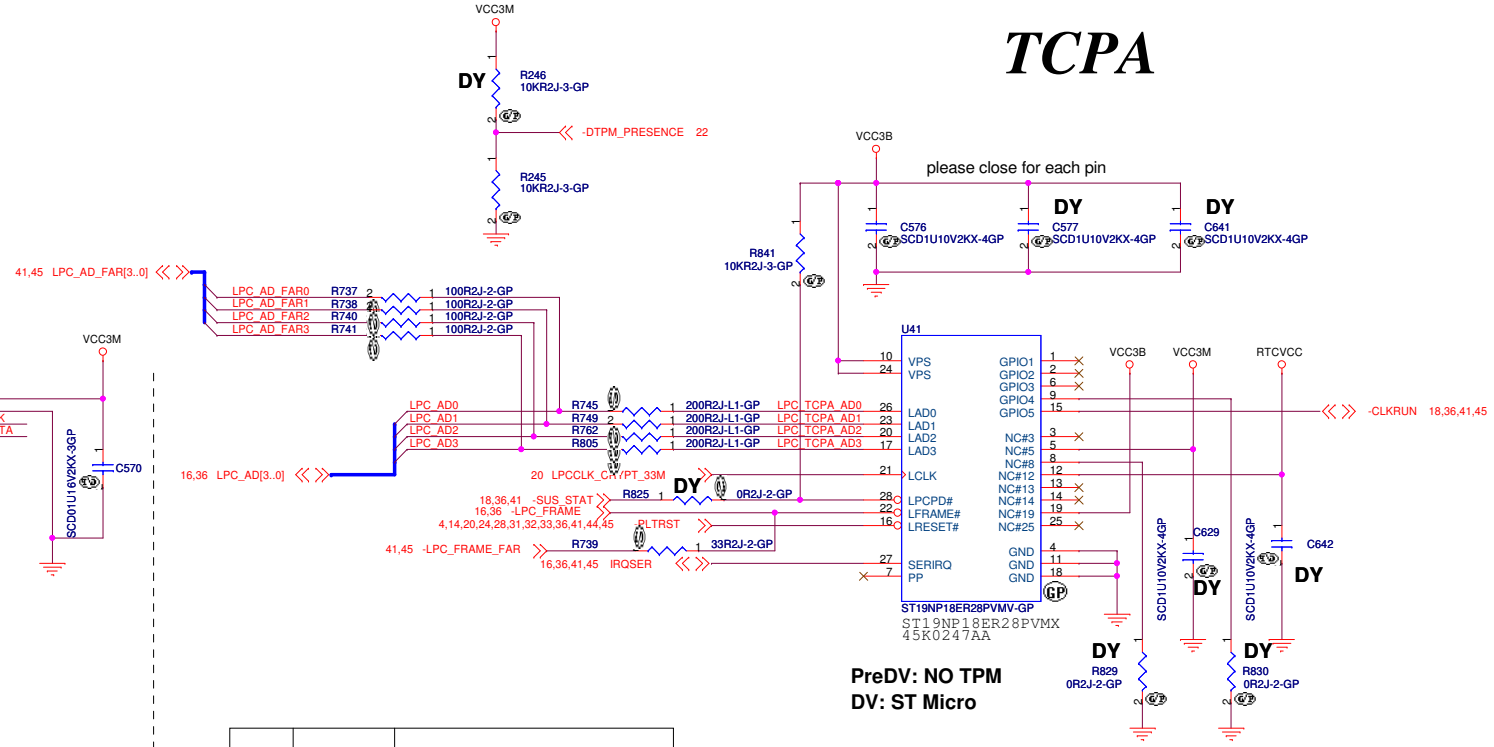
1st	Fairchild	NC7SZ384	77P2644CA
2nd	TI	SN74CBT1G384DCKR	77P2644BA
3rd	Toshiba	TC7SB384FU	77P2644AA

EEPROM



	Vendor	U37	Part Number
1st	PHILIPS	PCA24S08D TSSOP 8P	72.24S08.00Q
2nd	ROHM	BUL08-1FVJ-W	72.BUL08.00Q

TCPA



	NO TPM	ST Micro ST19NP18-TPM-A
U41	NO_ASM	ASM
C576	NO_ASM	ASM
C577	NO_ASM	NO_ASM
R825	NO_ASM	ASM
R829	NO_ASM	NO_ASM
R830	NO_ASM	NO_ASM
R841	NO_ASM	NO_ASM
R246	ASM	NO_ASM
R245	NO_ASM	ASM

Change U41 ST Micrelectronics TPM
from ST19NP18ER28PVMV (F/W Rev: 1.2.8.C)
to ST19NP18ER28PVMX (F/W Rev: 1.2.8.10)

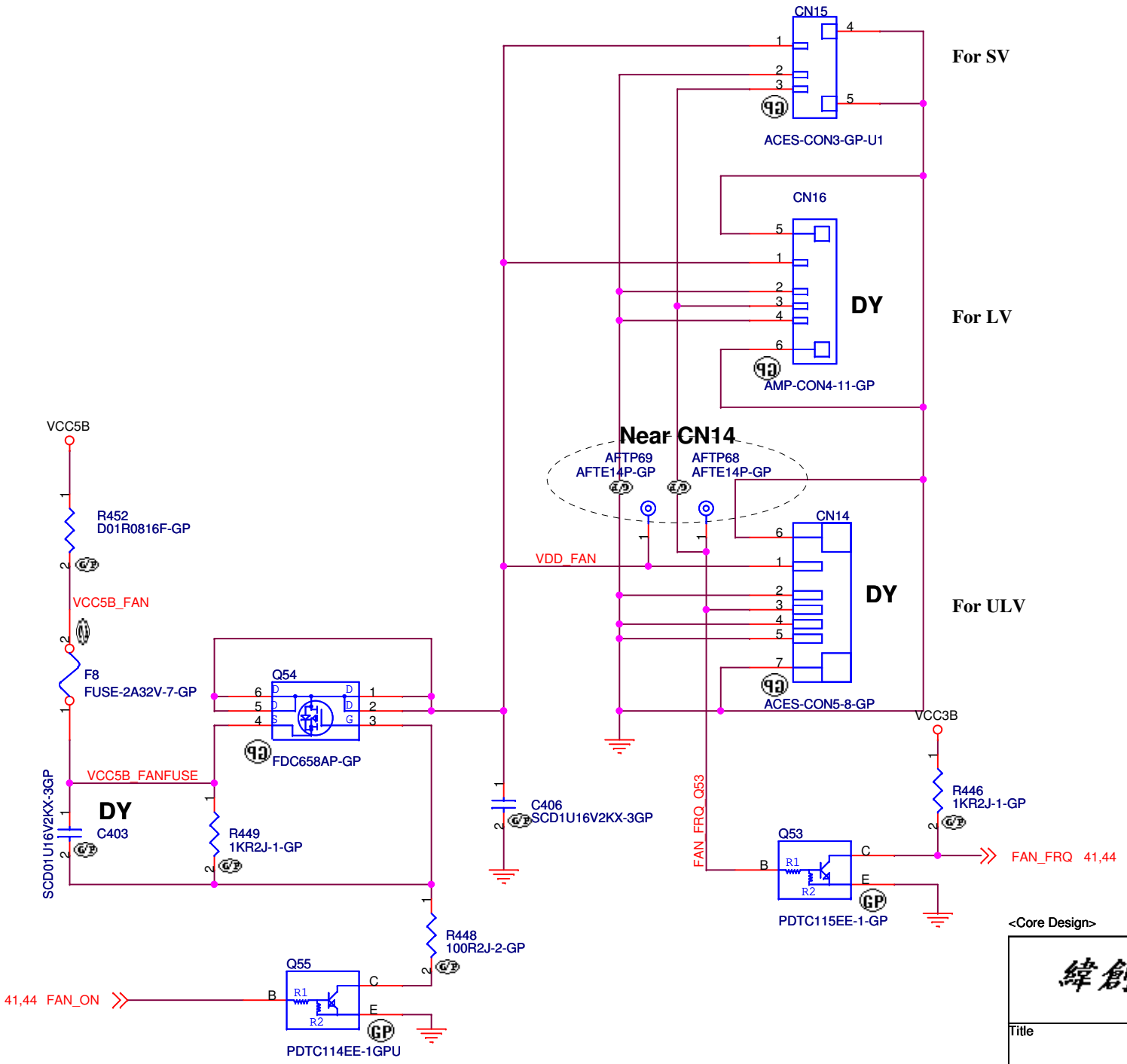
<Core Design>

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

Title: EEPROM/TCPA

Size: Custom | Document Number: Mocha-3 | Rev: -2

Date: Wednesday, January 27, 2010 | Sheet 46 of 70



CN15		
1st	20.F0714.003	Aces
2nd	20.D0201.103	Tyco

CN16		
1st	20.D0201.104	Tyco
2nd	20.F0714.004	Aces

CN14		
1st	20.F0714.005	Aces
2nd		

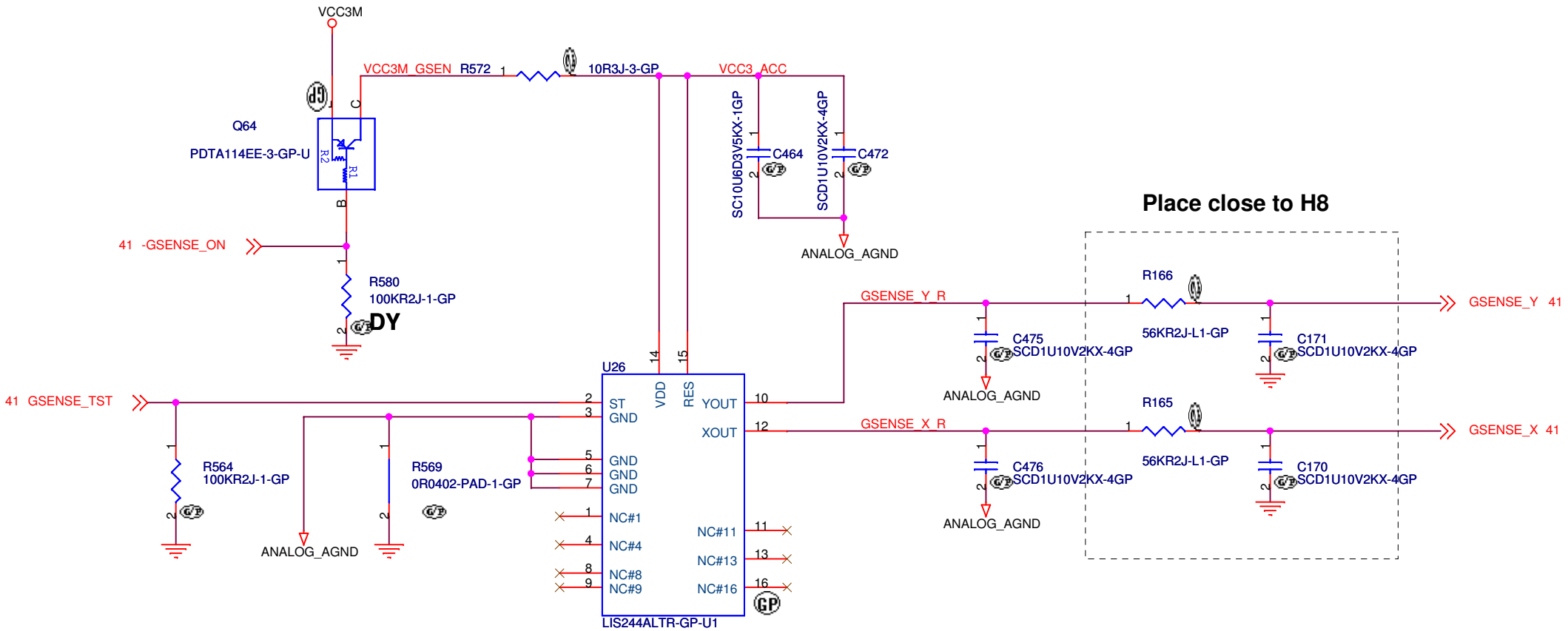
<Core Design>

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

Title: **FAN CONTROL**

Size	Document Number	Rev
A4	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 47 of 70



	LIS244AL LIS34AL	No Accel
R580	NO_ASM	ASM
R564	ASM	ASM
All other	ASM	NO_ASM

U26

Primary	STMicro LIS244AL	74.00244.0BZ
Second	STMicro LIS34AL	74.00034.0BZ

Layout Comment :

(1) Place C475,C476,Q64,R572,R580 C464,C472,R564,R569 close to U26

(2) Avoid routing under DCDC switching area.

Width = 6 mil & Spacing = 10 mil for three Output traces

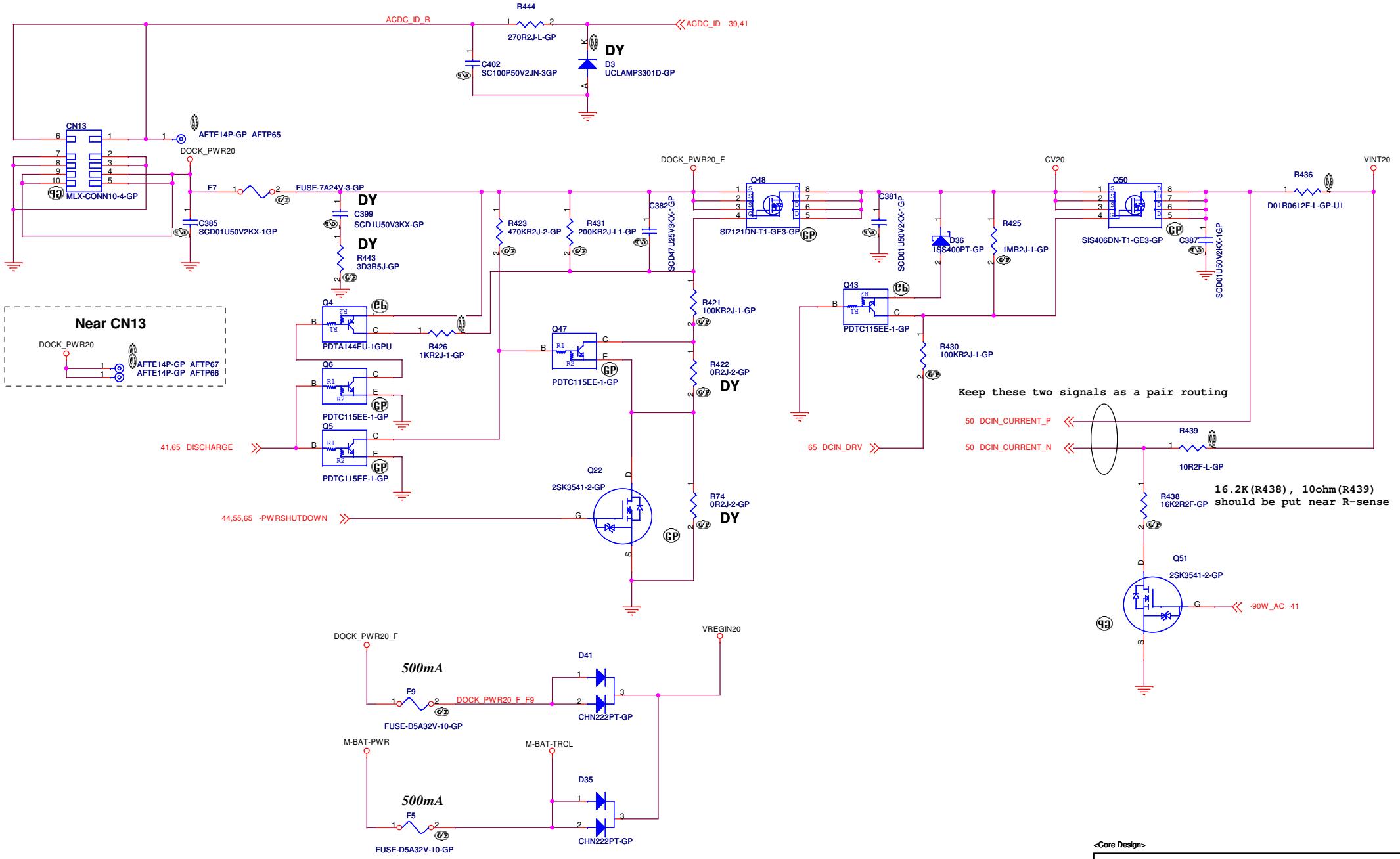
<Core Design>

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

Title: **G-SENSOR**

Size	Document Number	Rev
A4	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 48 of 70



<Core Design>

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

Title: ***DC-IN AND CHARGER (1/2)***

Size	Document Number	Rev
A3	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 49 of 70

	Total	Stop Charge
90W	4.4A	4.0A
65W	3.2A	2.8A

AC Detect
18.4V

C425,C77,C64 NEED to be close to ACP-ACN

H:3Cell
L:4Cell

DY

TDK
SPM6530T-4R7M

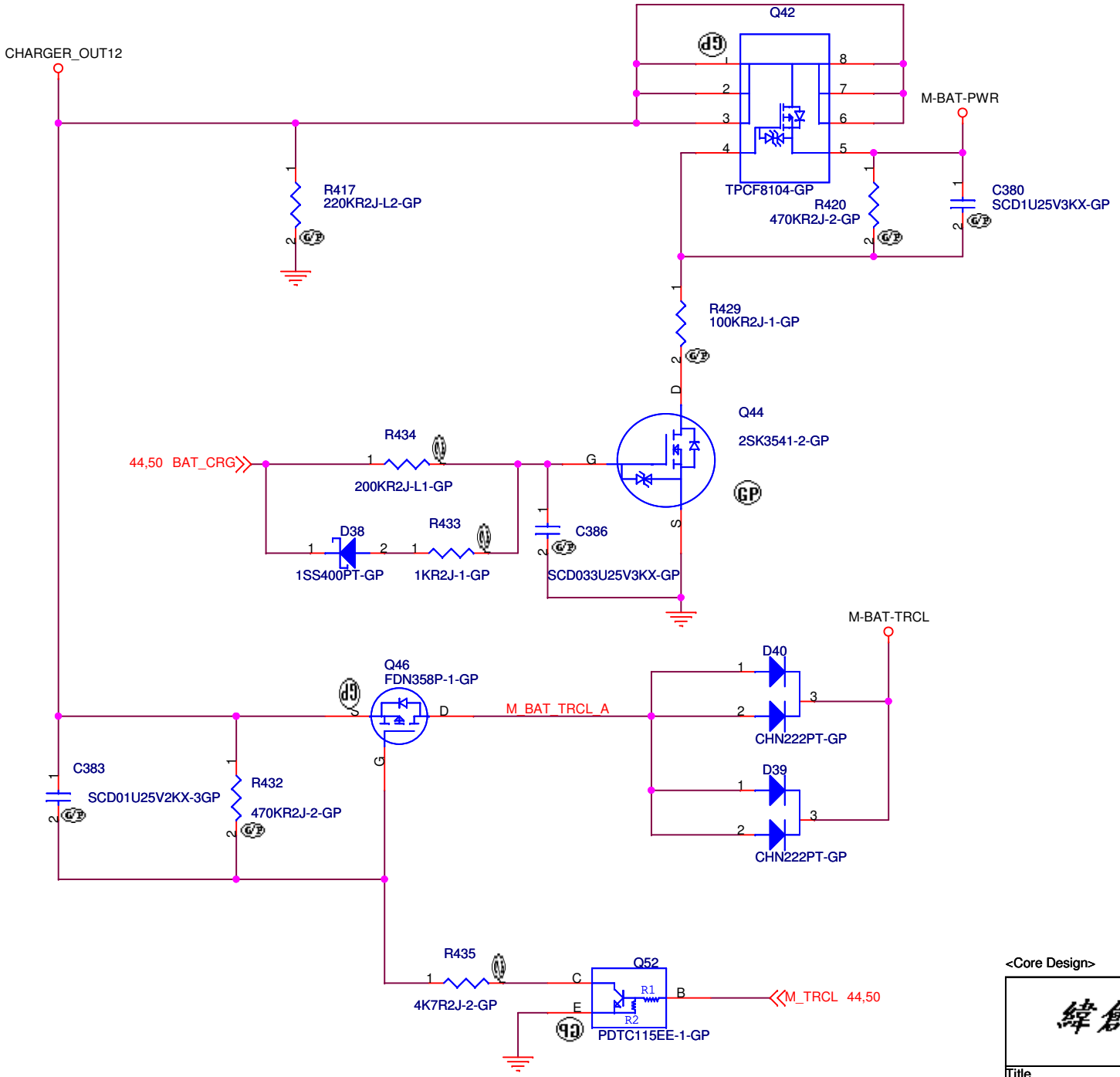
<Core Design>

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

Title: DC-IN AND CHARGER (2/2)

Size	Document Number	Rev
Custom	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 50 of 70



<Core Design>

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

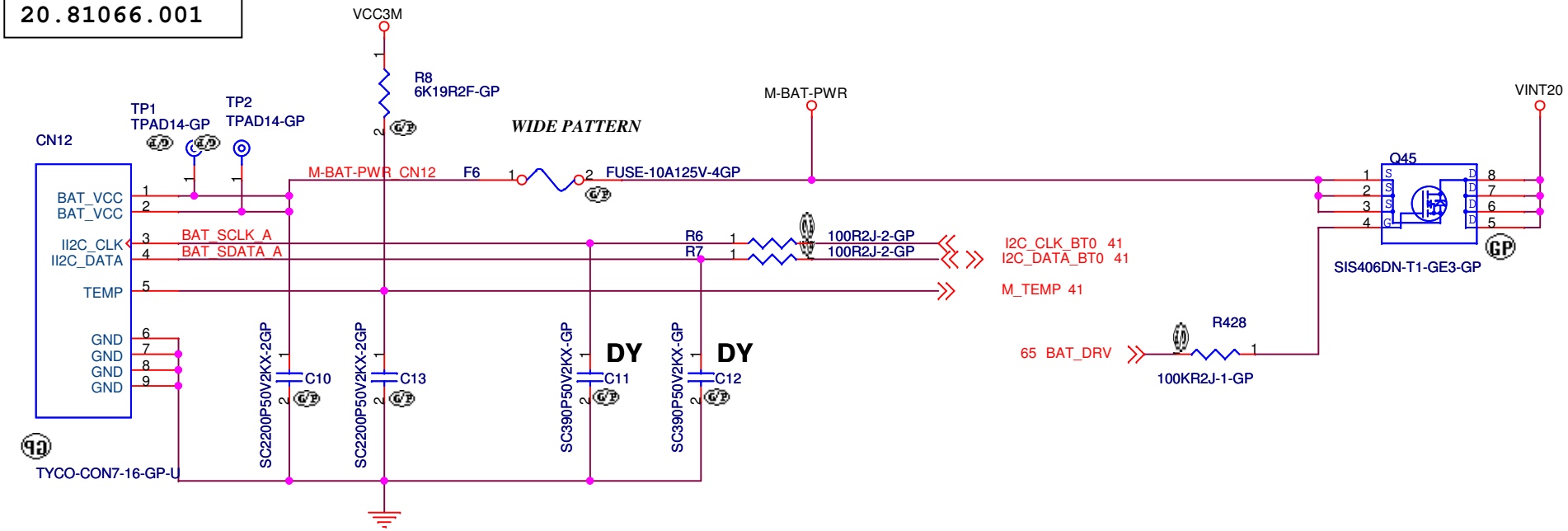
Title

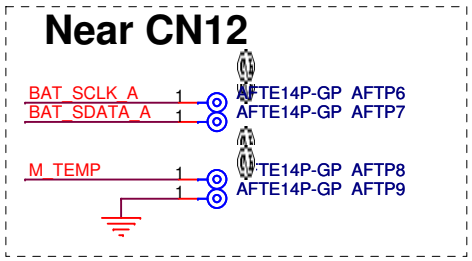
CHARGER SELECT

Size	Document Number	Rev
A4	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 51 of 70

CN12
AMP 2041614-1
20.81066.001





<Core Design>

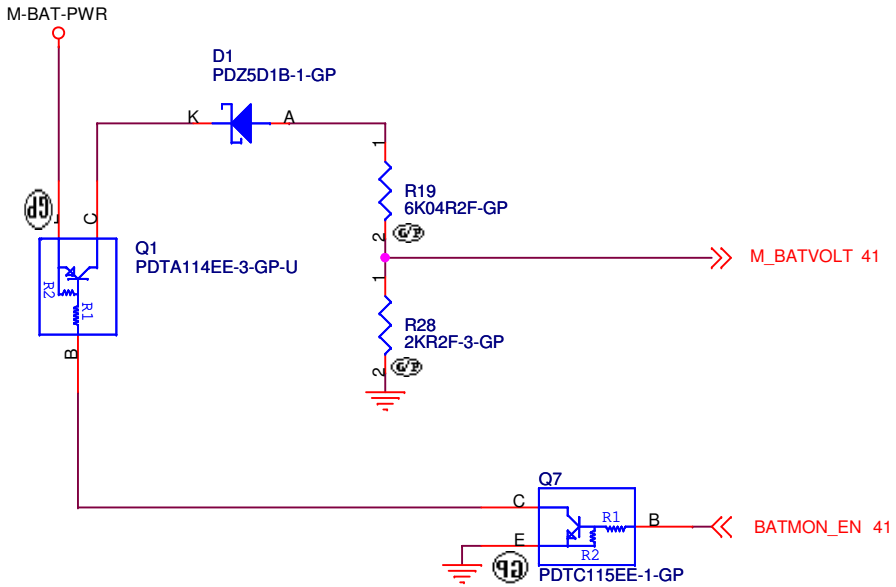
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***BATTERY INPUT***

Size	Document Number	Rev
A4	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 52 of 70

VOUT = 0.249 (VBAT - 5)



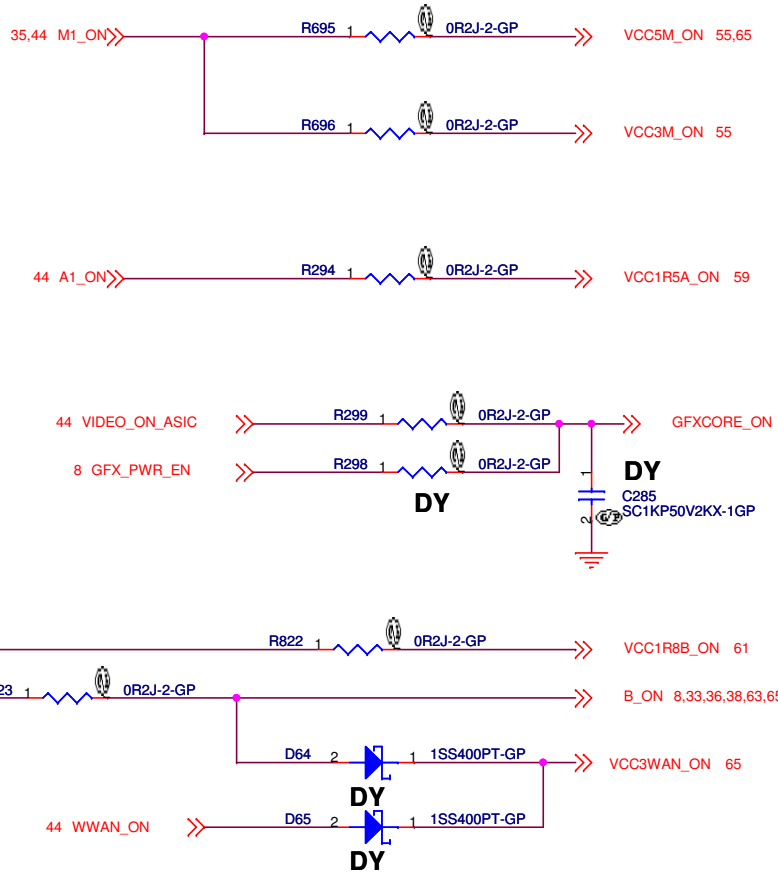
<Core Design>

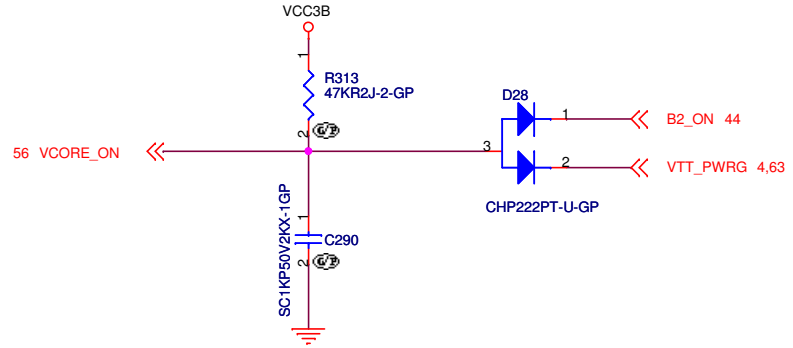
緯創資通 **Wistron Corporation**
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

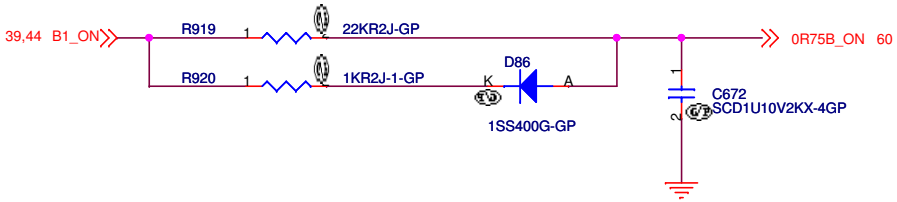
Title: ***BATTERY MONITOR***

Size	Document Number	Rev
A4	**Mocha-3**	-2

Date: Wednesday, January 27, 2010 Sheet 53 of 70







Constant Connect	Enable	Disable
D64	ASM	NoASM
D65	ASM	NoASM

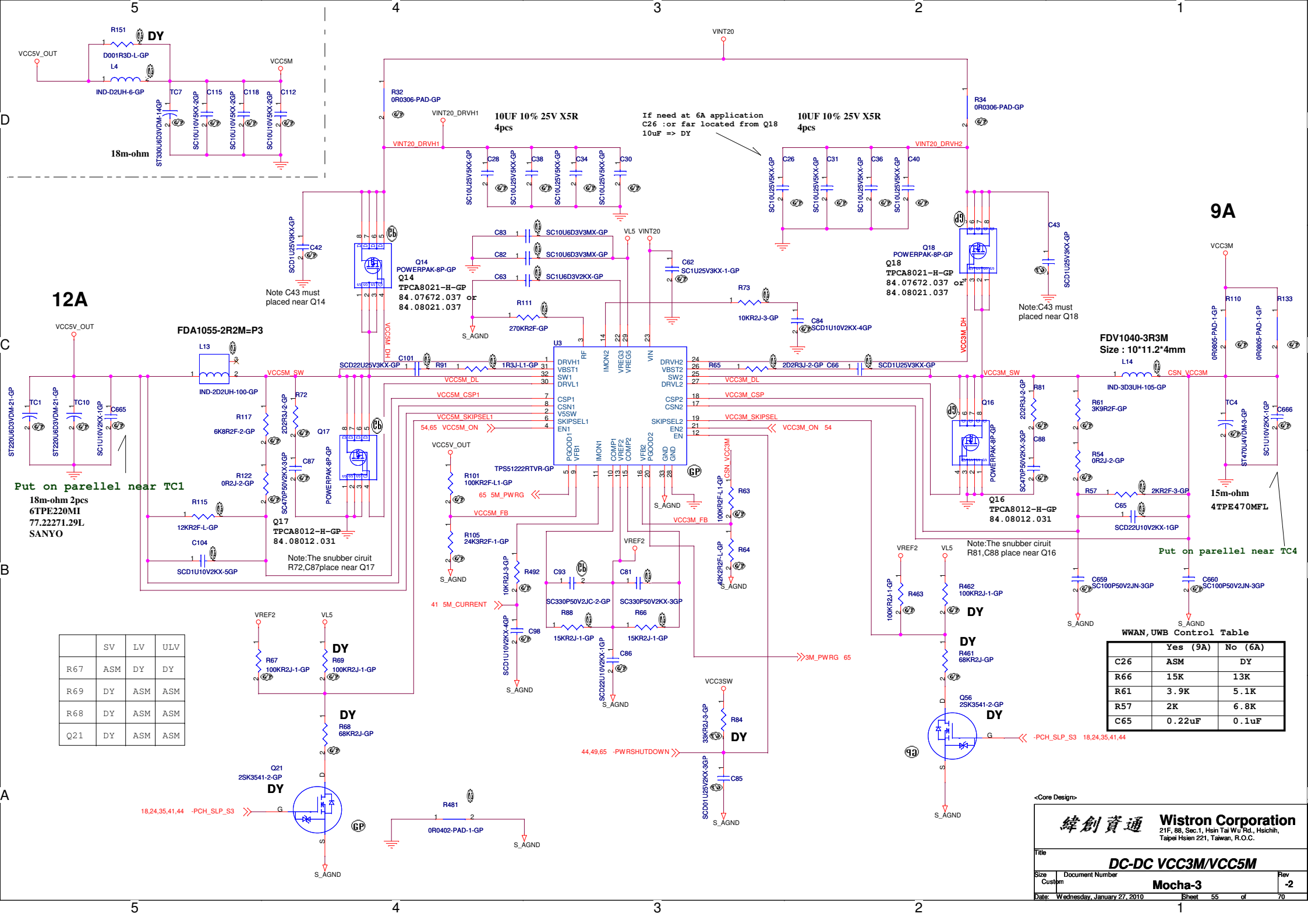
<Core Design>

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

Title: **POWER SEQUENCE**

Size	Document Number	Rev
Custom	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 54 of 70



	SV	LV	ULV
R67	ASM	DY	DY
R69	DY	ASM	ASM
R68	DY	ASM	ASM
Q21	DY	ASM	ASM

WWAN,UWB Control Table

	Yes (9A)	No (6A)
C26	ASM	DY
R66	15K	13K
R61	3.9K	5.1K
R57	2K	6.8K
C65	0.22uF	0.1uF

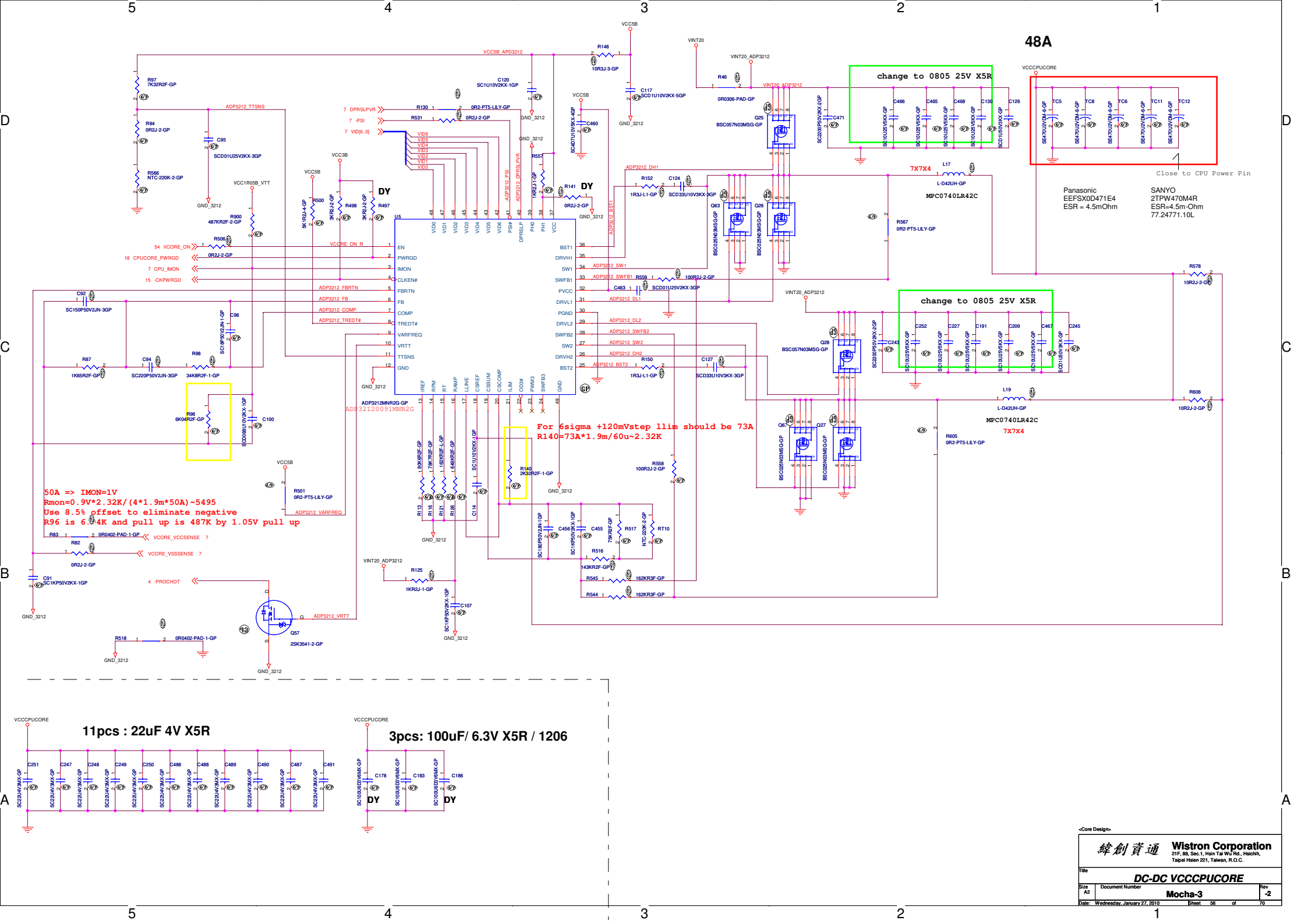
<Core Design>

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 VCC3M/VCC5M

Size	Document Number	Rev
Custom	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 55 of 70


48A
change to 0805 25V X5R
change to 0805 25V X5R
Close to CPU Power Pin
Panasonic
EEFSX0D471E4
ESR = 4.5mOhm
SANYO
2TPW470M4R
ESR=4.5m-Ohm
77.24771.10L
MPC0740LR42C
7X7X4
MPC0740LR42C
7X7X4
ADP3212MNR2G-GP
ADP32120091MNR2G
For 6sigma +120mVstep Ilim should be 73A
R140=73A*1.9m/60u~2.32K
50A => IMON=1V
Rmon=0.9V*2.32K/(4*1.9m*50A)~5495
Use 8.5% offset to eliminate negative
R96 is 6.04K and pull up is 487K by 1.05V pull up
11pcs : 22uF 4V X5R
3pcs: 100uF/ 6.3V X5R / 1206
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DC-DC VCCCPUCORE
Mocha-3
Wednesday, January 27, 2010

	SV 2-phase(48A)	LV 2-phase(35A)	ULV 2-phase(27A)
OCP	73A	52A	42A
R96	6.04K	5.36K	5.76K
R140	2.32K	2.61K	2.1K
R545	162K	102K	102K
R544	162K	102K	102K
Q63	ASM	DY	DY
Q67	ASM	DY	DY
TC5	470uF / 4.5m-ohm	330uF / 6m-ohm	330uF / 6m-ohm
TC8	470uF / 4.5m-ohm	330uF / 6m-ohm	330uF / 6m-ohm
TC6	470uF / 4.5m-ohm	330uF / 6m-ohm	330uF / 6m-ohm
TC11	470uF / 4.5m-ohm	DY	DY
TC12	470uF / 4.5m-ohm	DY	DY
R900	487K	432K	464K

<Core Design>

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Title: ***DC-DC VCCCPUCORE***

Size: A4 | Document Number: **Mocha-3** | Rev: **-2**

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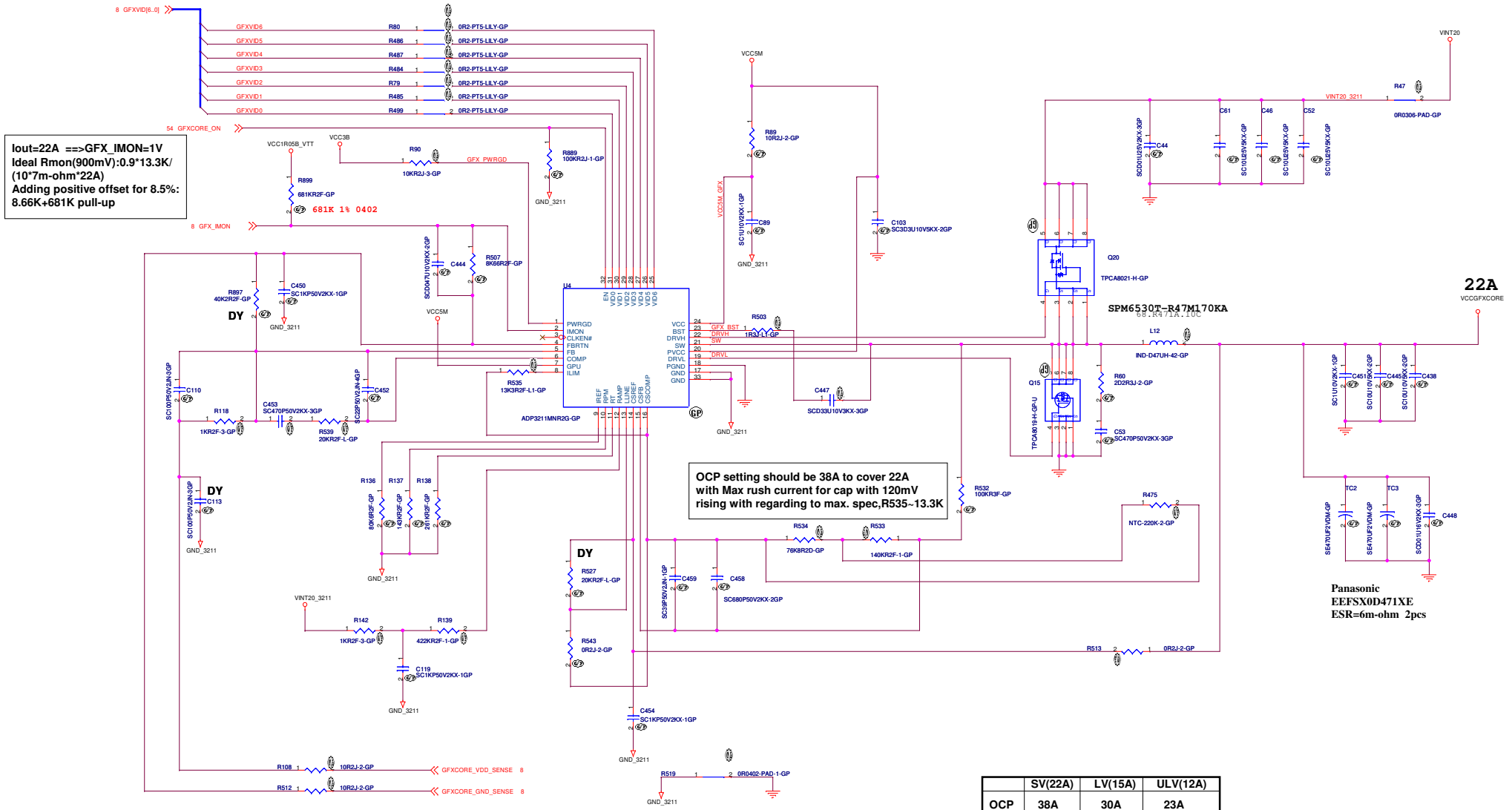

	SV(22A)	LV(15A)	ULV(12A)
OCP	38A	30A	23A
C52	ASM	DY	DY
R507	8.66K	10K	9.53K
R535	13.3K	10.5K	8.06K
R899	681K	787K	750K
TC2	470uF	330uF	220uF
TC3	470uF	330uF	220uF

<Core Design>

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Title: DC-DC GFXCORE

Size: A2 | Document Number: Mocha-3 | Rev: -2

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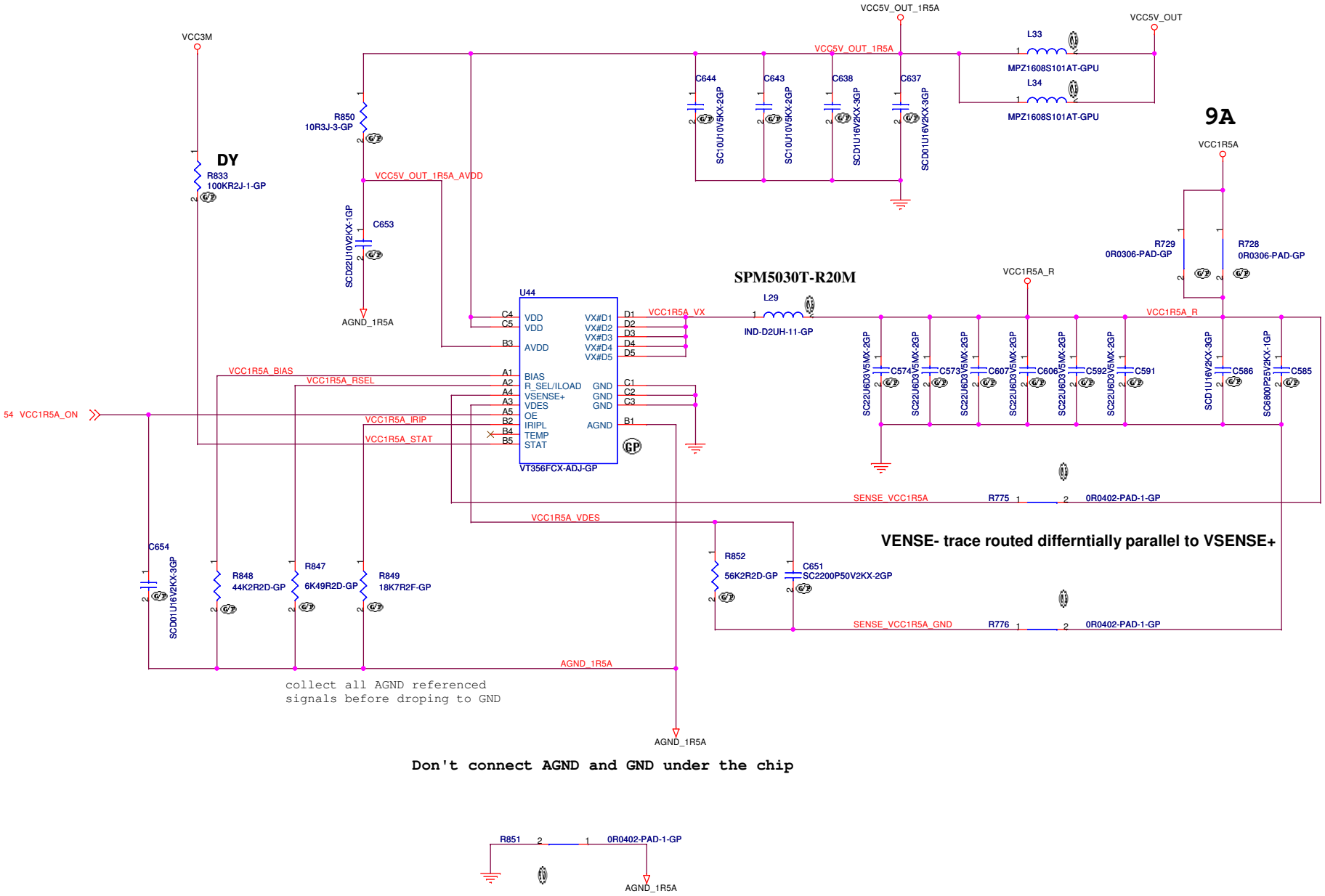

<Core Design>

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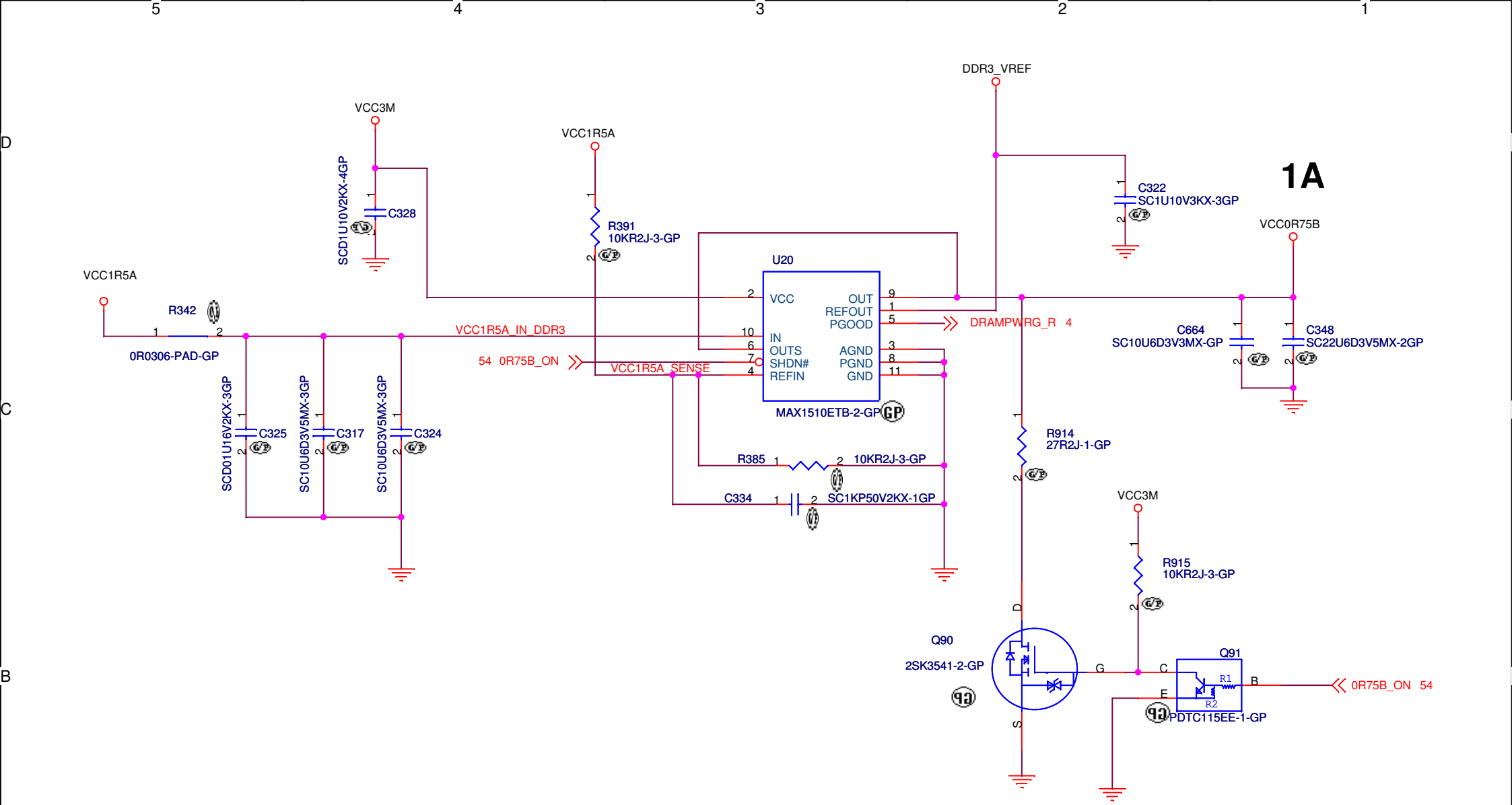
Title: DC-DC VCC1R5A

Size	Document Number	Rev
A3	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 59 of 70



<Core Design>

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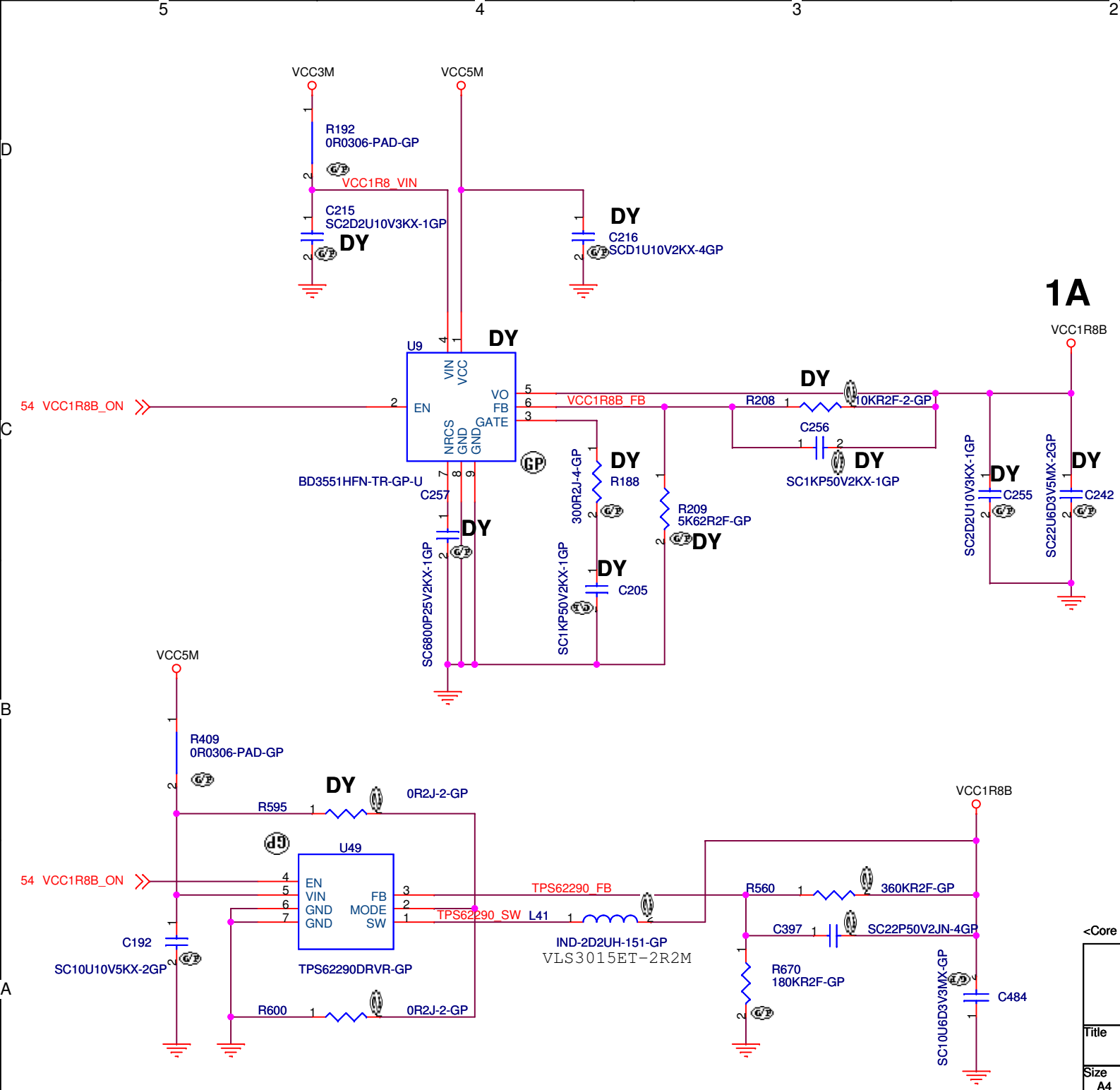
Title: ***DC-DC VCC0R75B***

Size	Document Number	Rev
A4	**Mocha-3**	-2

Date: Wednesday, January 27, 2010 Sheet 60 of 70



SOVP		NV/LV/ULV
SIT-R		NV
SVT		NV/LV/ULV
C215	ASM	DY
C216	ASM	DY
U9	ASM	DY
C257	ASM	DY
R188	DY	DY
C205	DY	DY
R208	10K	DY
C256	1KpF(DY)	DY
R209	5.62K	DY
C255	ASM	DY
C242	22uF	DY
C192	DY	ASM
R595	DY	DY
U49	DY	ASM
R600	DY	ASM
L41	DY	ASM
R560	DY	360K
R670	DY	180K
C397	DY	22pF
C484	DY	10UF

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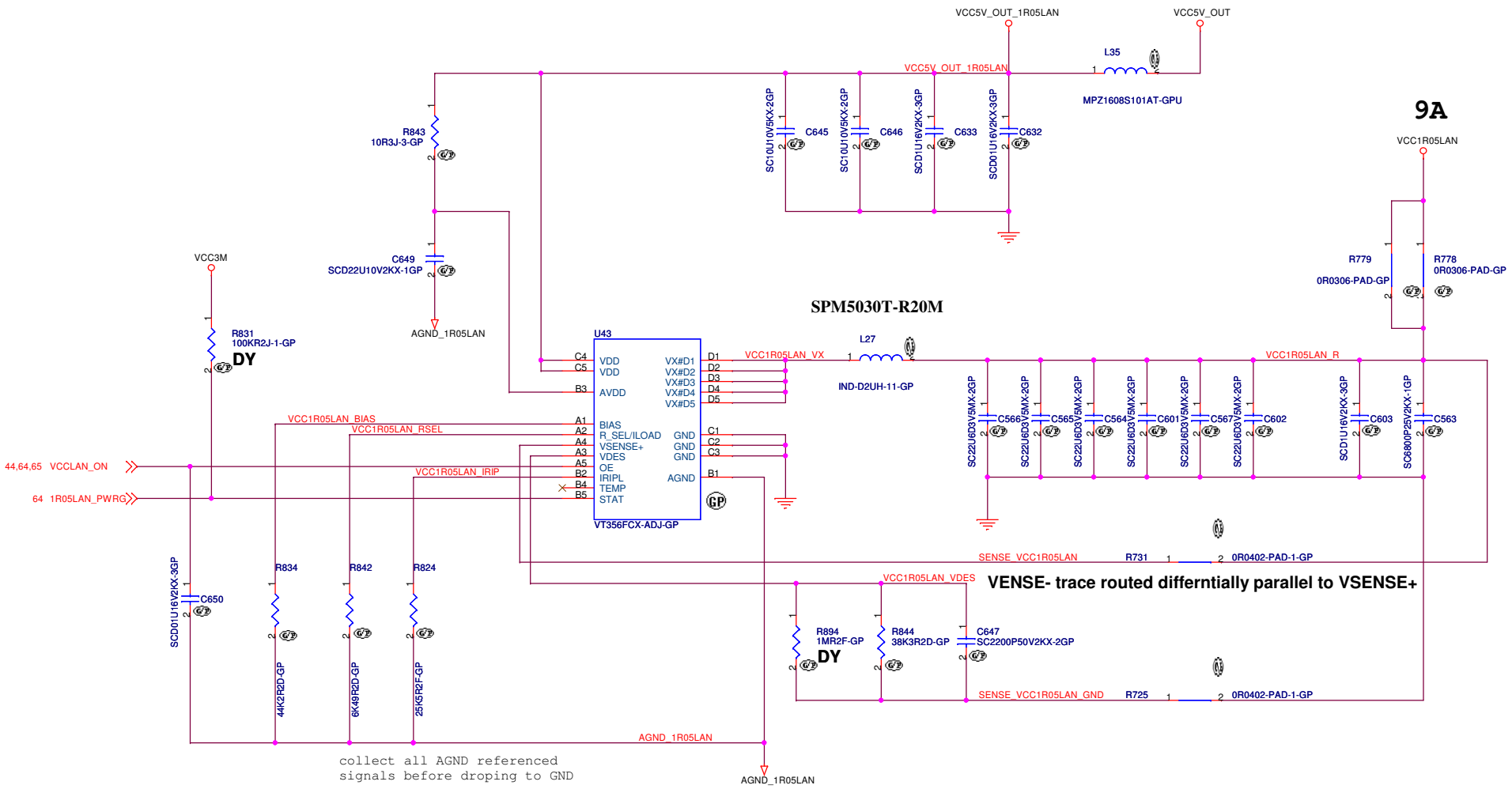
Title: DC-DC VCC1R8B

Size: A4 | Document Number: Mocha-3 | Rev: -2

Date: Wednesday, January 27, 2010 | Sheet 61 of 70



<Core Design>

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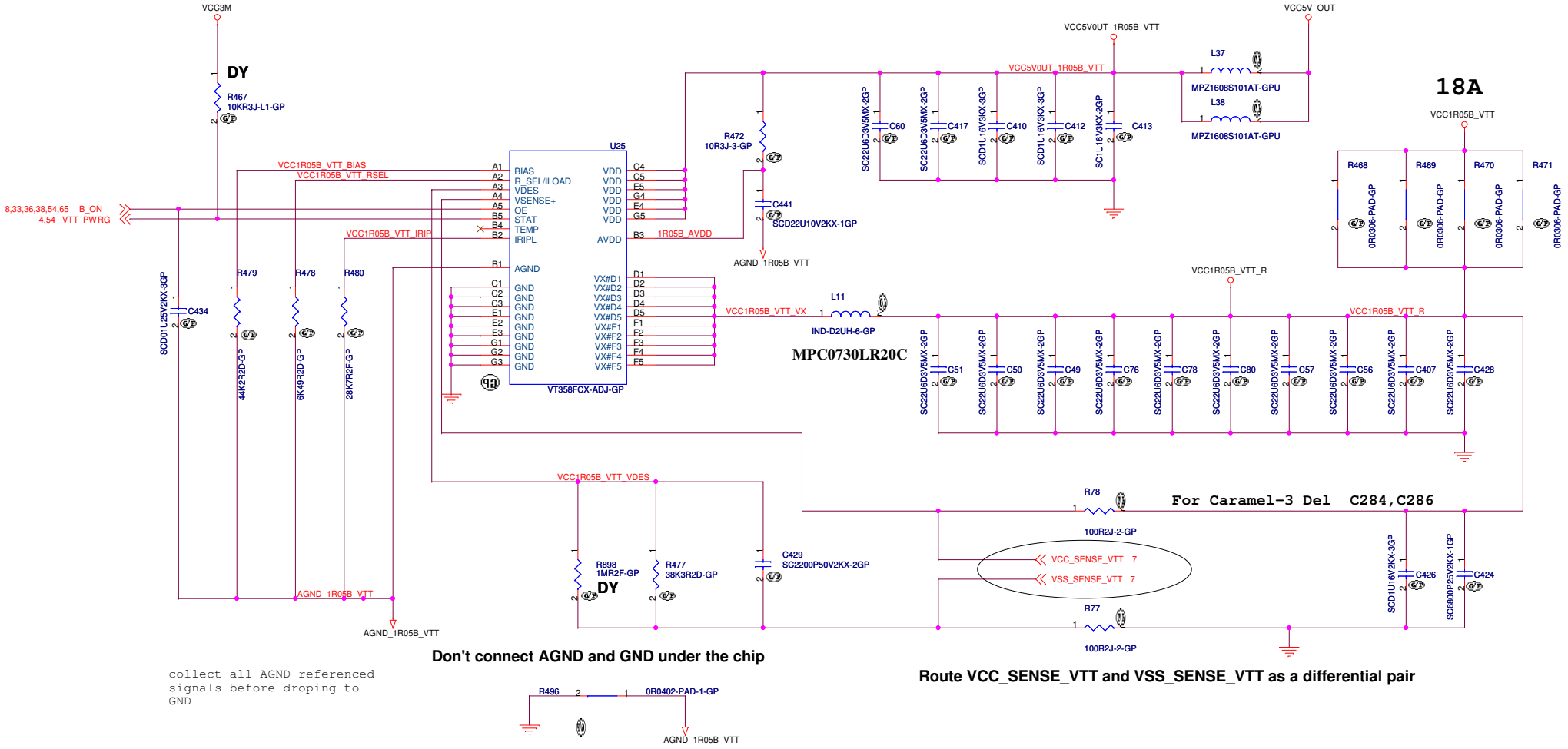
Title: DC-DC VCC1R05LAN

Size	Document Number	Rev
A3	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 62 of 70



	PreDV	DV
U25	VT358	VT357
R478	5.9K	6.49K
R480	42.2K	28.7K
C284	ASM	NO_ASM
C286	ASM	NO_ASM

<Core Design>

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Title: DC-DC VCC1R05B_VTT

Size: Custom | Document Number: Mocha-3 | Rev: -2

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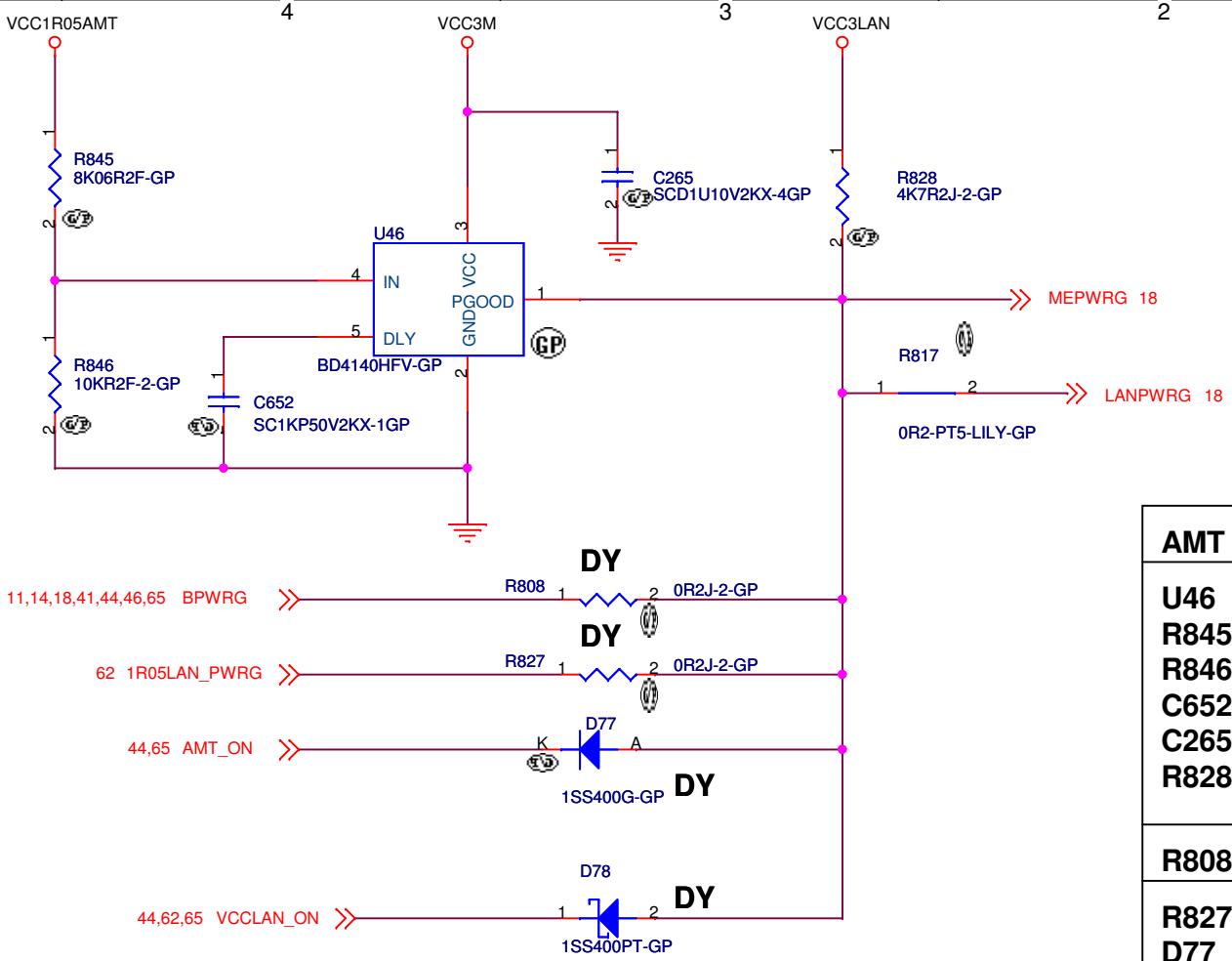

AMT	YES	NO
U46	ASM	DY
R845	ASM	DY
R846	ASM	DY
C652	ASM	DY
C265	ASM	DY
R828	ASM	DY
R808	DY	ASM
R827	DY	DY
D77	DY	DY
D78	DY	DY
R817	ASM	ASM

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Title: ***POWER GOOD***

Size	Document Number	Rev
A4	Mocha-3	-2

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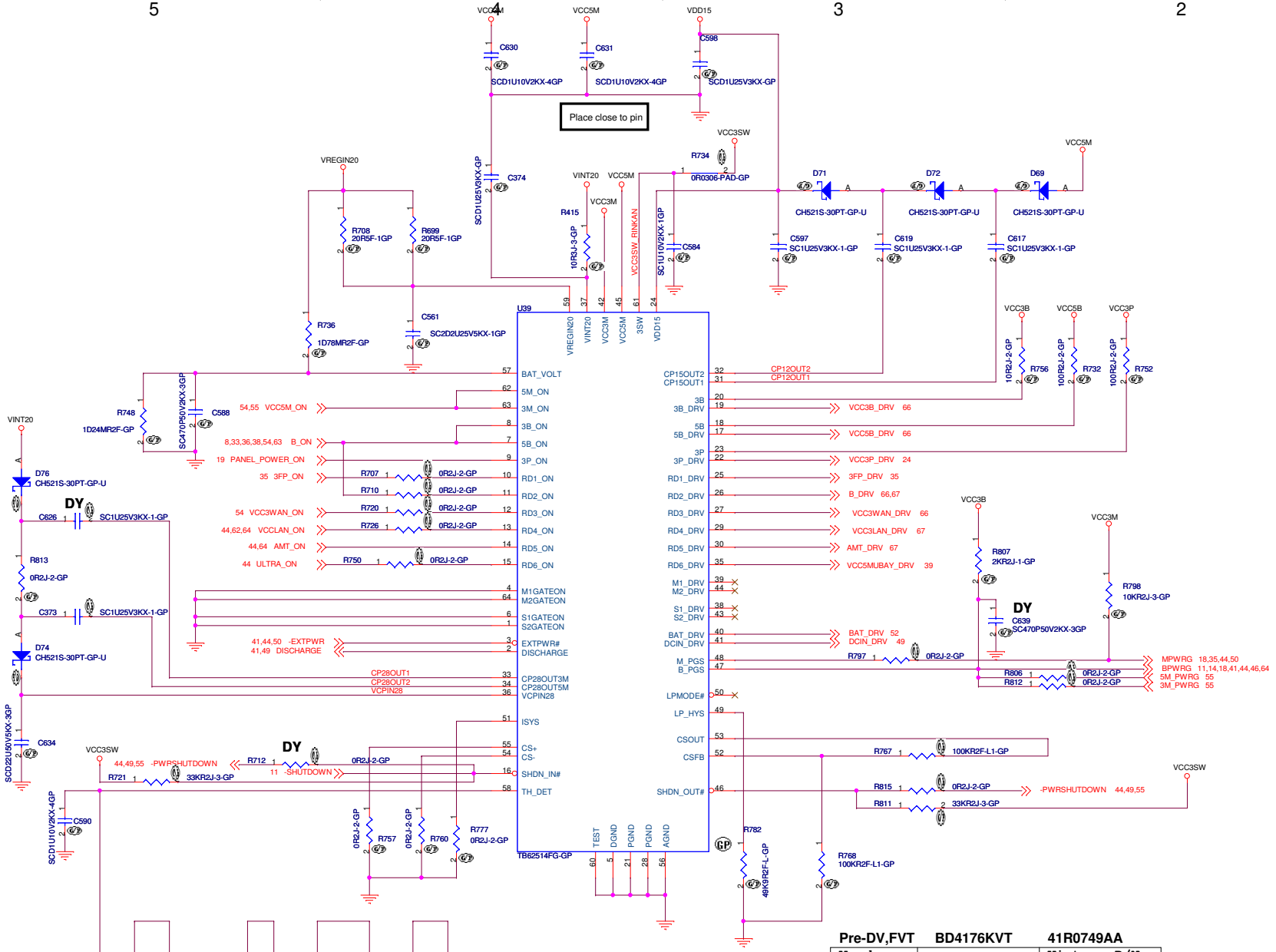

PTC Position	
RT7	FET(VCCCPU2)
RT6	FET(VCCCPU1)
RT3	FET(VCC GFX)
RT5	FET (VCC3M)
RT4	FET (VCC5M)
RT2	FET(Docking)
RT9	FET (AC Adapter Input)
RT8	FET (Battery Input)
RT1	FET (Charger)
RT11	FET(VCC3WLAN Load SW)
RT_CPU1	Monitor CPU

Pre-DV,FVT	BD4176KVT	41R0749AA
Vendor		Wistron P/N
Rohm	BD41760KVT	74.41760.09T
Toshiba	TB62514FG	74.62514.07T

<Core Design>

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Title: DC-DC RINKAN

Size: Custom | Document Number: Mocha-3 | Rev: -2

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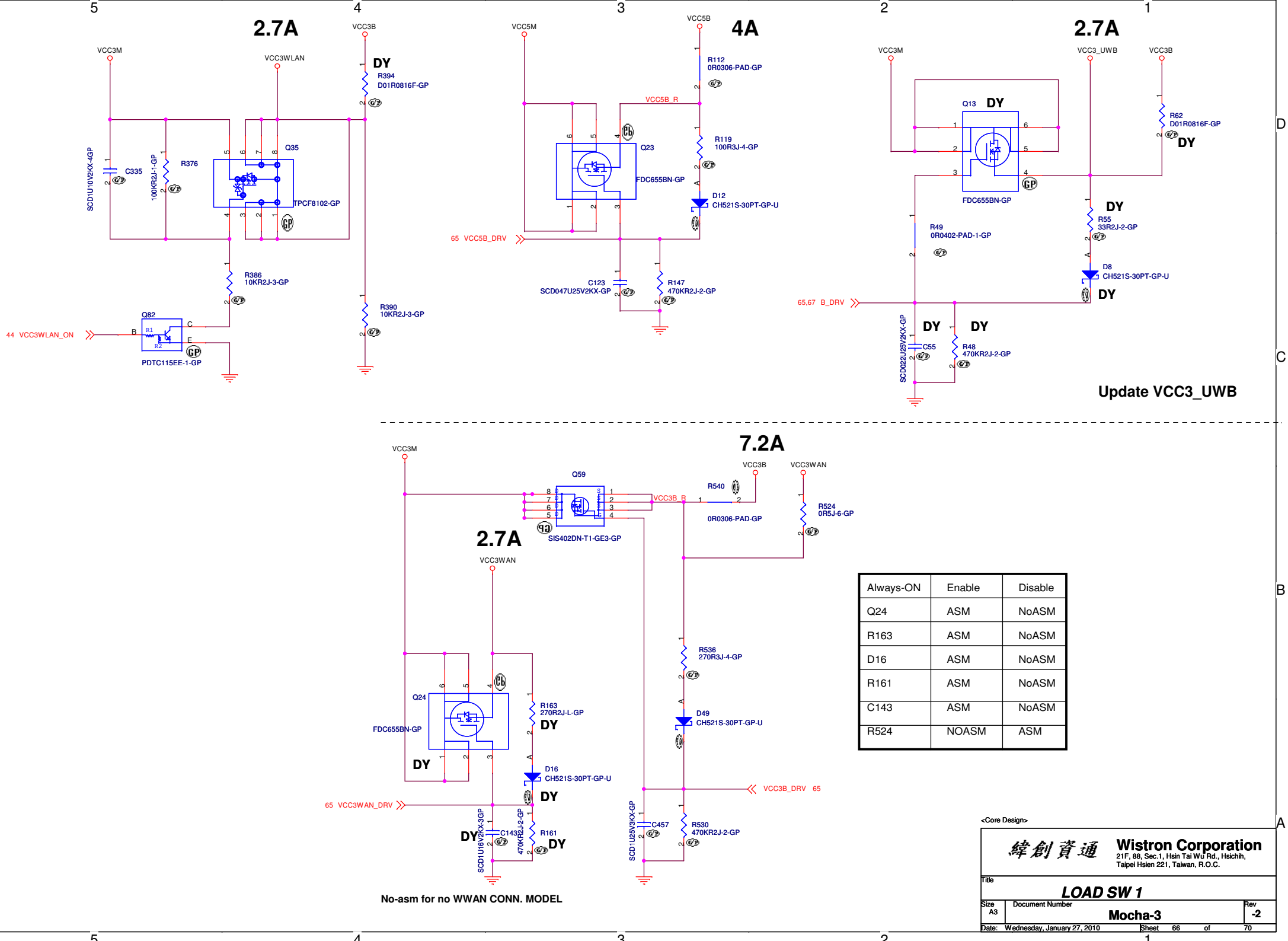

Always-ON	Enable	Disable
Q24	ASM	NoASM
R163	ASM	NoASM
D16	ASM	NoASM
R161	ASM	NoASM
C143	ASM	NoASM
R524	NOASM	ASM

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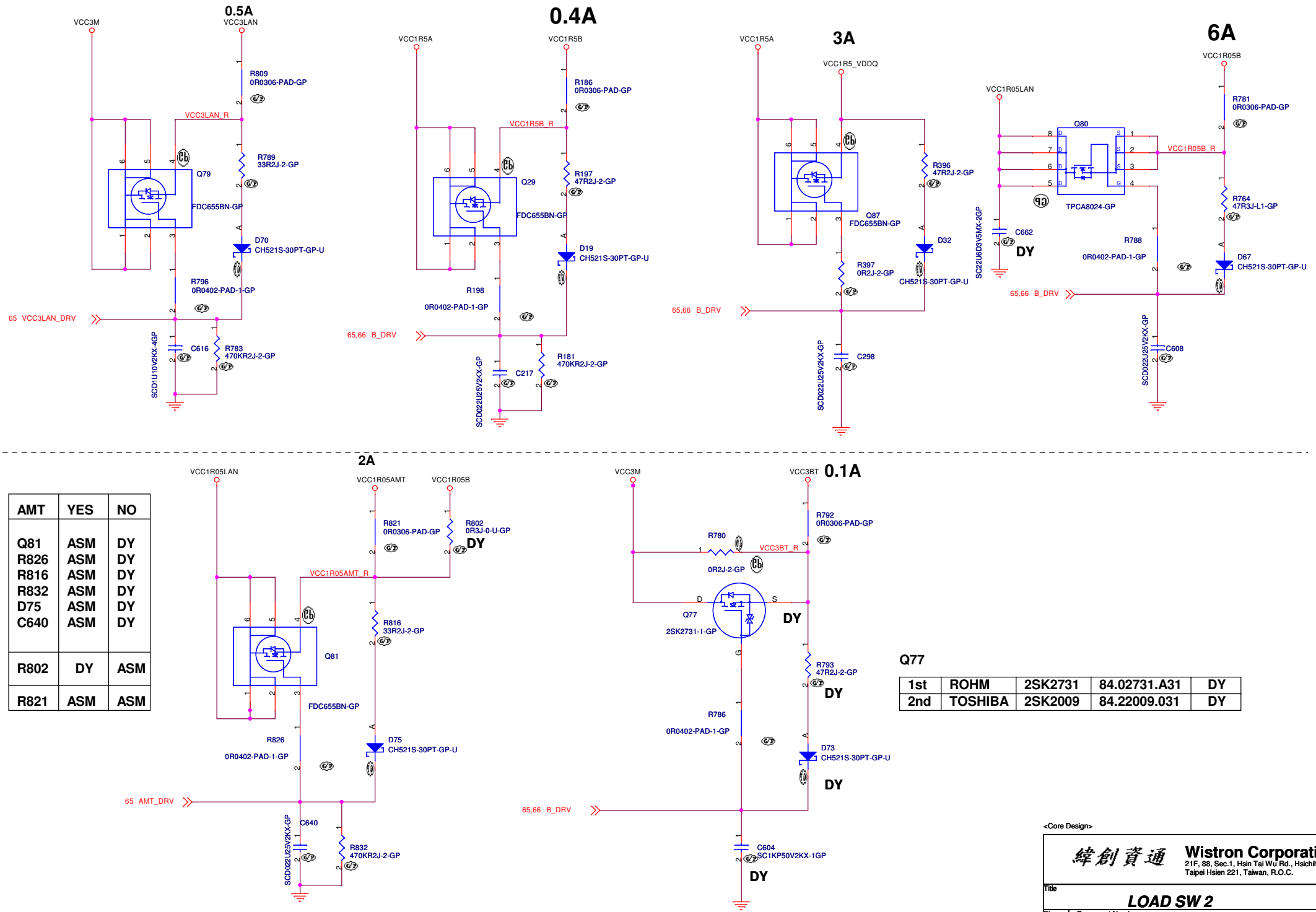
Title: ***LOAD SW 1***

Size	Document Number	Rev
A3	Mocha-3	-2

Date: Wednesday, January 27, 2010 Sheet 66 of 70



AMT	YES	NO
Q81	ASM	DY
R826	ASM	DY
R816	ASM	DY
R832	ASM	DY
D75	ASM	DY
C640	ASM	DY
R802	DY	ASM
R821	ASM	ASM

Q77

1st	ROHM	2SK2731	84.02731.A31	DY
2nd	TOSHIBA	2SK2009	84.22009.031	DY

<Core Design>

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Title: ***LOAD SW 2***

Size	Document Number	Rev
A3	Mocha-3	-2

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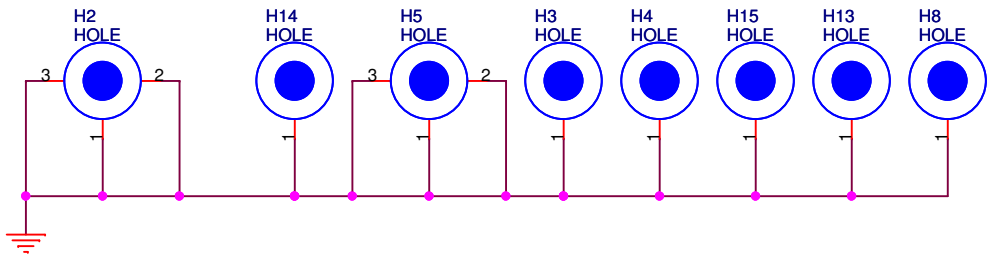

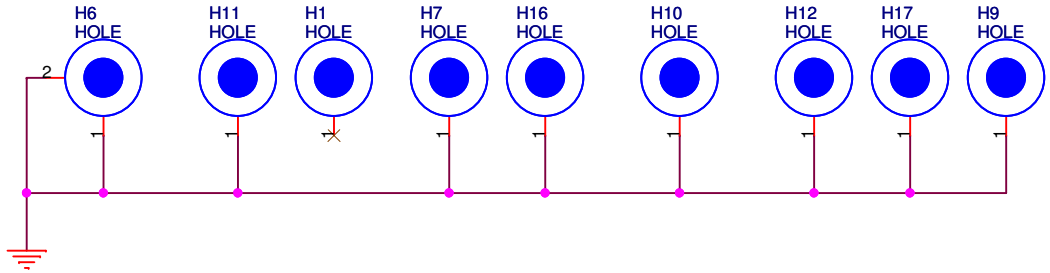

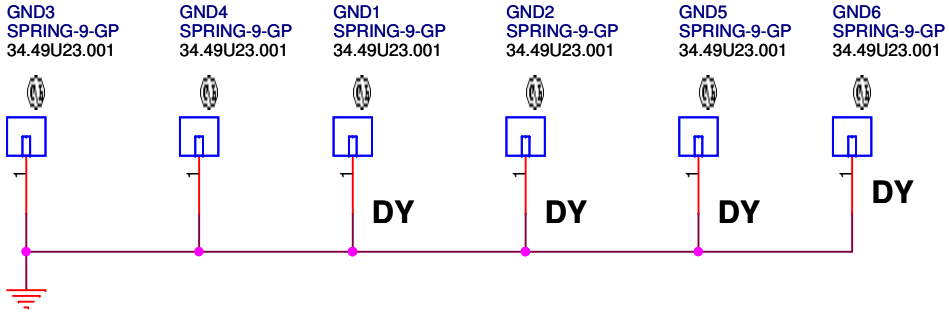

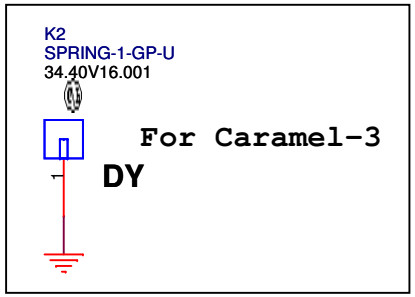

For Caramel-3

H2	HOLE276R95-3P-S
H5	HT7B75R24-3P-S
H6	HOLE276R95-3P-S
H11	HOLE256R98
H12	HOLE315R95-2P-S
H3	HOLET295B236R138
H4	HOLET295B236R138

For Caramel-3

Standoff	34.4Y421.001	H3,H4	ASM

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Title
HOLES/GND/PADS

Size	Document Number	Rev
A4	**Mocha-3**	-2

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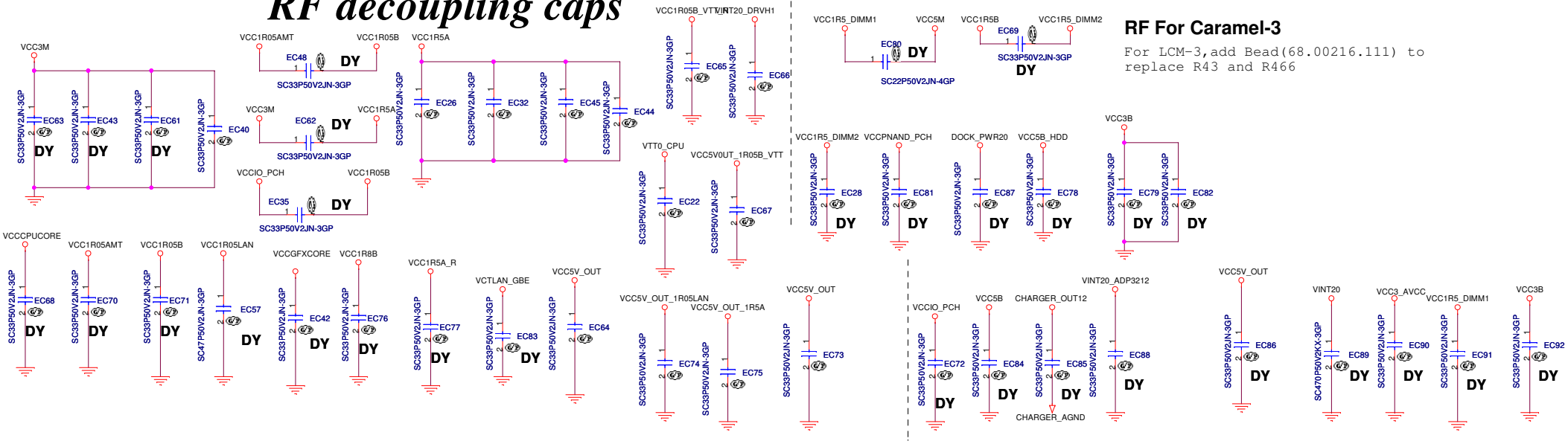
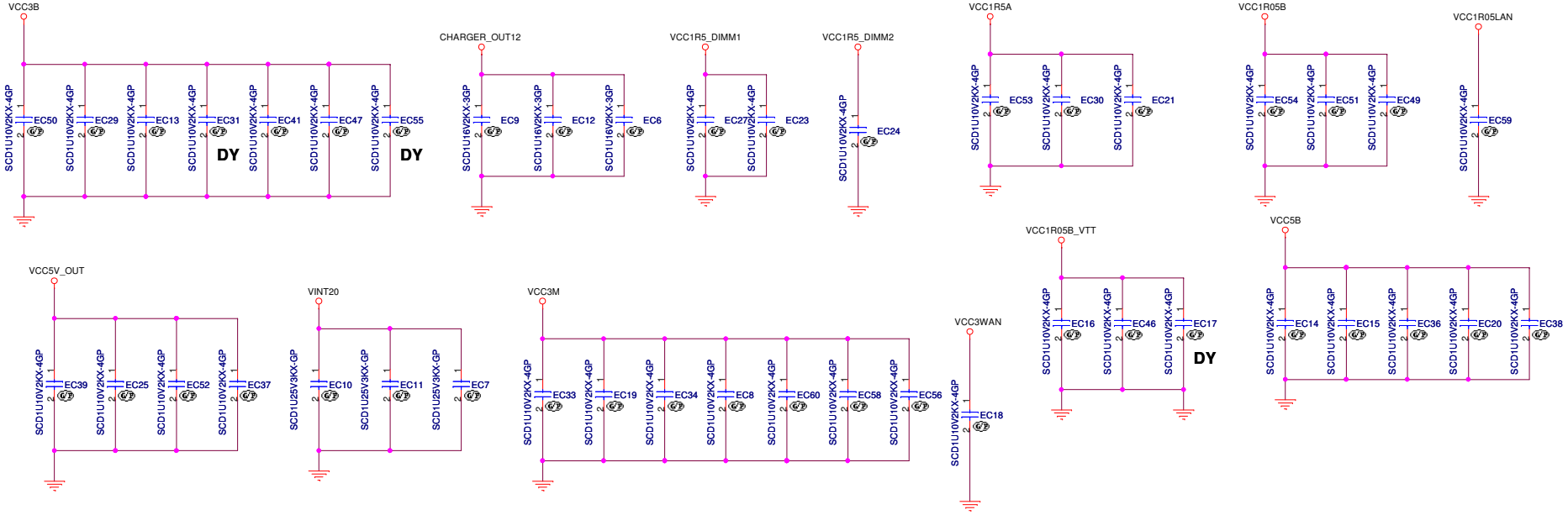
RF decoupling caps



RF For Caramel-3

For LCM-3,add Bead(68.00216.111) to replace R43 and R466

Long power trace EMI decoupling caps



<Core Design>

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Title: EMI DECOUPLING

Size	Document Number	Rev
Custom	Mocha-3	-2

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Function	Location	Mocha-3	Pecan-3	Caramel-3
USB	R327	ASM	ASM	DY
	R328	ASM	ASM	DY
	R329	DY	DY	ASM
	R330	DY	DY	ASM
	C377	DY	DY	ASM
	C376	DY	DY	ASM
	J1	DY	DY	ASM
	U23	DY	DY	ASM
	C378	DY	DY	ASM
Bluetooth	R411	ASM	ASM	DY
	R412	ASM	ASM	DY
	R413	DY	DY	ASM
	R414	DY	DY	ASM
	CN10	DY	DY	ASM
	F4	DY	DY	ASM
	C372	DY	DY	ASM
Super IO	U7	DY	DY	ASM
	C159	DY	DY	ASM
	C146	DY	DY	ASM
	C122	DY	DY	ASM
	R145	DY	DY	ASM
	R146	DY	DY	ASM
	RN1	DY	DY	ASM
	R574	DY	DY	ASM
	C121	DY	DY	ASM
	R743	DY	DY	DY
	R754	DY	DY	ASM
	R639	DY	DY	ASM

Function	Location	Mocha-3	Pecan-3	Caramel-3
Fingerprint	R584	DY	DY	DY
	R585	ASM	ASM	DY
	F11	ASM	ASM	DY
	C483	ASM	ASM	DY
Touch PAD	R168	ASM	ASM	ASM
	R169	ASM	ASM	ASM
	F3	ASM	ASM	ASM
	C226	ASM	ASM	ASM
	R178	ASM	ASM	ASM
	R180	ASM	ASM	ASM
	CN3	ASM	ASM	ASM
	U6	ASM	ASM	ASM
	C473	ASM	ASM	ASM
	R556	ASM	ASM	ASM
	R577	ASM	ASM	ASM
	R483	ASM	ASM	ASM
	R474	ASM	ASM	ASM
	R491	DY	DY	DY
	R71	DY	DY	DY
Pen Sensor	CN11	DY	DY	ASM
	R418	DY	DY	ASM
	C375	DY	DY	ASM
Pecan ID	R293	ASM	DY	DY
	R286	DY	ASM	ASM

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Support Caramel-3 TouchPAD for SIV

Function	Location	Mocha-3	Pecan-3	Caramel-3
LCD Conn	R9	DY	DY	ASM
	R10	ASM	ASM	DY
	R1	DY	DY	ASM
	R5	ASM	ASM	DY
	R450	ASM	ASM	DY
	R447	DY	DY	ASM
	R36	DY	DY	ASM
	R35	ASM	ASM	DY
	R453	ASM	ASM	DY
	R451	DY	DY	ASM
	R455	ASM	ASM	DY
	R454	DY	DY	ASM
	R37	DY	DY	ASM
	R38	DY	DY	ASM
	Q10	ASM	ASM	DY
	Q11	ASM	ASM	DY
	Q12	ASM	ASM	DY
	R886	ASM	ASM	DY
	R364	ASM	ASM	DY
	R594	ASM	ASM	DY
	R596	ASM	ASM	DY
	R602	ASM	ASM	DY
	R887	DY	DY	ASM
	R604	DY	DY	ASM
	R857	DY	DY	ASM
	R871	DY	DY	ASM
	R885	DY	DY	ASM
uP	R599	DY	DY	ASM
	R601	DY	DY	ASM
H8	R269	DY	DY	ASM
	R270	ASM	ASM	DY

MP-3 change to Caramel-3 planar

Cut off portion				HOLE Geometry	
Location		Location		Location	PCB FootPrint
R40	DEL	U24	DEL	H2	HOLE276R95-3P-S
R41	DEL	C527	DEL	H5	HT7B75R24-3P-S
FL1	DEL	U1	DEL	H6	HOLE276R95-3P-S
C41	DEL	K1	DEL	H11	HOLE256R98
C39	DEL	C284	DEL	H12	HOLE315R95-2P-S
C32	DEL	C286	DEL	H3	HOLET295B236R138
SKT3	DEL			H4	HOLET295B236R138

Location	Mocha-3	Pecan-3	Caramel-3
L21(VCC5B_HDD)	ASM	ASM	ASM
R43	DEL	DEL	DEL
L31	NO	NO	ADD
R47	ASM	ASM	DEL
L32	NO	NO	ADD
R220	ASM	ASM	DEL
L33	ASM	ASM	ASM
L34	ASM	ASM	ASM
R790	DEL	DEL	DEL
L35	ASM	ASM	ASM
R794	DEL	DEL	DEL
L36	NO	NO	ADD
R821	ASM	ASM	DEL
L37	ASM	ASM	ASM
L38	ASM	ASM	ASM
R457	DEL	DEL	DEL
L39	NO	NO	ADD
R587	ASM	ASM	DEL
L40	NO	NO	ADD
R502	ASM	ASM	DEL
L42	ASM	ASM	NO
R466	DEL	DEL	ASM

RF decoupling caps

Location	Mocha-3	Pecan-3	Caramel-3
EC63	DY	DY	DY
EC43	DY	DY	DY
EC61	DY	DY	DY
EC48	DY	DY	DY
EC62	DY	DY	DY
EC35	DY	DY	DY
EC68	DY	DY	DY
EC70	DY	DY	DY
EC71	DY	DY	DY
EC57	DY	DY	DY
EC42	DY	DY	DY
EC46	DY	DY	DY
EC76	DY	DY	DY
EC77	DY	DY	DY
EC83	DY	DY	DY
EC40	ASM	ASM	ASM
EC64	ASM	ASM	ASM
EC22	ASM	ASM	ASM
EC66	ASM	ASM	ASM
EC26	ASM	ASM	ASM
EC32	ASM	ASM	ASM
EC45	ASM	ASM	ASM
EC44	ASM	ASM	ASM
EC65	ASM	ASM	ASM
EC67	DY	ASM	ASM
EC80	DY	DY	ASM
EC69	DY	DY	ASM
EC28	DY	DY	ASM
EC81	DY	DY	ASM
EC87	DY	DY	ASM
EC78	DY	DY	ASM
EC79	DY	DY	ASM
EC82	DY	DY	ASM
EC74	DY	DY	ASM
EC75	DY	DY	ASM
EC72	DY	DY	DY
EC84	DY	DY	ASM
EC85	DY	DY	ASM
EC88	DY	DY	ASM
EC73	DY	DY	ASM
EC86	DY	DY	ASM
EC89	DY	DY	ASM
EC90	DY	DY	ASM
EC91	DY	DY	ASM
EC92	DY	DY	ASM
K2	DY	DY	ASM
EC93	DEL	DEL	DY
EC94	DEL	DEL	DY
EC95	DEL	DEL	DY
EC96	DEL	DEL	DY
EC97	DEL	DEL	ASM
EC98	DEL	DEL	DY
EC99	DEL	DEL	DY
EC100	DEL	DEL	DY
EC102	DEL	DEL	ASM
EC103	DEL	DEL	ASM
EC104	DEL	DEL	ASM
EC105	DEL	DEL	ASM

<Core Design>

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Title: MP&Caramel difference list

Size: Custom | Document Number: Mocha-3 | Rev: -2

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