

Mocha-3 Block Diagram

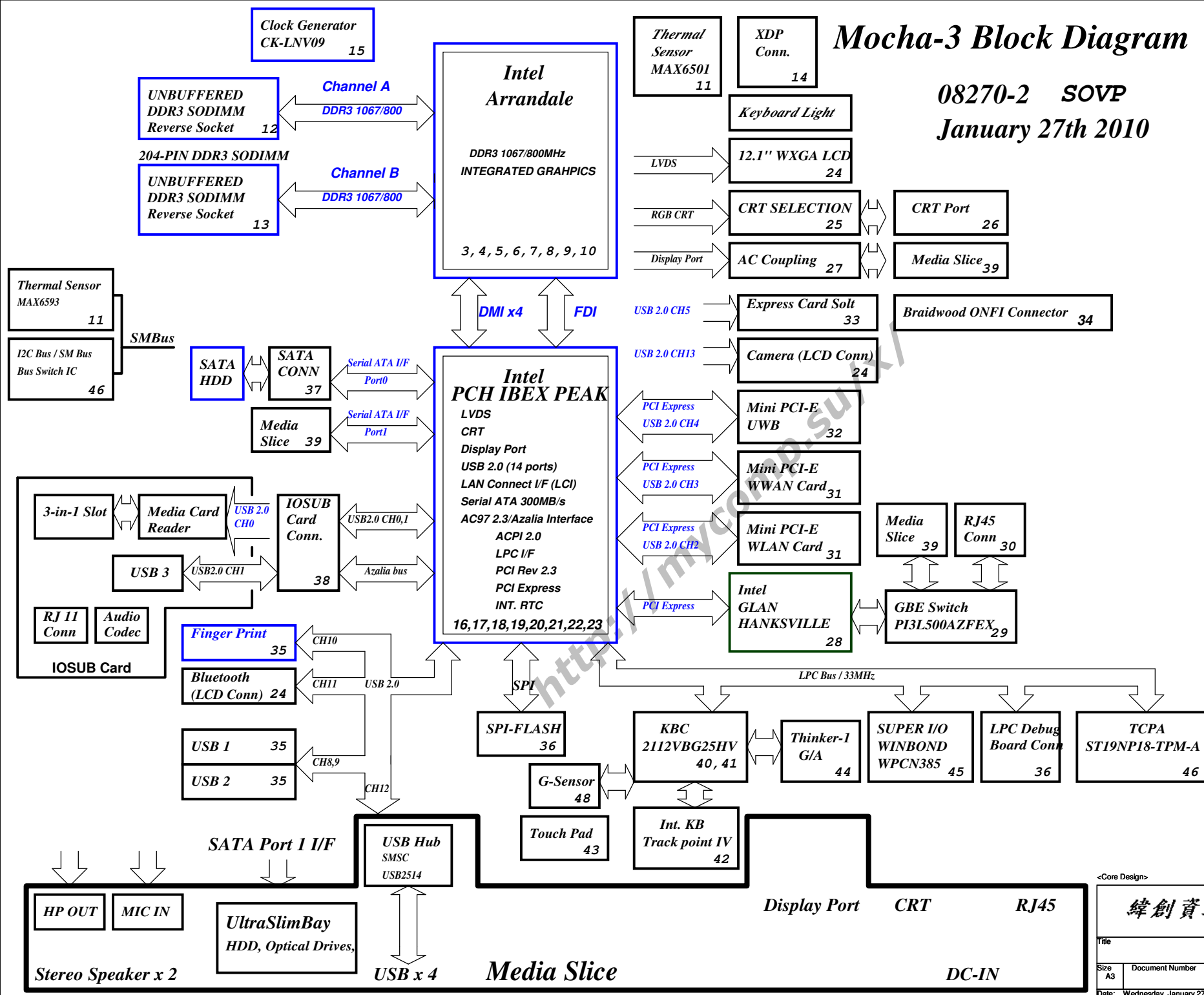
08270-2 SOVP
January 27th 2010

PCB Layer Stackup

- L1:Component
- 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

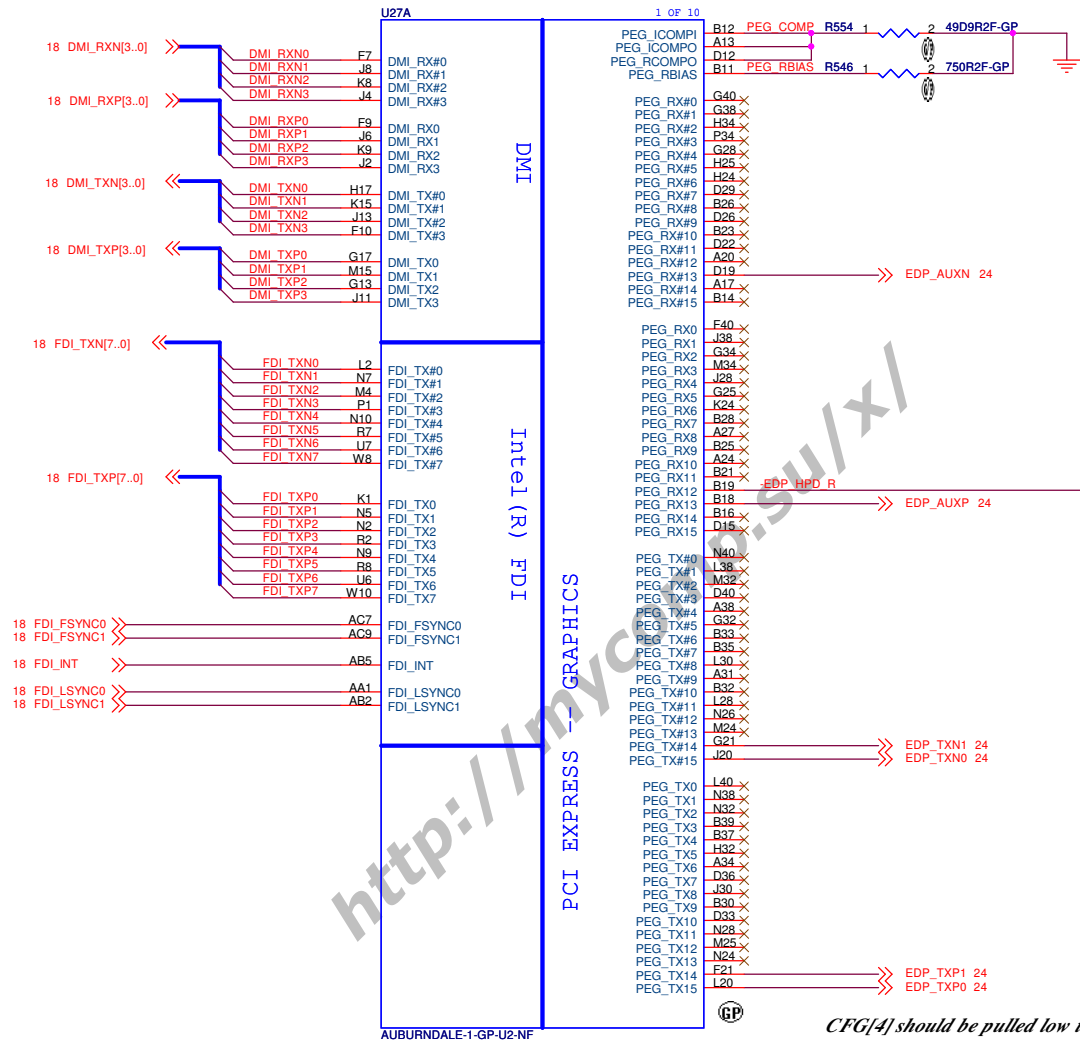
| | |
|---------------|--------------|
| BQ24741 50 | |
| INPUTS | OUTPUTS |
| DOCK_PWR20_F | M-BAT-PWR |
| System DC/DC | |
| TPS51222 55 | |
| VINT20 | VCC5M |
| | VCC3M |
| CPU DC/DC | |
| ADP3212 56 | |
| VINT20 | VCCPUCORE |
| GMCH GFX CORE | |
| ADP3211 58 | |
| VINT20 | VCCGFXCORE |
| VCCIR5A | |
| VT356FCX 59 | |
| VCC5V_OUT | VCCIR5A |
| VCC0R75B | |
| MAX1510 60 | |
| VCCIR5A | VCC0R75B |
| VCCIR8B | |
| BD3551HFN 61 | |
| VCC3M | VCCIR8B |
| VCCIR05LAN | |
| VT356FCX 62 | |
| VCC5V_OUT | VCCIR05LAN |
| VCCIR05B_VTT | |
| VT357FCX 63 | |
| VCC5V_OUT | VCCIR05B_VTT |



<Core Design>

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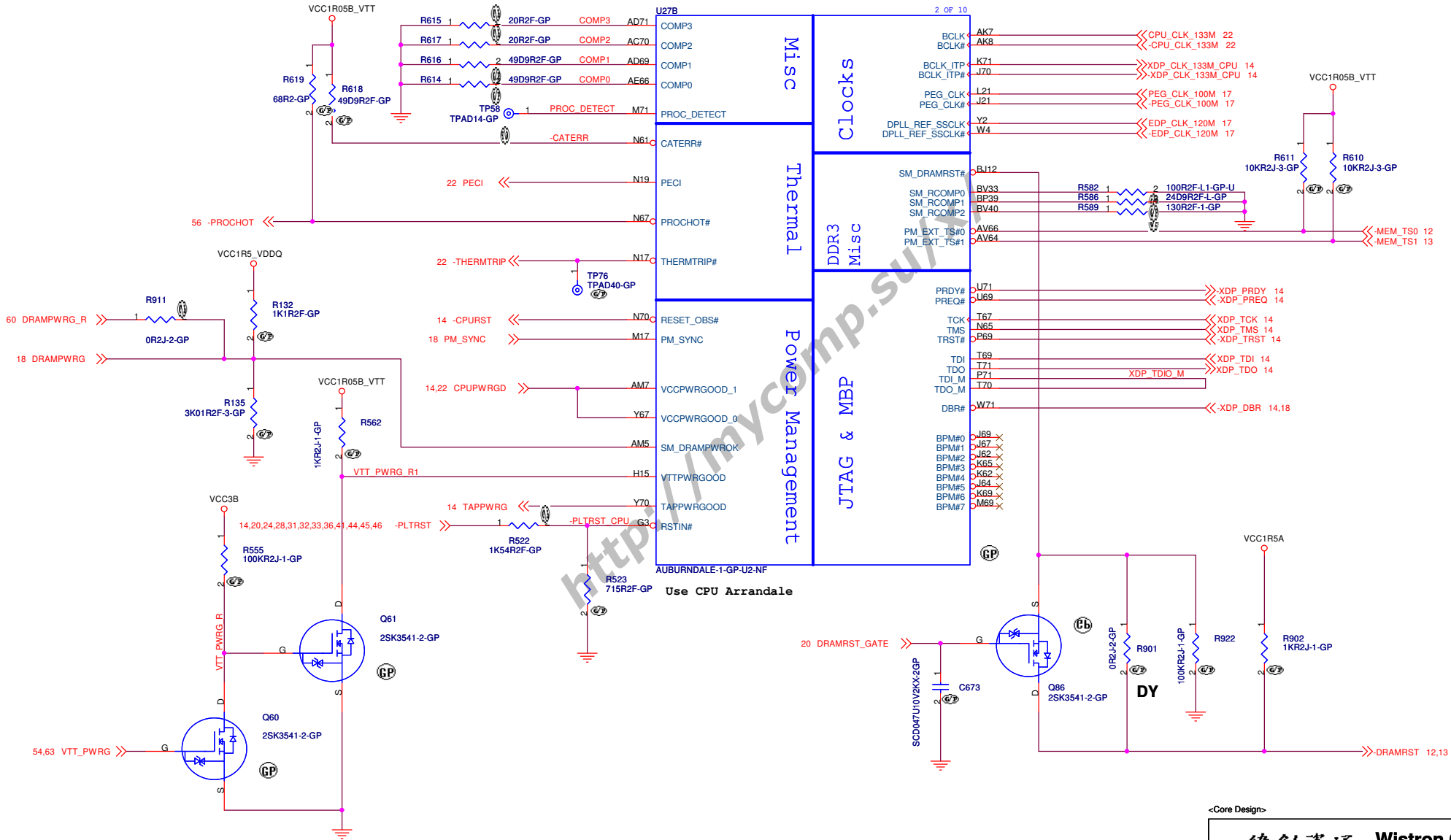
| | | |
|-----------------------------------|-----------------|-----|
| File | | |
| Block Diagram | | |
| Size A3 | Document Number | Rev |
| | Mocha-3 | -2 |
| Date: Wednesday, January 27, 2010 | Sheet 1 of | 70 |



AUBURNDALE-1-GP-U2-NF
Use CPU Arrandale

CFG[A] should be pulled low to enable eDP.

COMP0/1/2/3 : TRACE Length <0.5"
 COMP0/1/2/3 : 10mil width traces, 20mil spacing

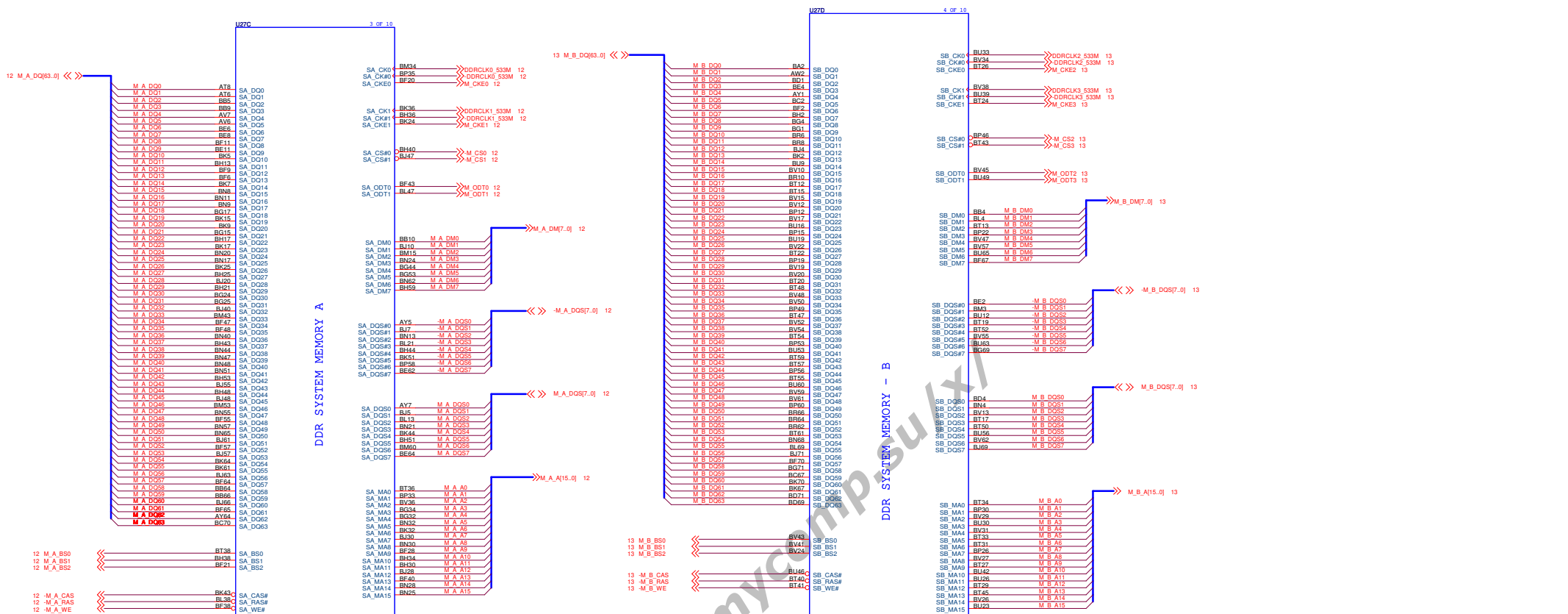


<Core Design>

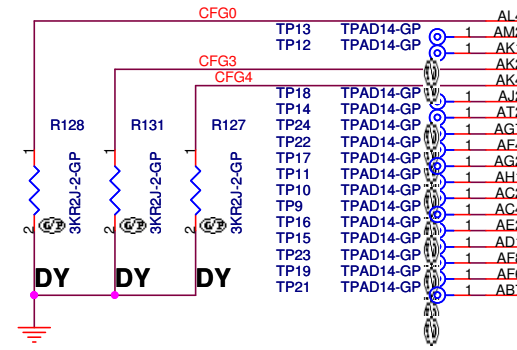
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 Taipei Hsien 221, Taiwan, R.O.C.

Title: **Arrandale CPU(2/8):CLK/MISC/JTAG**

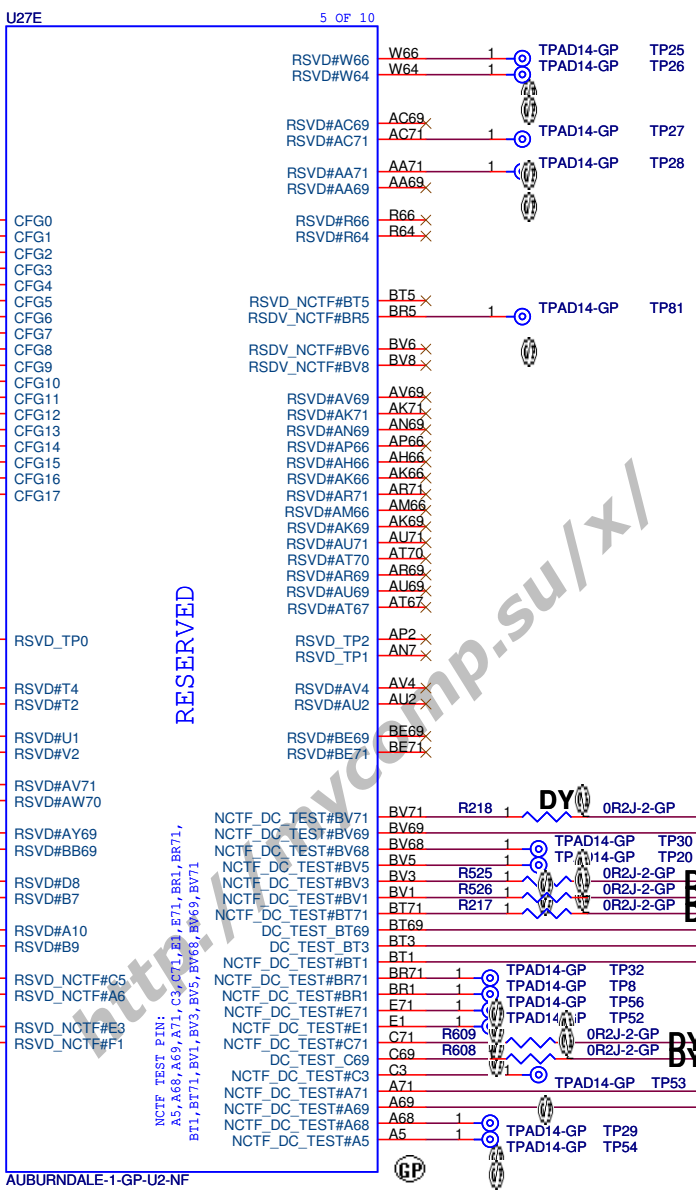
| | | |
|-----------------------------------|-----------------|---------------|
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<http://mycompasu.com/>



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



RESERVED

NCTF_TEST_PIN:
A5, A68, A69, A71, C3, C71, E1, E71, BR1, BR71, BT1, BT71, BV1, BV3, BV5, BV68, BV69, BV71

AUBURNDALE-1-GP-U2-NF

Use CPU Arrandale

<Core Design>

| | | | |
|------------------------------------|-----------------|---|-------|
| | | Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichin, Taipei Hsien 221, Taiwan, R.O.C. | |
| Arrandale CPU(4/8):CFG/RSVD | | | |
| Size | Document Number | Rev | |
| Custom | | -2 | |
| Date: Wednesday, January 27, 2010 | | Sheet 6 | of 70 |

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

VCC1R05B_VTT

VCC1R05B_VTT

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

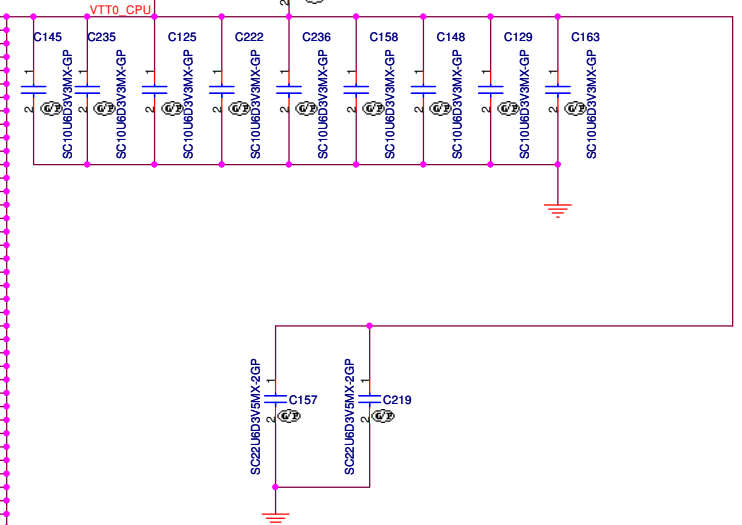
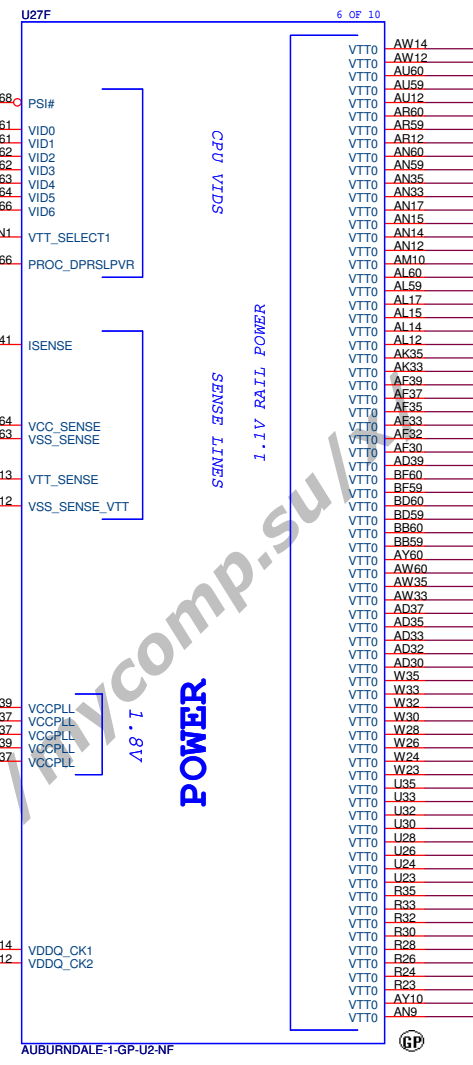
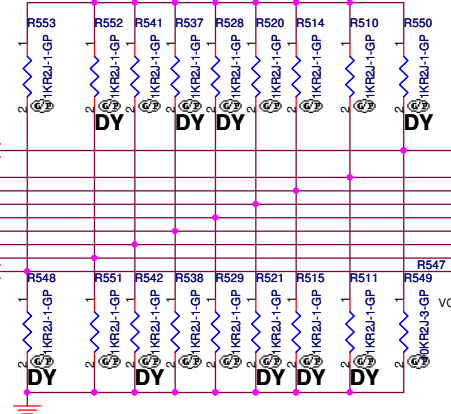
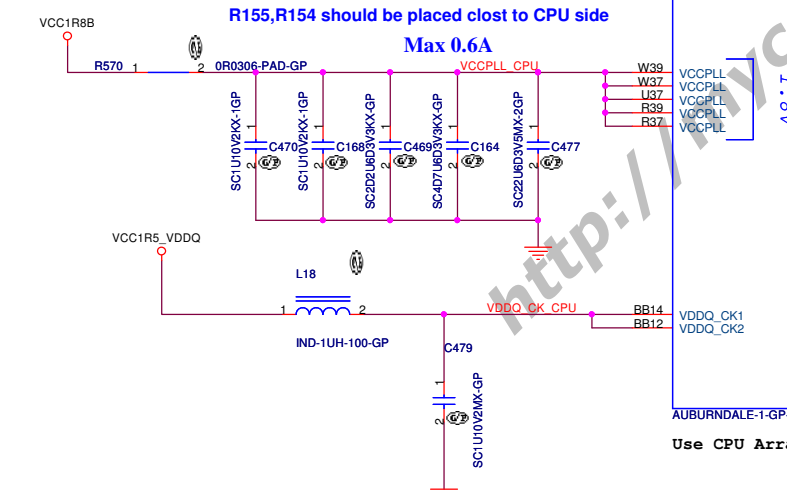
Current Sense Configuration
(CSC<2..0>)

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

63 VCC_SENSE_VTT

63 VSS_SENSE_VTT

R155,R154 should be placed close to CPU side
Max 0.6A

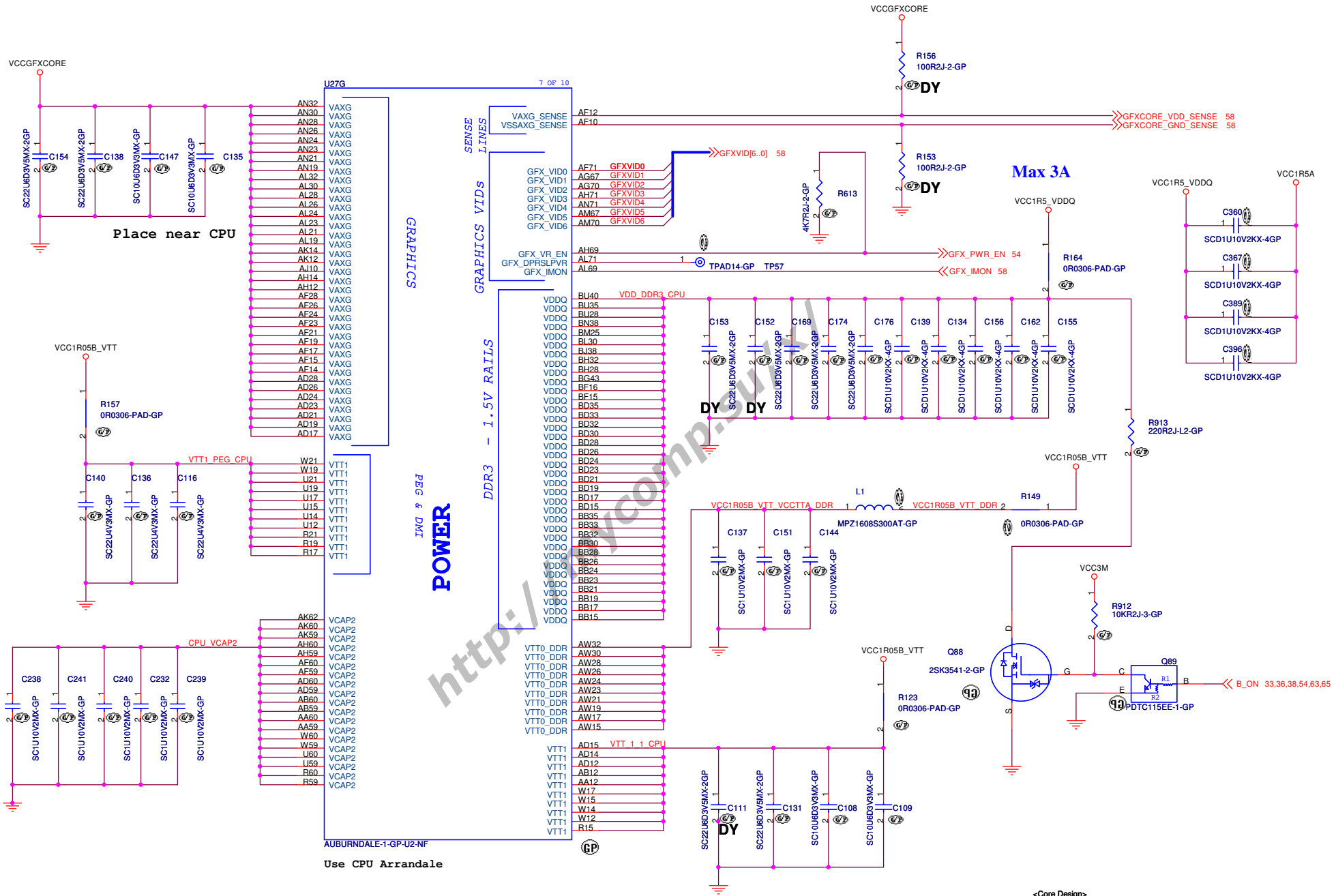


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Title: **Arrandale CPU(5/8):Power**

| | | |
|-----------------------------------|-----------------|--------|
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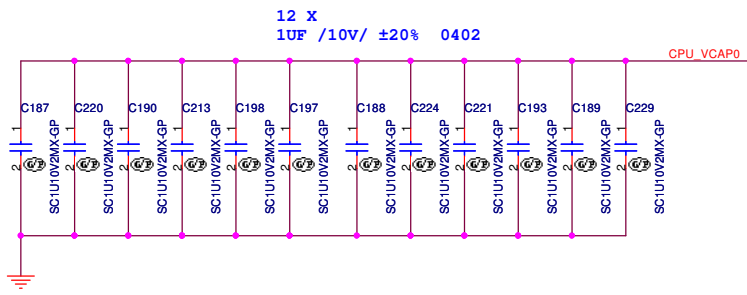


<Core Design>

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Title: **Arrandale CPU(6/8):GFX/PWR**

| | | | |
|-----------------------------------|-----------------|----------------|--------|
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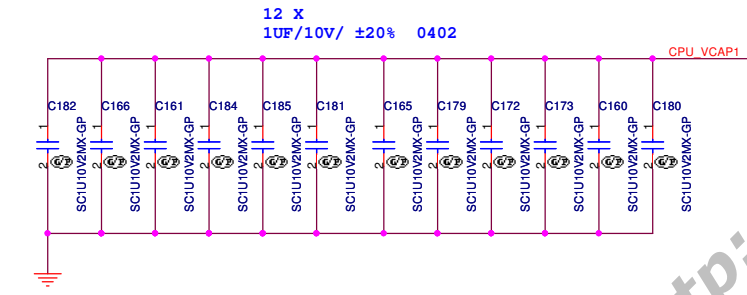


- U27H
- BD55 VCAP0
 - BD51 VCAP0
 - BD48 VCAP0
 - BB55 VCAP0
 - BB51 VCAP0
 - BB48 VCAP0
 - AV57 VCAP0
 - AY53 VCAP0
 - AY50 VCAP0
 - AW57 VCAP0
 - AW53 VCAP0
 - AW50 VCAP0
 - AU55 VCAP0
 - AU51 VCAP0
 - AL48 VCAP0
 - AR55 VCAP0
 - AR51 VCAP0
 - AR48 VCAP0
 - AN57 VCAP0
 - AN53 VCAP0
 - AN50 VCAP0
 - AL57 VCAP0
 - AL53 VCAP0
 - AL50 VCAP0
 - AK57 VCAP0
 - AK53 VCAP0
 - AK50 VCAP0

POWER

CPU CORE SUPPLY

- 8 OF 10
- VCCPUCORE
- VCC AF57
 - VCC AF55
 - VCC AF53
 - VCC AF51
 - VCC AF50
 - VCC AF48
 - VCC AF46
 - VCC AF44
 - VCC AF42
 - VCC AF41
 - VCC AD55
 - VCC AD51
 - VCC AD48
 - VCC AD44
 - VCC AD41
 - VCC AB55
 - VCC AB51
 - VCC AB48
 - VCC AB44
 - VCC AB41
 - VCC AA55
 - VCC AA51
 - VCC AA48
 - VCC AA44
 - VCC AA41
 - VCC W55
 - VCC W51
 - VCC W48
 - VCC W44
 - VCC W41
 - VCC U55
 - VCC U51
 - VCC U48
 - VCC U44
 - VCC U41
 - VCC R55
 - VCC R51
 - VCC R48
 - VCC R44
 - VCC R41
 - VCC P60
 - VCC N55
 - VCC N51
 - VCC N48
 - VCC N44
 - VCC N42
 - VCC M60
 - VCC M51
 - VCC M44
 - VCC L55
 - VCC K60
 - VCC K51
 - VCC K44
 - VCC J55
 - VCC H60
 - VCC H51
 - VCC H44
 - VCC G60
 - VCC G55
 - VCC G51
 - VCC G44
 - VCC F55
 - VCC F60
 - VCC E57
 - VCC E53
 - VCC E50
 - VCC E46
 - VCC E42
 - VCC D59
 - VCC D57
 - VCC D55
 - VCC D54
 - VCC D52
 - VCC D50
 - VCC D48
 - VCC D47
 - VCC D45
 - VCC D43
 - VCC B60
 - VCC B56
 - VCC B53
 - VCC B49
 - VCC B46
 - VCC B42
 - VCC A57
 - VCC A54
 - VCC A50
 - VCC A47
 - VCC A43



- CPU VCAP1
- BD44 VCAP1
 - BD41 VCAP1
 - BD37 VCAP1
 - BB44 VCAP1
 - BB41 VCAP1
 - BB37 VCAP1
 - AY46 VCAP1
 - AY42 VCAP1
 - AY39 VCAP1
 - AW46 VCAP1
 - AW42 VCAP1
 - AW39 VCAP1
 - AL44 VCAP1
 - AL41 VCAP1
 - AU37 VCAP1
 - AR44 VCAP1
 - AR41 VCAP1
 - AR37 VCAP1
 - AN46 VCAP1
 - AN42 VCAP1
 - AN39 VCAP1
 - AL46 VCAP1
 - AL42 VCAP1
 - AL39 VCAP1
 - AK46 VCAP1
 - AK42 VCAP1
 - AK39 VCAP1

AUBURNDALE-1-GP-U2-NF

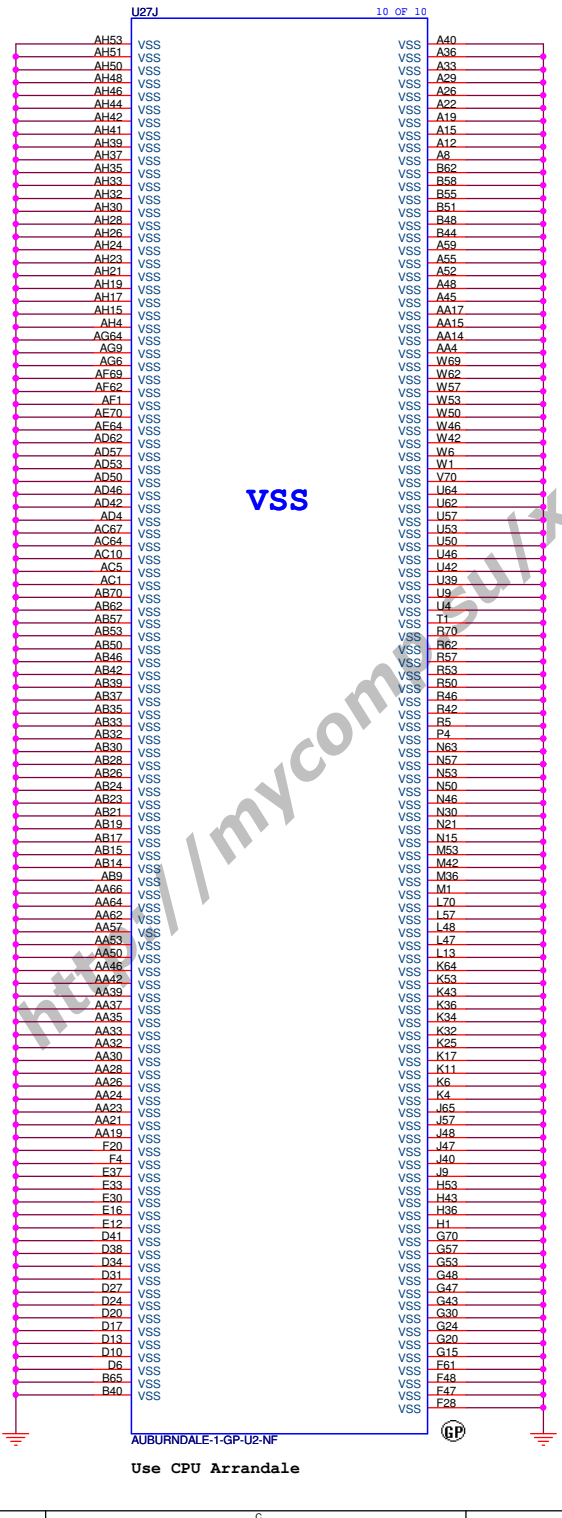
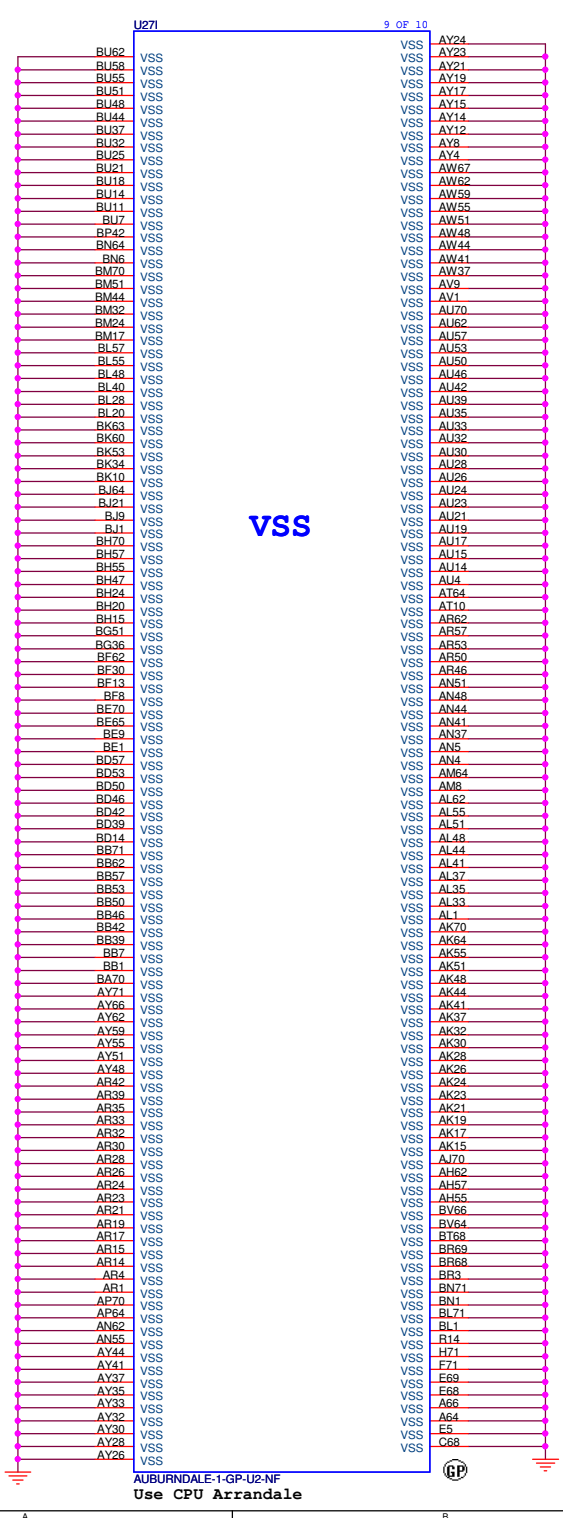
Use CPU Arrandale

<Core Design>

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

| | | |
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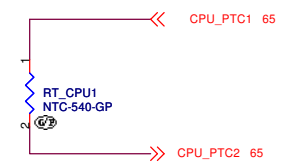
<Core Design>

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Title **Arrandale CPU(8/8): GND**

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

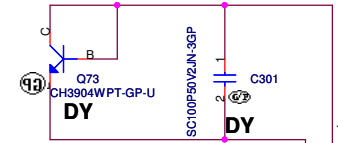
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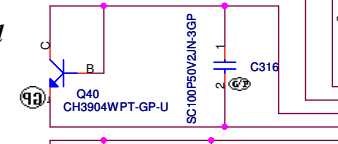
It should be arranged near CPU instead of CPU thermal sensor

THESE CAPS MUST BE PLACED AS CLOSE AS POSSIBLE TO MAX6593

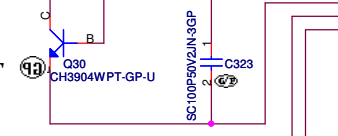
TO NVM



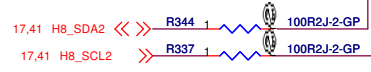
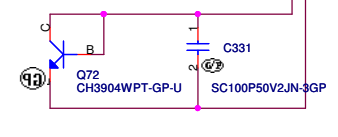
TO Express Card



TO VCORE FET

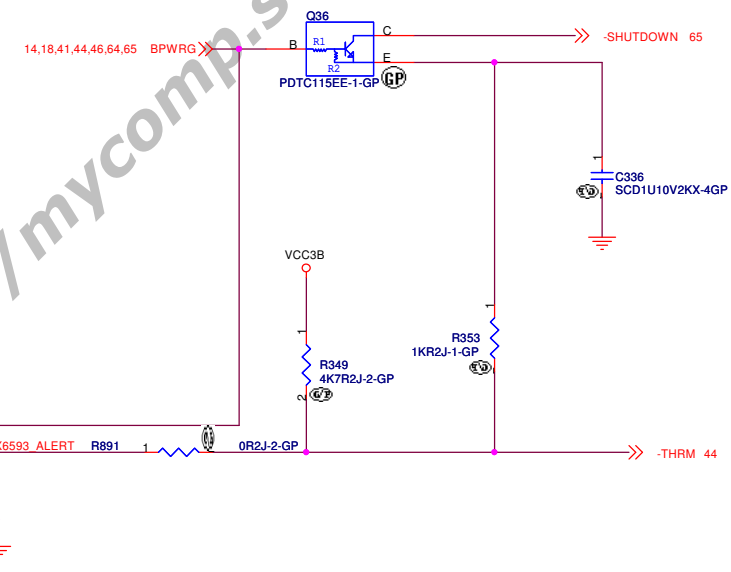


TO MINI CARD



Place under DIMM
H8 I2C Bus 2 ADDRESS : 9AH

TEST PAD FOR BOARD MFG TEST

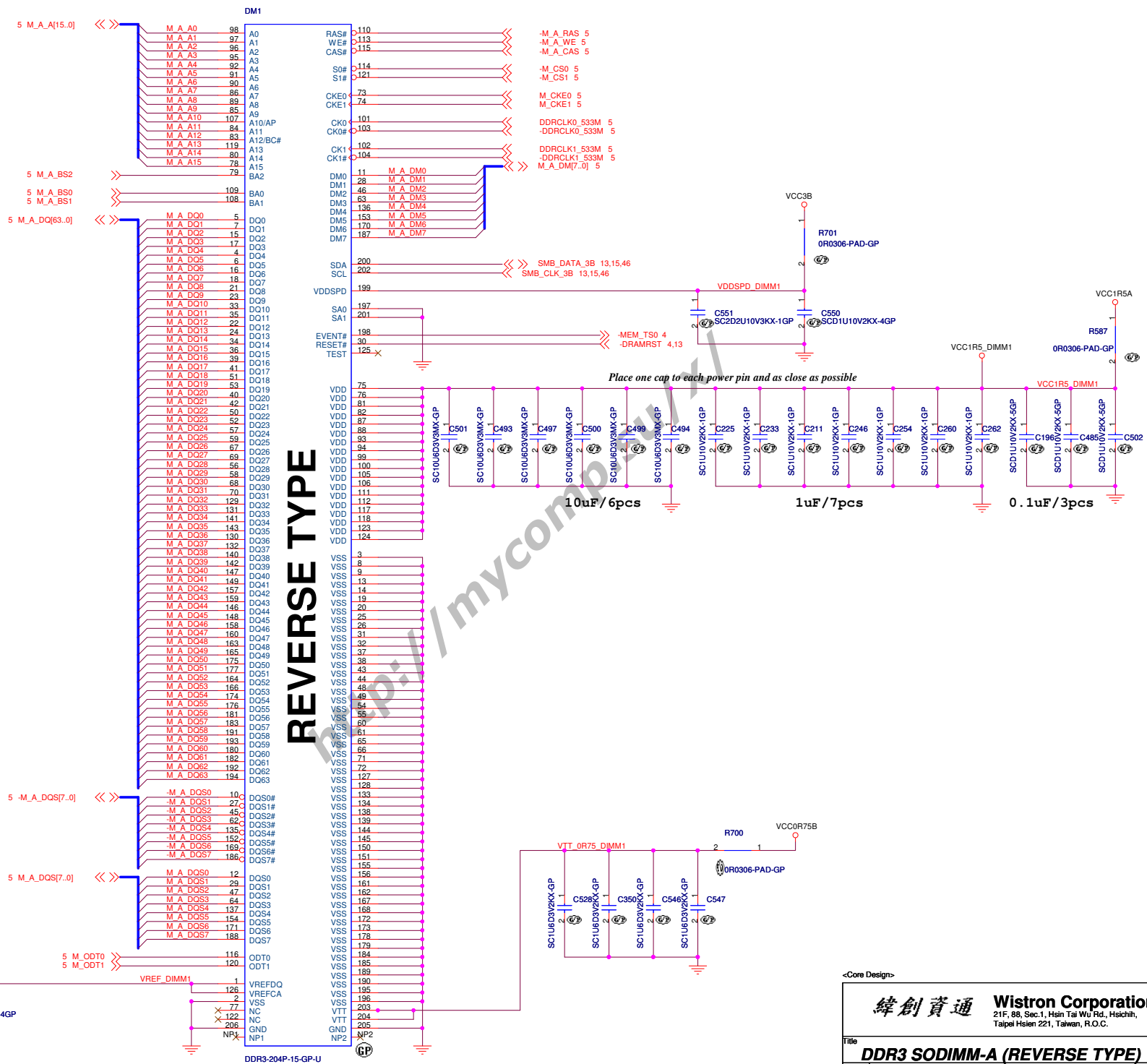


Layout Comment :
(1) Thermal sensor trace lines should not be overlapped with other high frequency trace lines in other layers.
(2) Also, it should not be overlapped with large amplitude trace lines either.

<Core Design>

| | |
|---|-----------------|
| | |
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| THERMAL SENSOR | |
| Title | |
| Size A3 | Document Number |
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DM1
20.F1272.204 Tyco
62.10017.M21 Foxconn



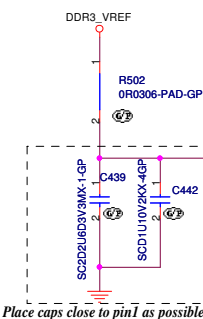
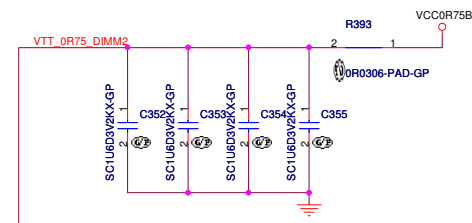
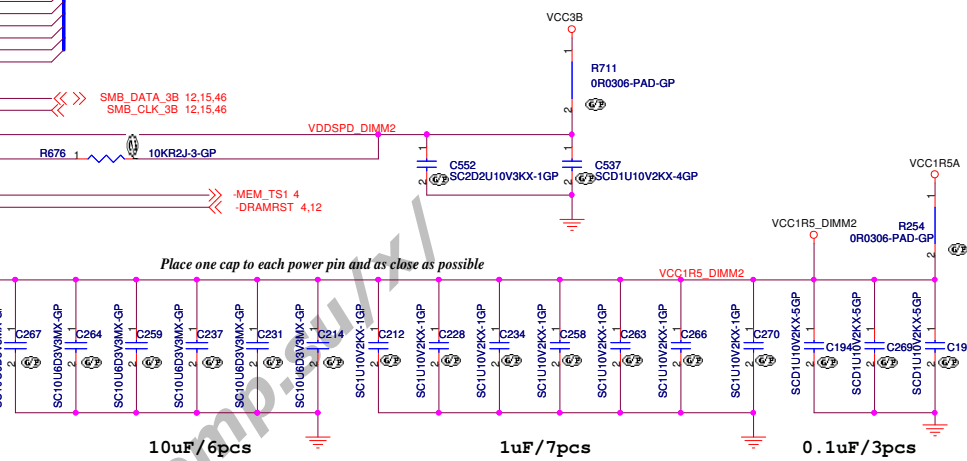
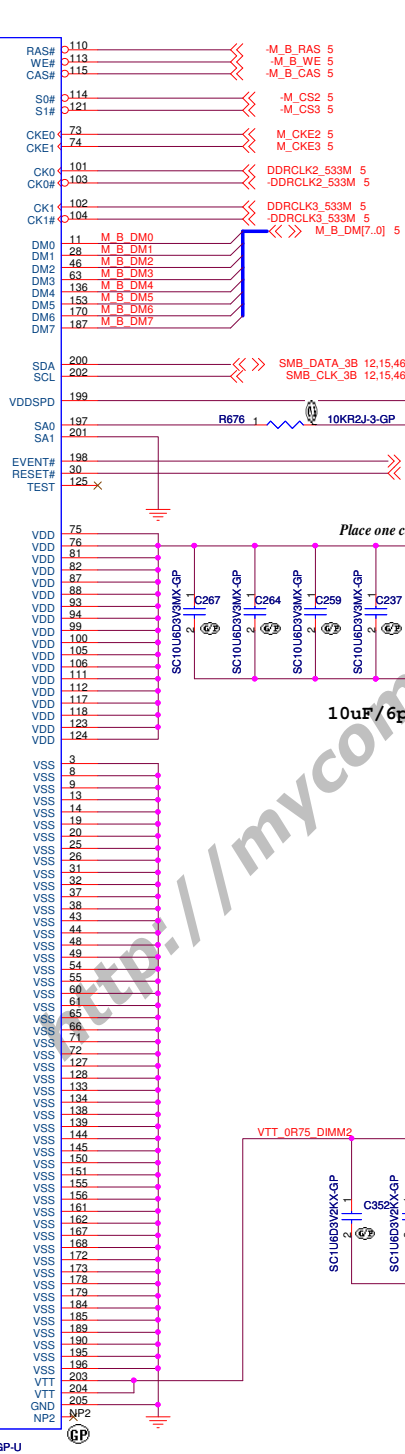
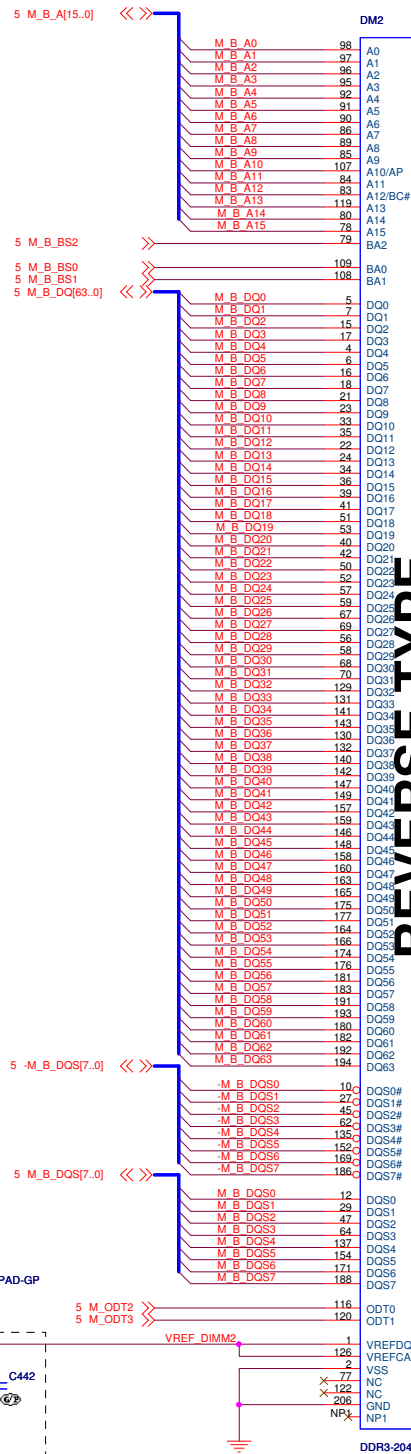
Place caps close to pin1 as possible

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| | | | |
|--------|-----------------------------|------------------------------|----------|
| Title | | DDR3 SODIMM-A (REVERSE TYPE) | |
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DM2
20.F1272.204 Tyco
62.10017.M21 Foxconn

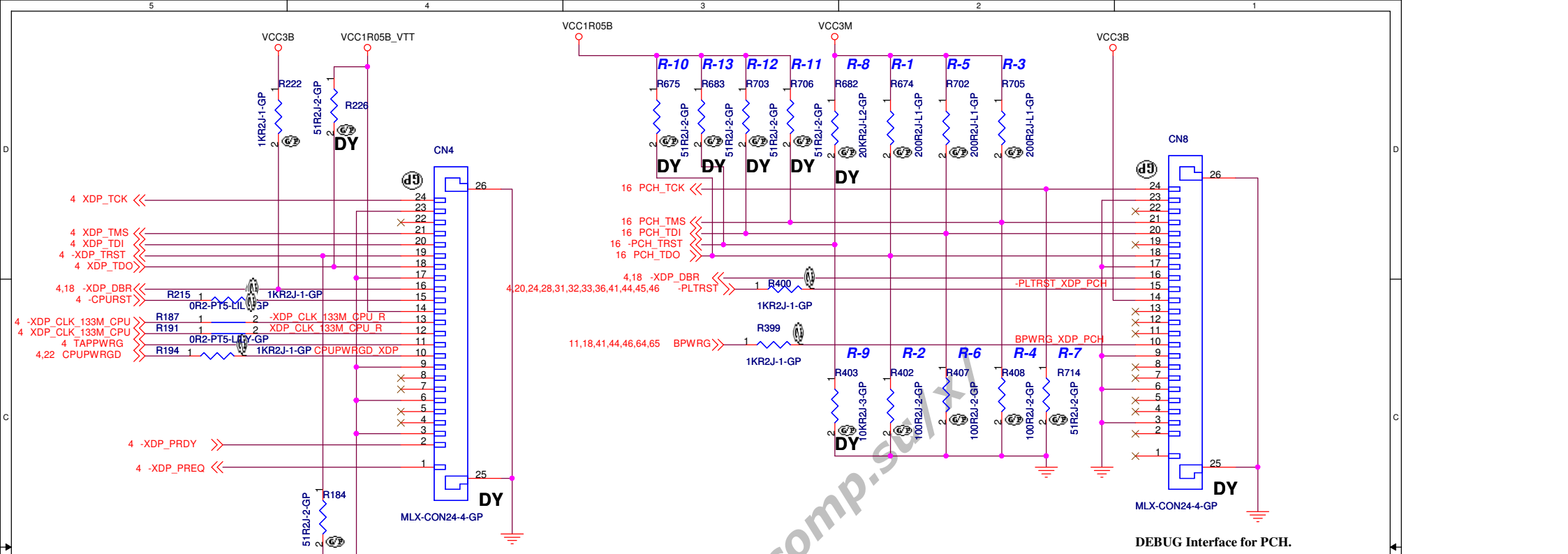


REVERSE TYPE

<Core Design>

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| | | | |
|--------|-----------------------------|-------------------------------------|----------|
| Title | | DDR3 SODIMM-B (REVERSE TYPE) | |
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DEBUG Interface for Processor.

DEBUG Interface for PCH.

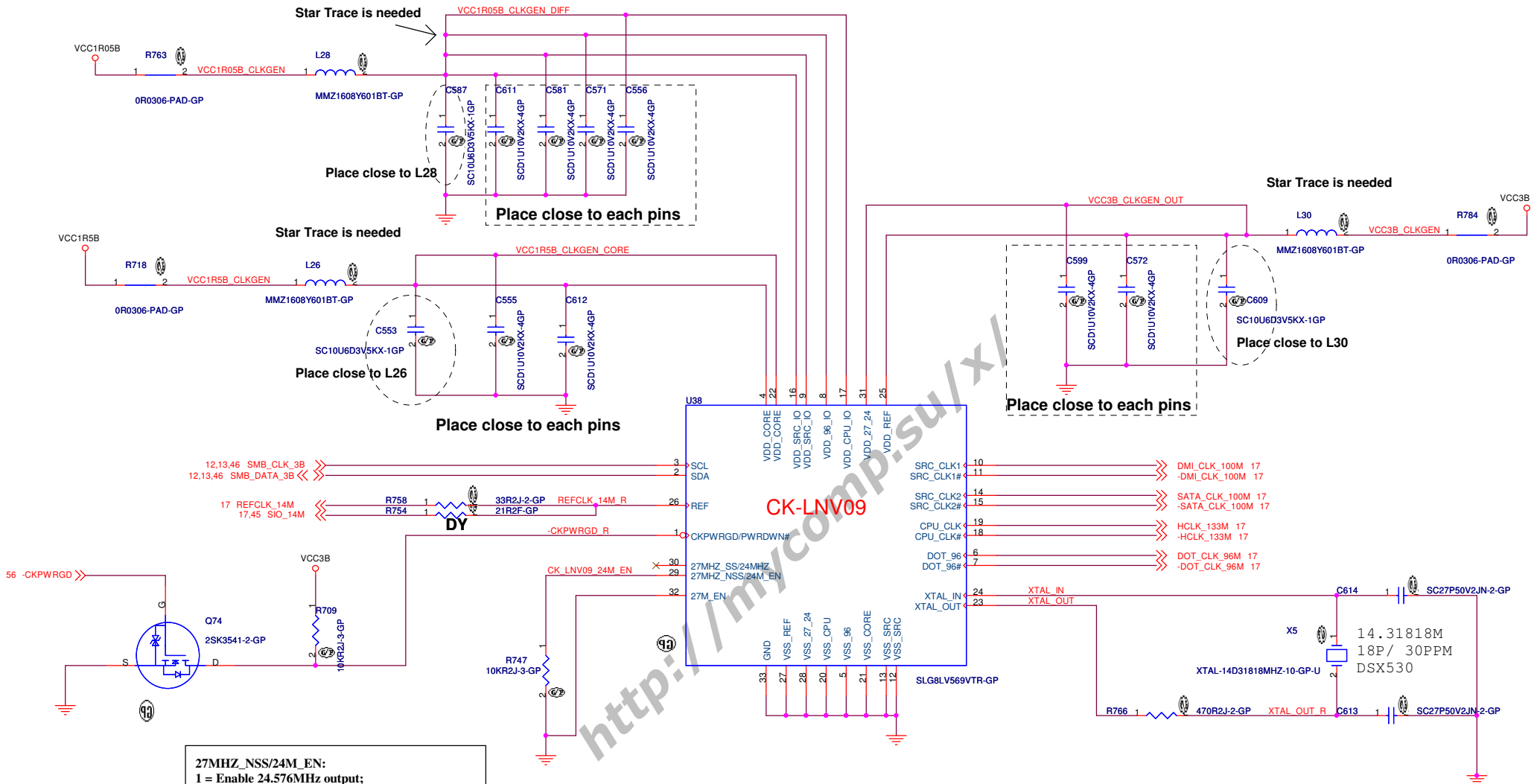
| PCH Pin | | PCH JTAG Enable | | PCH JTAG Disable | | Production | |
|---------|------|-----------------|----------|------------------|---------|------------|---------|
| | | ES1 | ES2 | ES1 | ES2 | Enable | Disable |
| TDO | R-1 | DY | 200 Ohms | DY | DY | DY | DY |
| | R-2 | DY | 100 Ohms | DY | DY | 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>

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Title: **XDP CONN**

| | | |
|-----------------------------------|---------------------------------|----------------|
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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>

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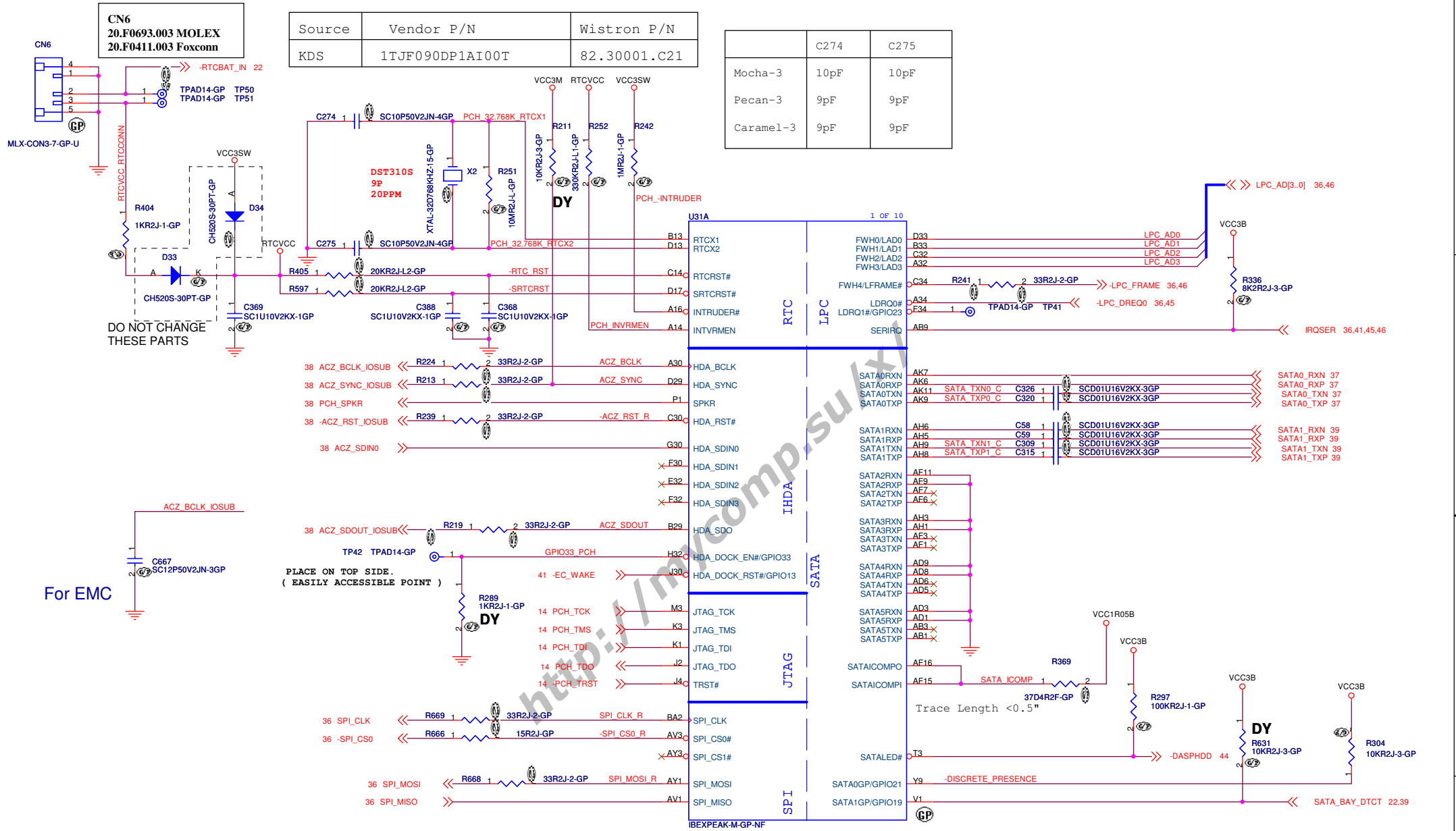
Title: **CLOCK GEN(CK-LNV09)**

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| 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 |



DO NOT CHANGE THESE PARTS

For EMC

PLACE ON TOP SIDE.
(EASILY ACCESSIBLE POINT)

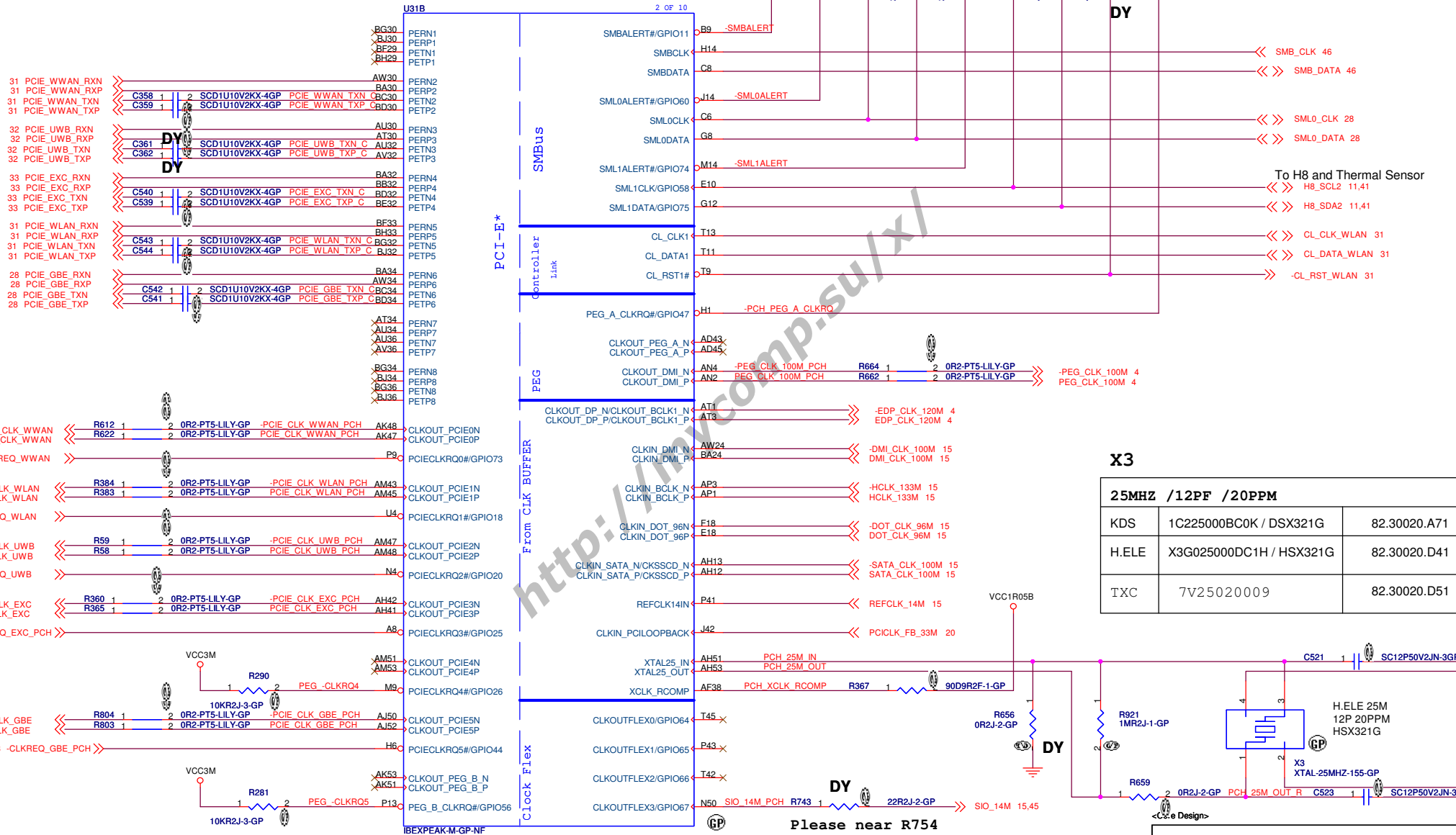
| | | | |
|-----------|------|------|------|
| AMT | YES | NO | NO |
| Braidwood | YES | YES | NO |
| U31 | QM57 | HM57 | HM55 |

<Core Design>

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

| | | |
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X3

| 25MHZ /12PF /20PPM | | |
|--------------------|-------------------------|--------------|
| KDS | 1C22500BC0K / DSX321G | 82.30020.A71 |
| H.ELE | X3G025000DC1H / HSX321G | 82.30020.D41 |
| TXC | 7V25020009 | 82.30020.D51 |

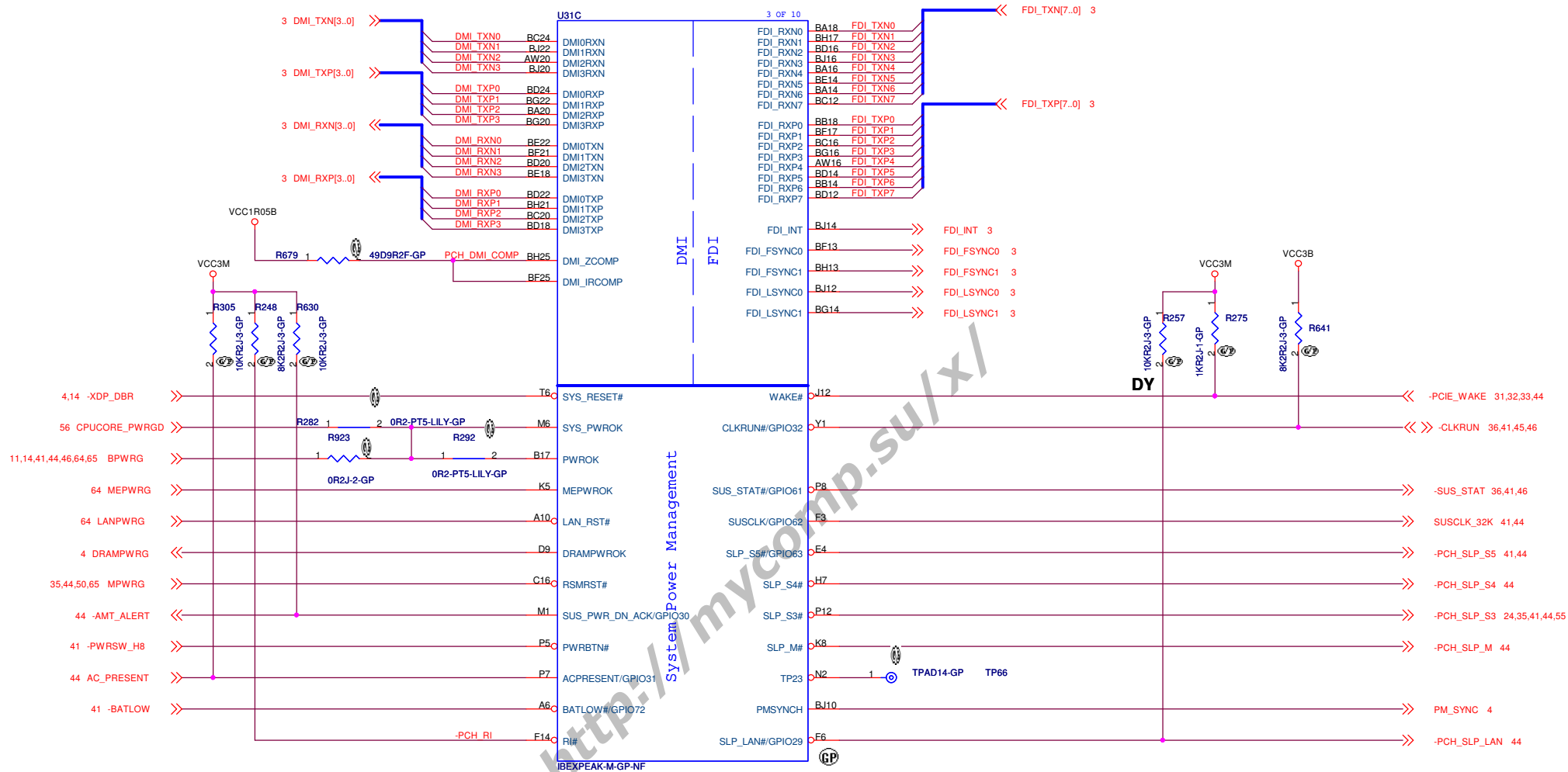
Please near R754

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Title: **PCH(2/8) : PCIE/SMBUS/CLK**

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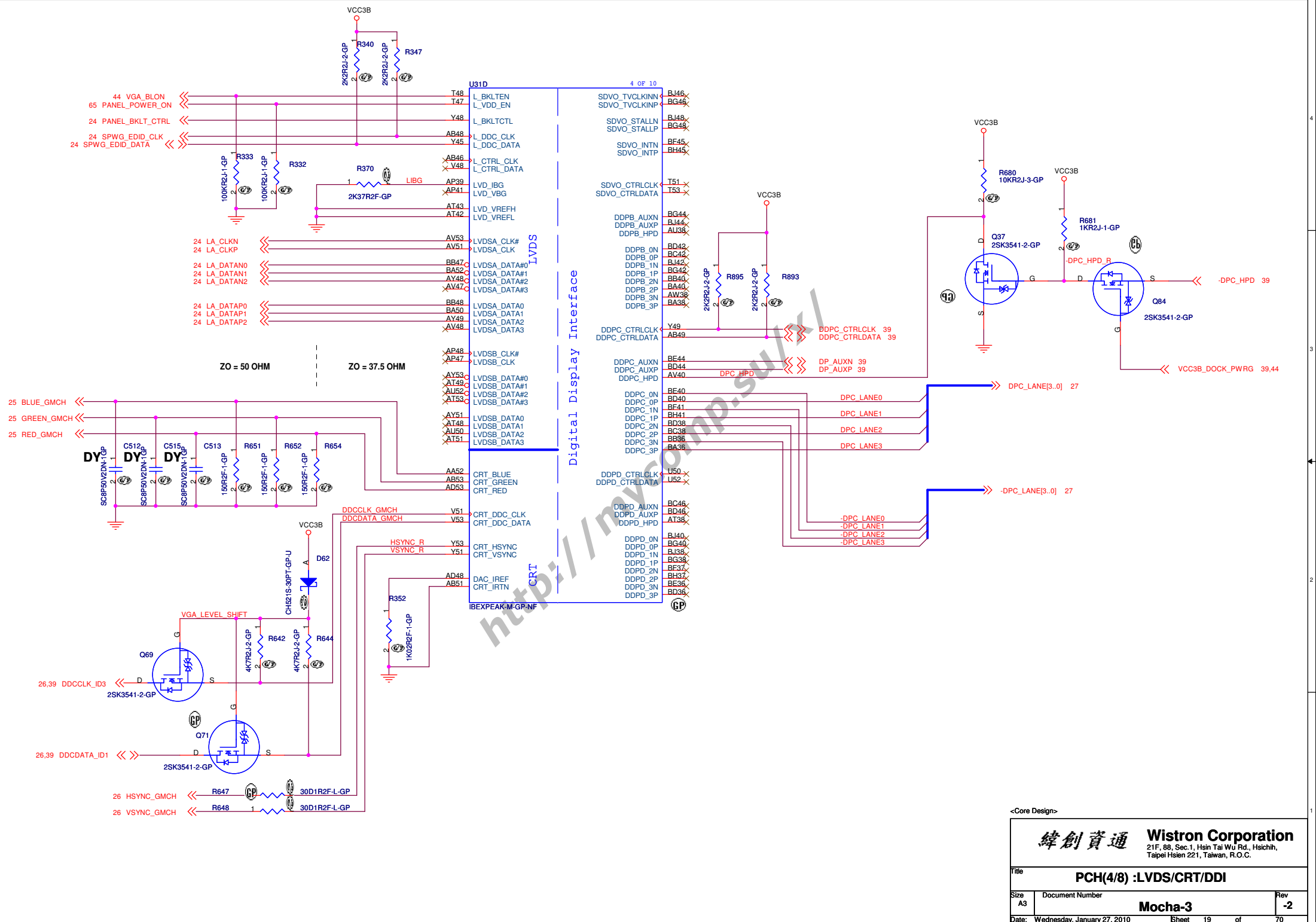
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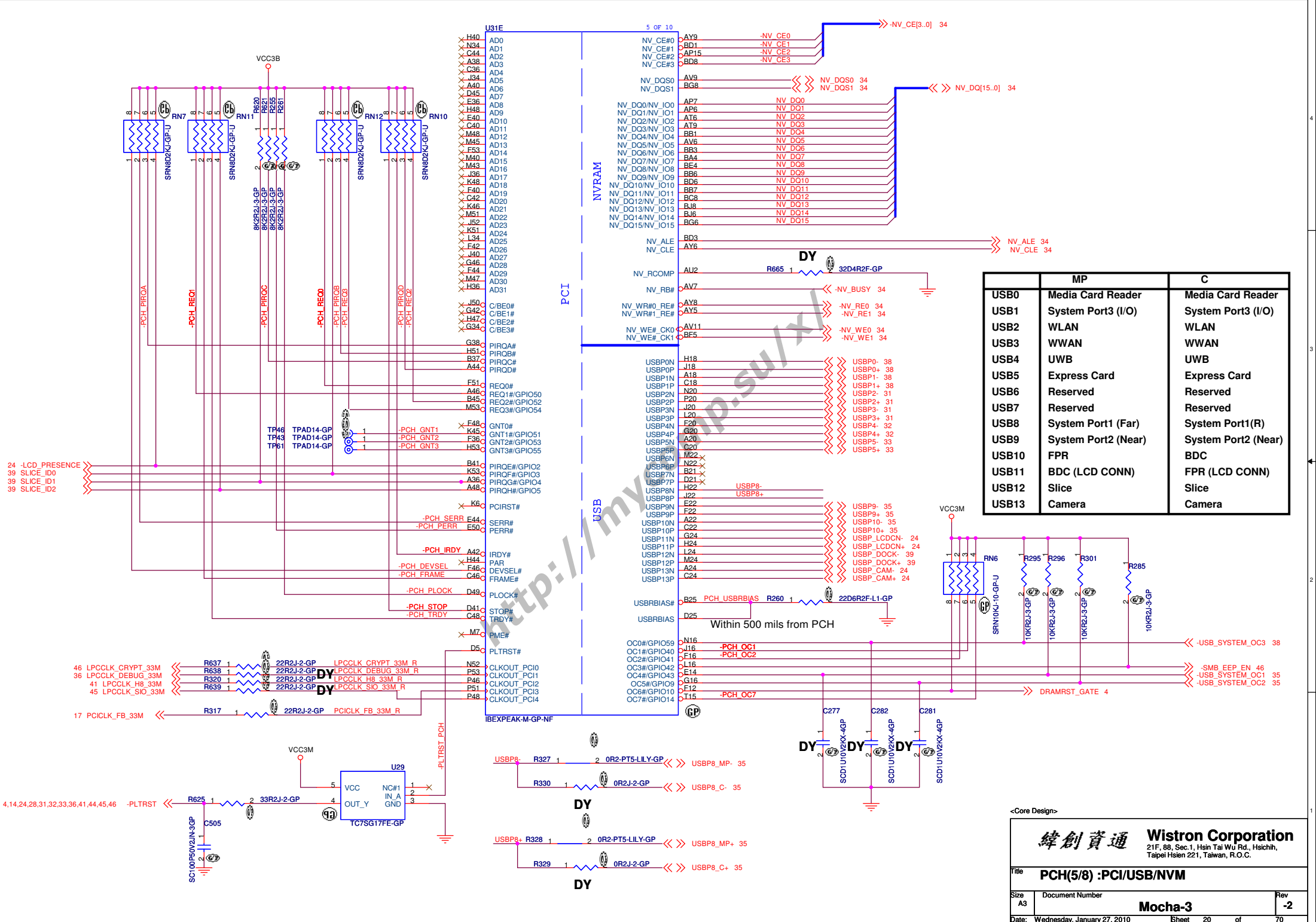
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 21F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih,
 Taipei Hsien 221, Taiwan, R.O.C.

Title PCH(3/8) :DMI/FDI/PM

Size A3 Document Number Mocha-3 Rev -2

Date: Wednesday, January 27, 2010 Sheet 18 of 70

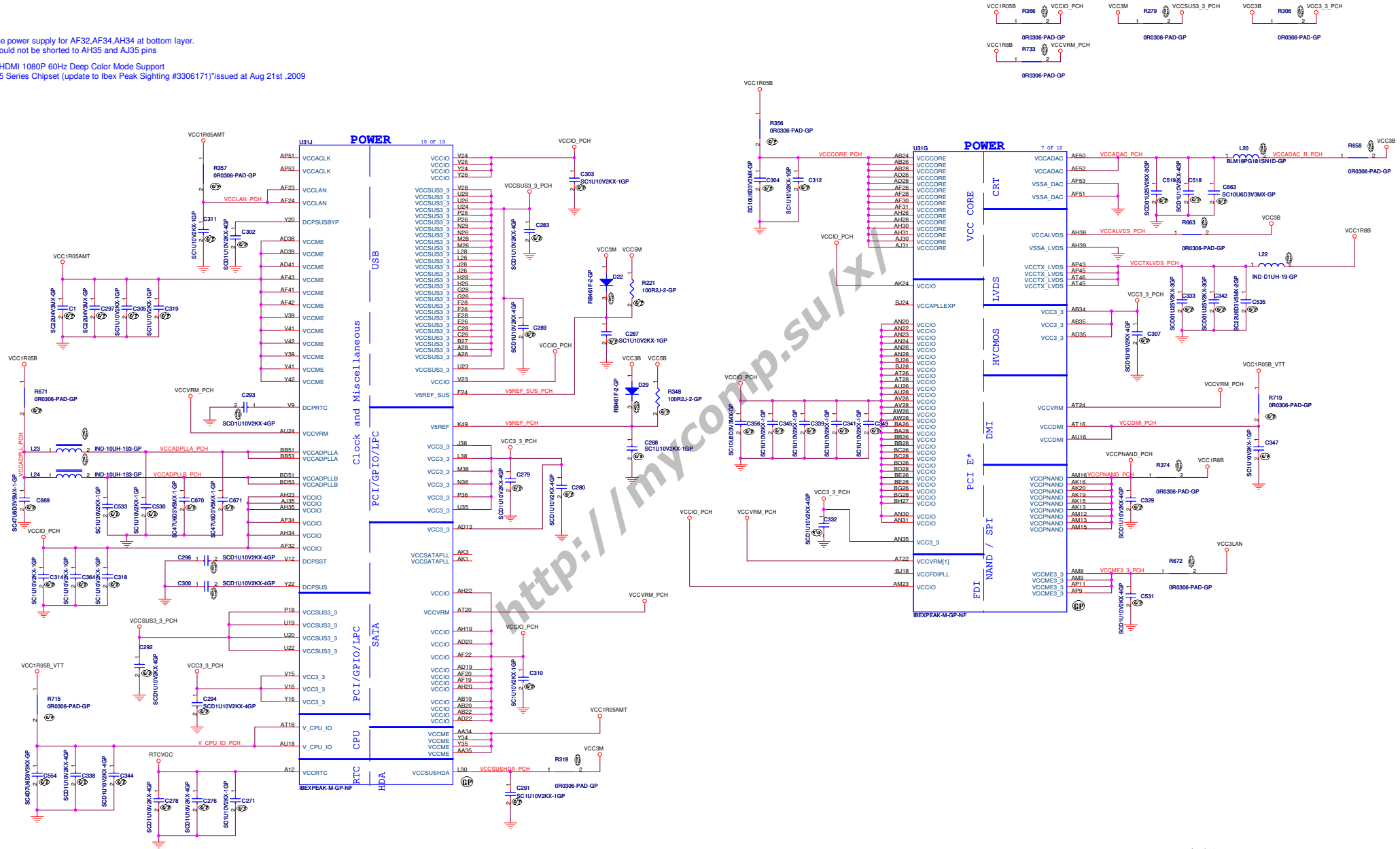




| | MP | C |
|-------|---------------------|---------------------|
| USB0 | Media Card Reader | Media Card Reader |
| USB1 | System Port3 (I/O) | System Port3 (I/O) |
| USB2 | WLAN | WLAN |
| USB3 | WWAN | WWAN |
| USB4 | UWB | UWB |
| USB5 | Express Card | Express Card |
| USB6 | Reserved | Reserved |
| 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
on Intel 5 Series Chipset (update to Ibox Peak Sighting #3306171) issued at Aug 21st, 2009



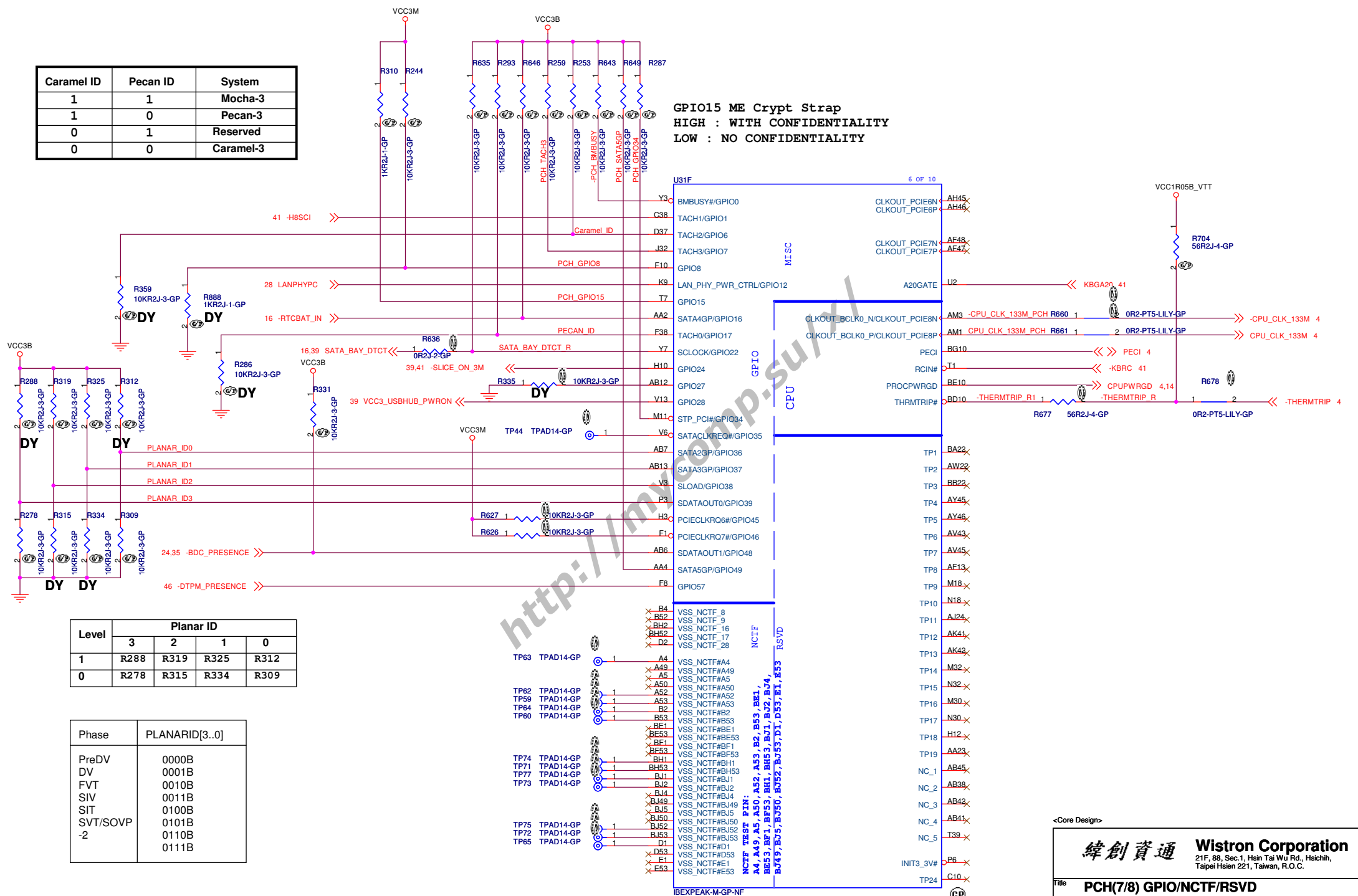
Core Design

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

| | | |
|--------------------------------------|-----------------------------------|------------------|
| Title PCH(6/8) :Power | | |
| Size A2 | Document Number Mocha-3 | Rev -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 |

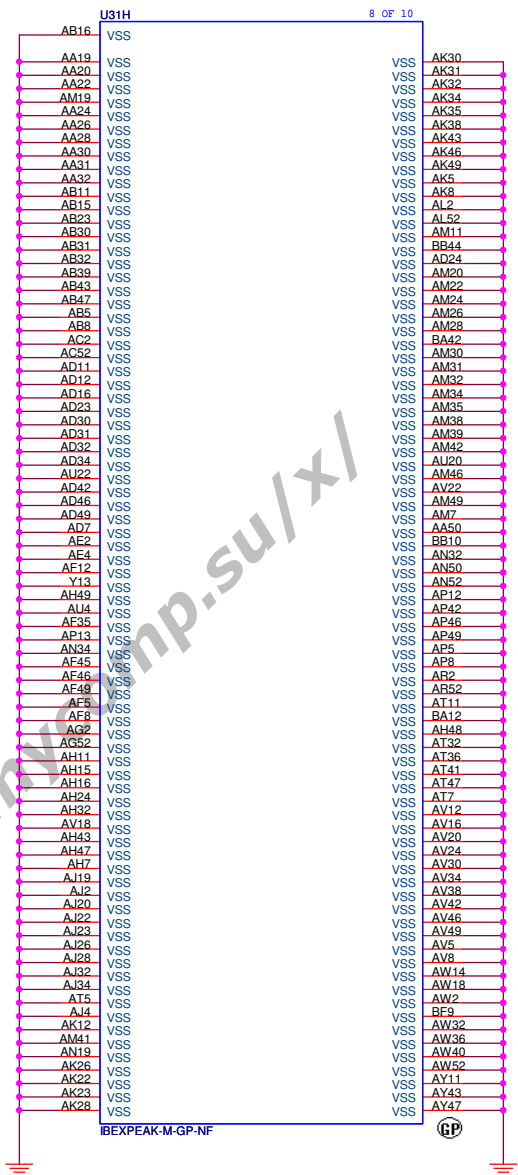
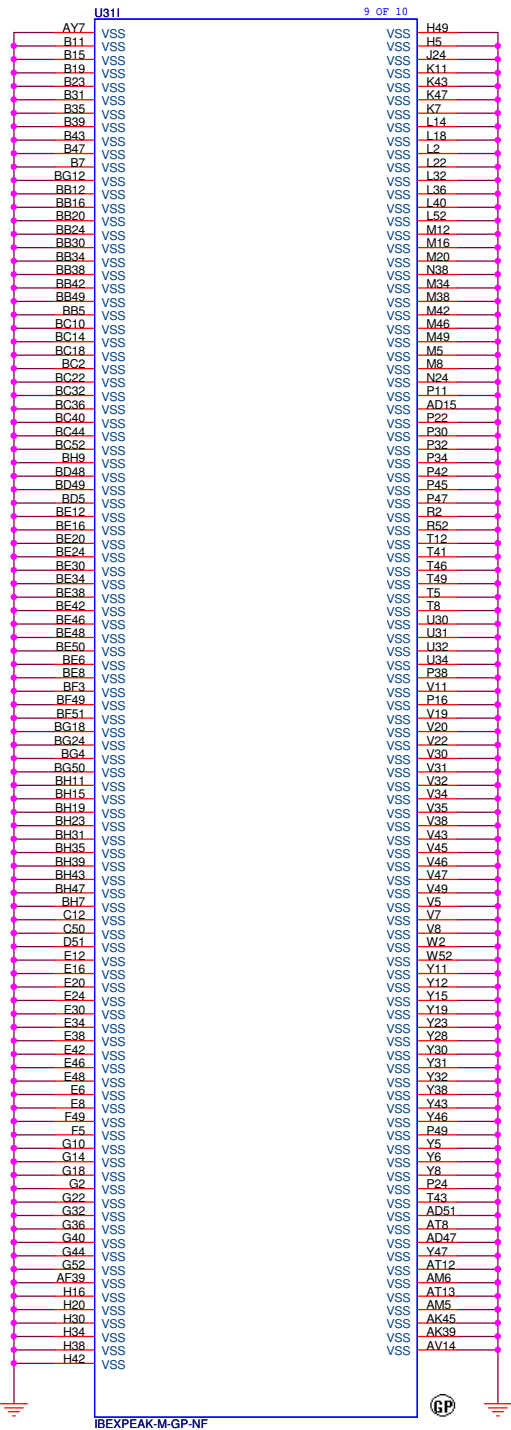
| Phase | PLANARID[3..0] |
|----------|----------------|
| PreDV | 0000B |
| DV | 0001B |
| FVT | 0010B |
| SIV | 0011B |
| SIT | 0100B |
| SVT/SOVP | 0101B |
| -2 | 0110B |
| | 0111B |

<Core Design>

緯創資通 **Wistron Corporation**
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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>

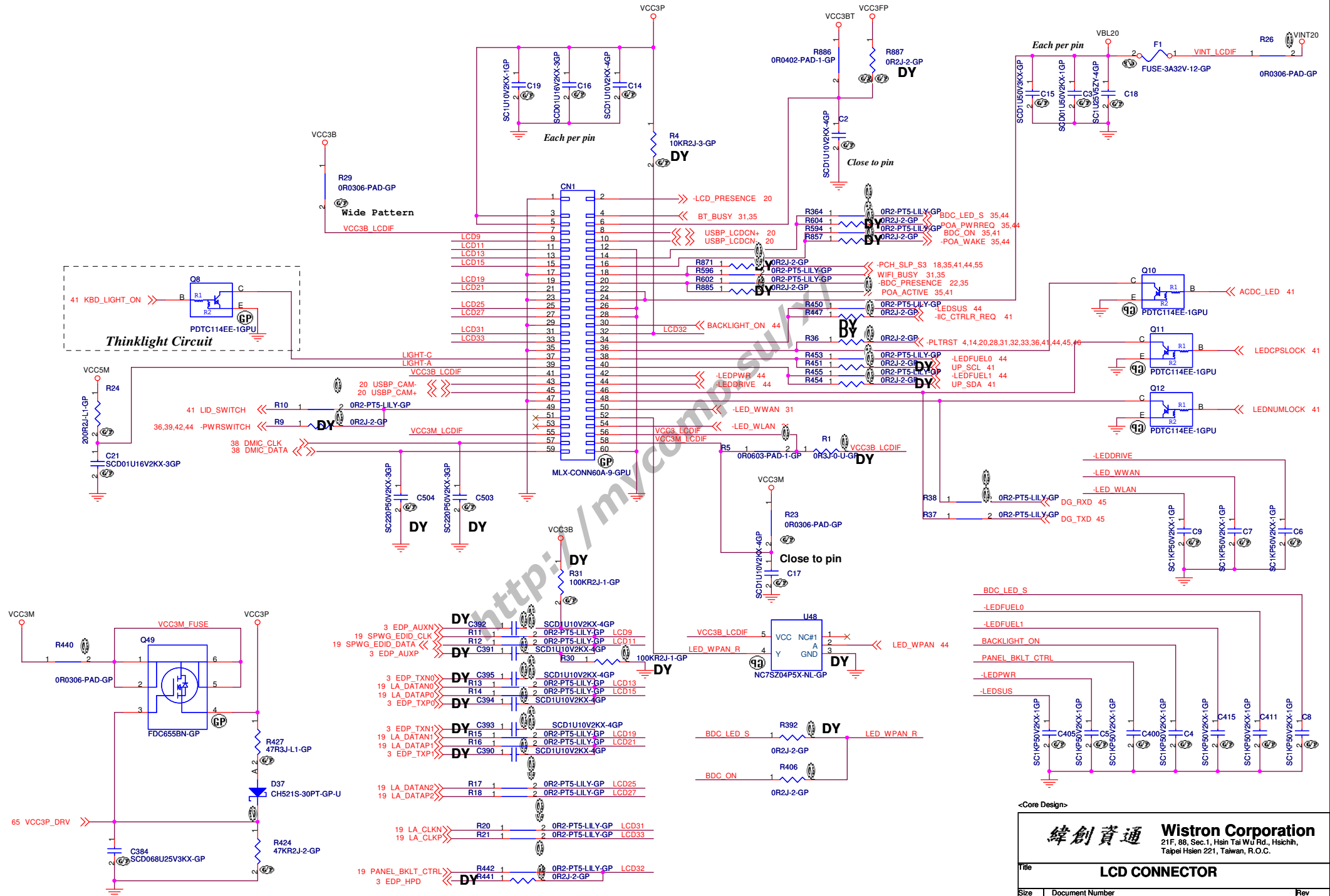
緯創資通 Wistron Corporation
 21F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih,
 Taipei Hsien 221, Taiwan, R.O.C.

Title **PCH(8/8) :GND**

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

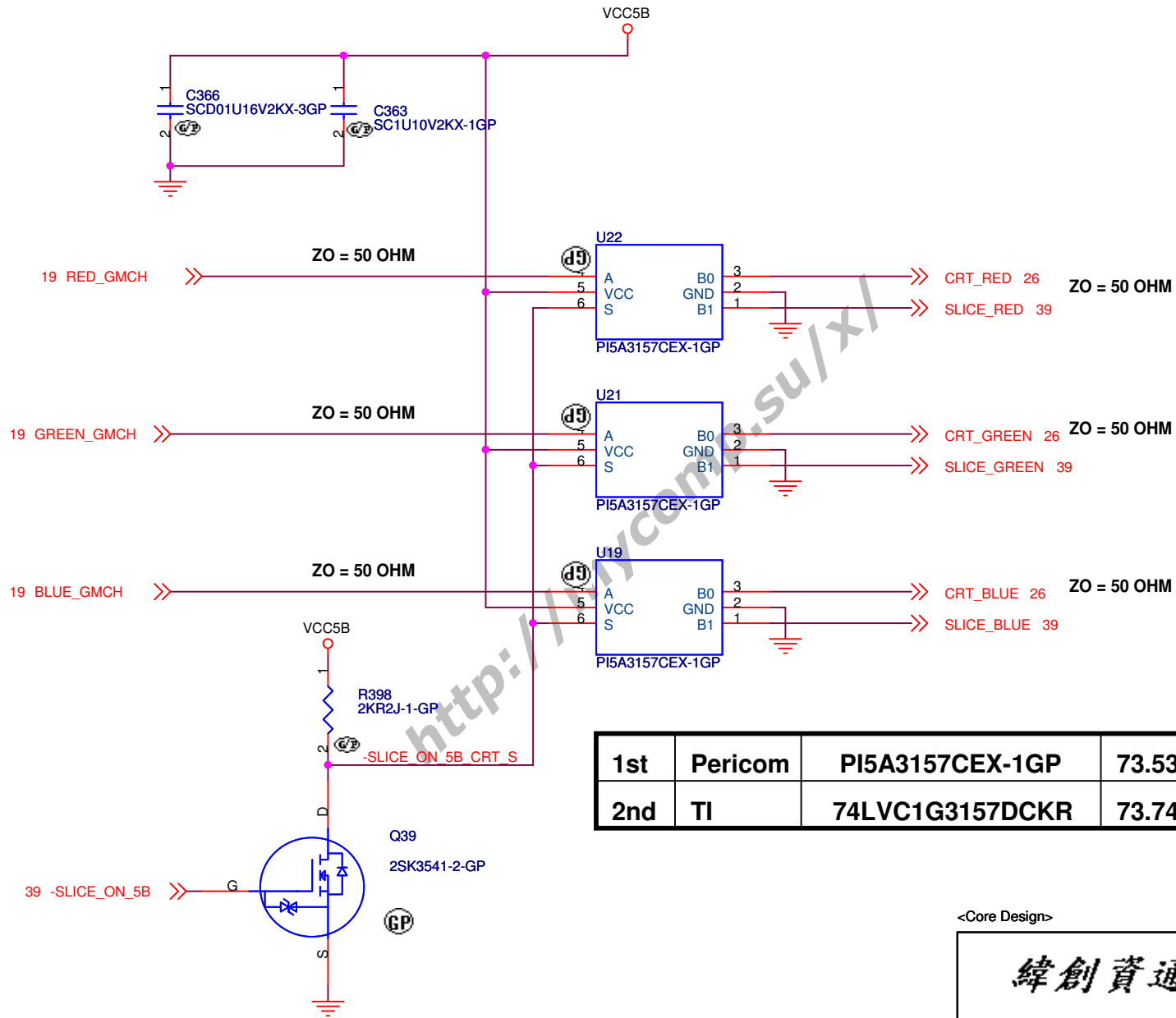
Date: Wednesday, January 27, 2010 Sheet 23 of 70

LCD / Inverter Connector



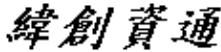
<Core Design>

| | | | |
|-----------------------------------|-----------------|--|-------|
| 緯創資通 | | Wistron Corporation | |
| | | 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. | |
| LCD CONNECTOR | | | |
| File | Document Number | | Rev |
| A3 | Mocha-3 | | -2 |
| Date: Wednesday, January 27, 2010 | Sheet | 24 | of 70 |

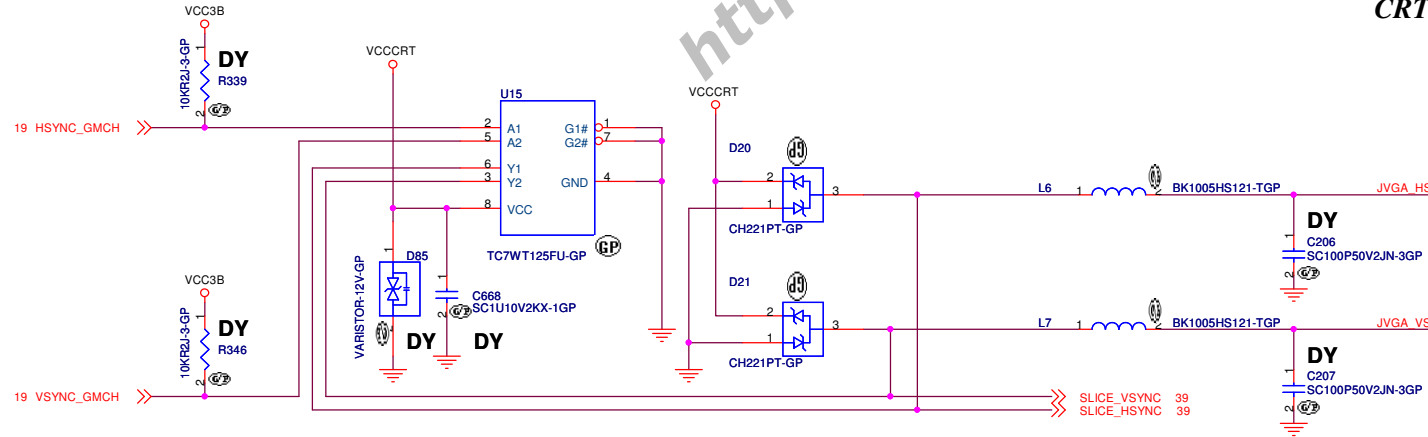
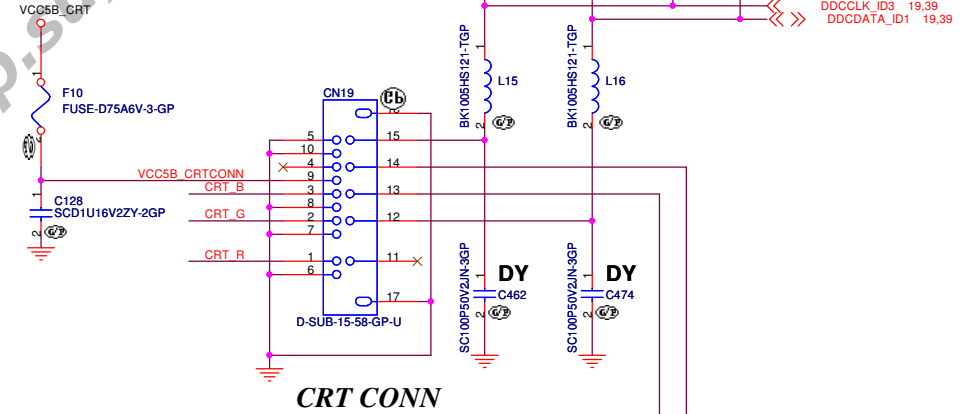
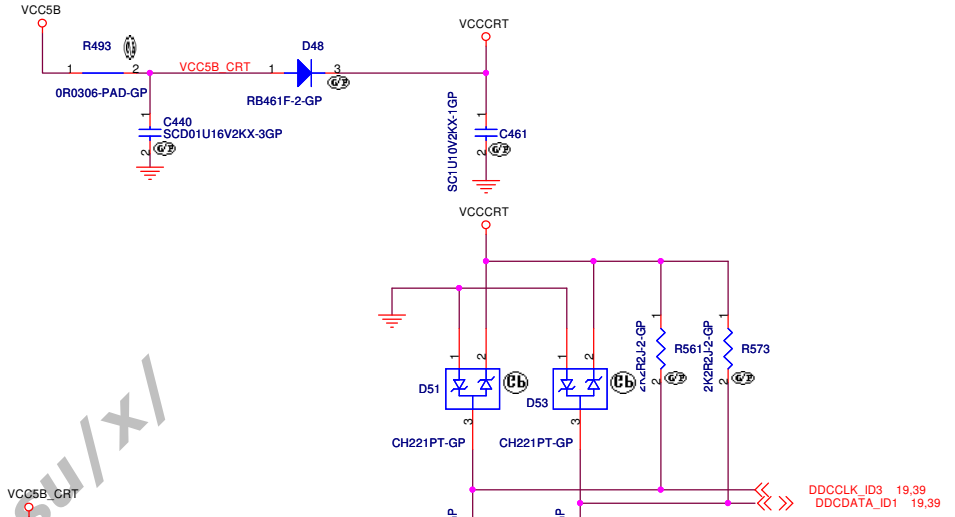
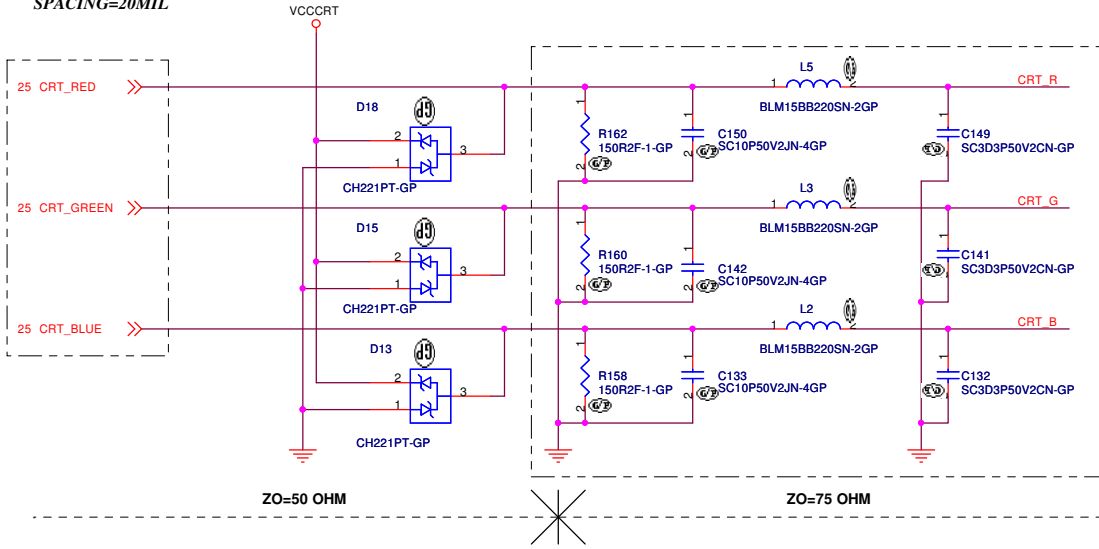


| | | | |
|-----|---------|-----------------|--------------|
| 1st | Pericom | PI5A3157CEX-1GP | 73.53157.A0J |
| 2nd | TI | 74LVC1G3157DCKR | 73.74157.CHH |

<Core Design>

| | | |
|---|-----------------------------------|------------------|
|  Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. | | |
| CRT SELECTOR | | |
| Title Size A4 | Document Number Mocha-3 | Rev -2 |
| Date: Wednesday, January 27, 2010 | | Sheet 25 of 70 |

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

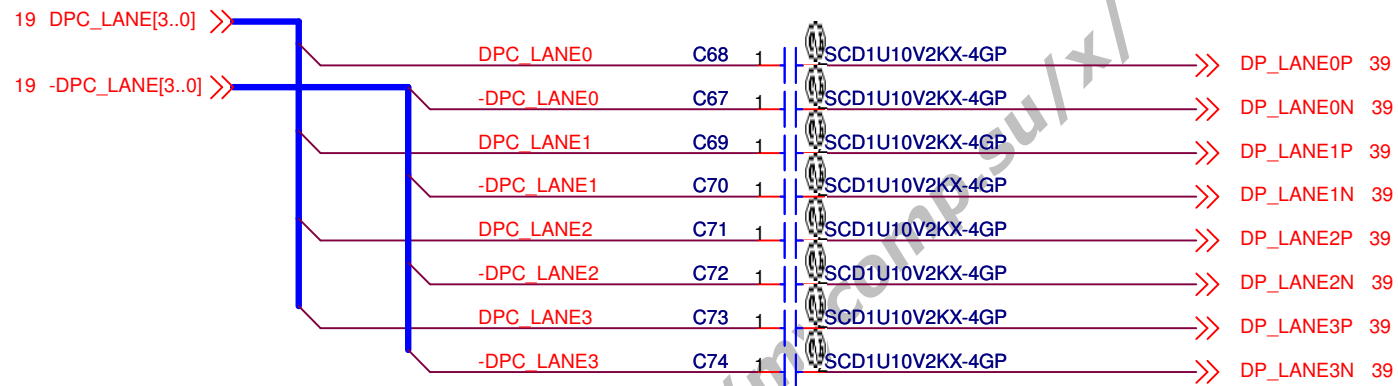


<Core Design>

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

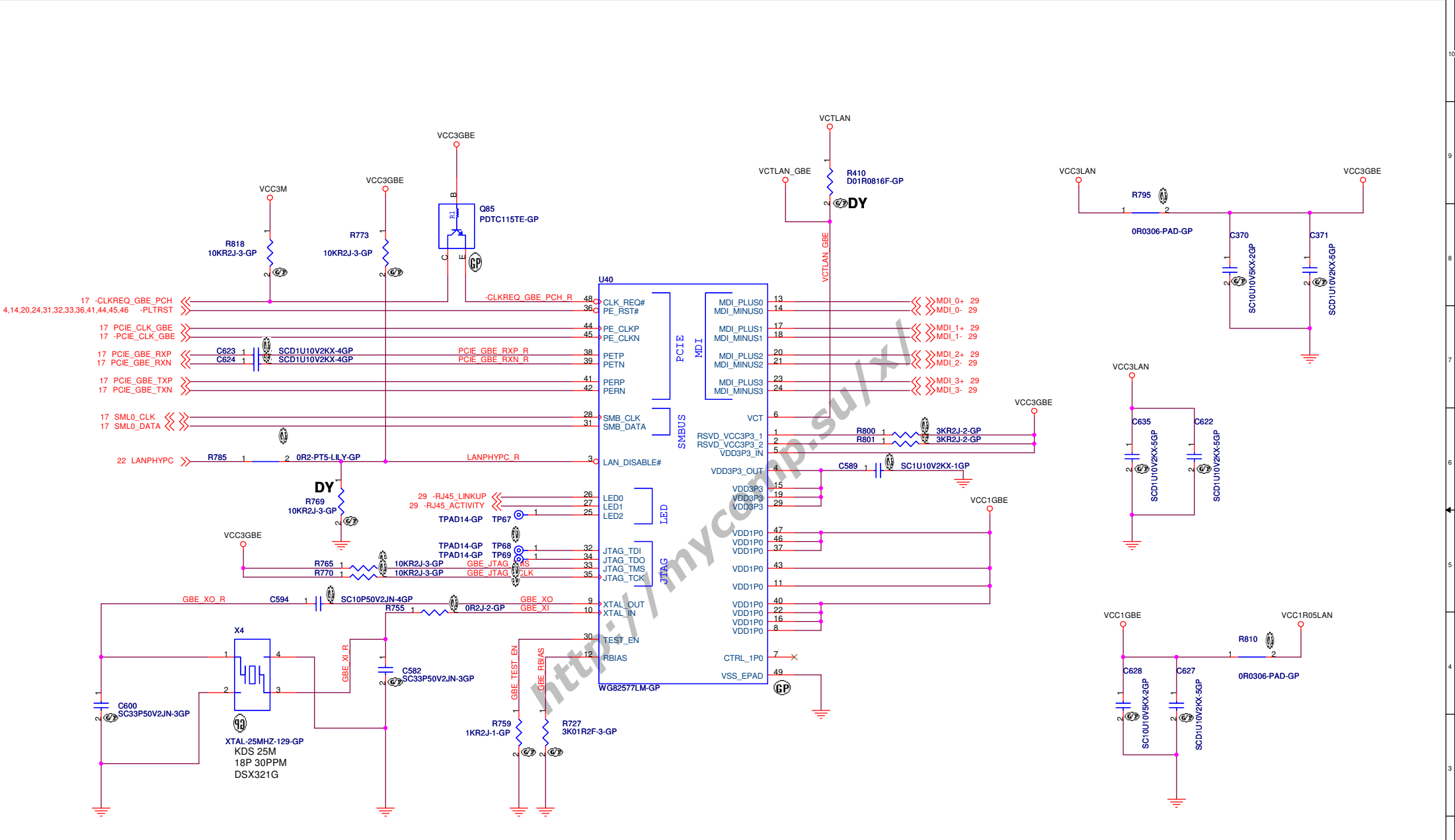
| | | |
|-----------------------------------|-----------------|-------|
| EXT CRT INTERFACE | | |
| File | Document Number | Rev |
| Size A3 | Mocha-3 | -2 |
| Date: Wednesday, January 27, 2010 | | |
| Sheet | 26 | of 70 |

System DP: GMCH to SLICE Connector



<Core Design>

| | |
|---|-----------------------------------|
|  Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. | |
| Title Display Port AC Coupling | |
| Size A | Document Number Mocha-3 |
| Rev -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 |

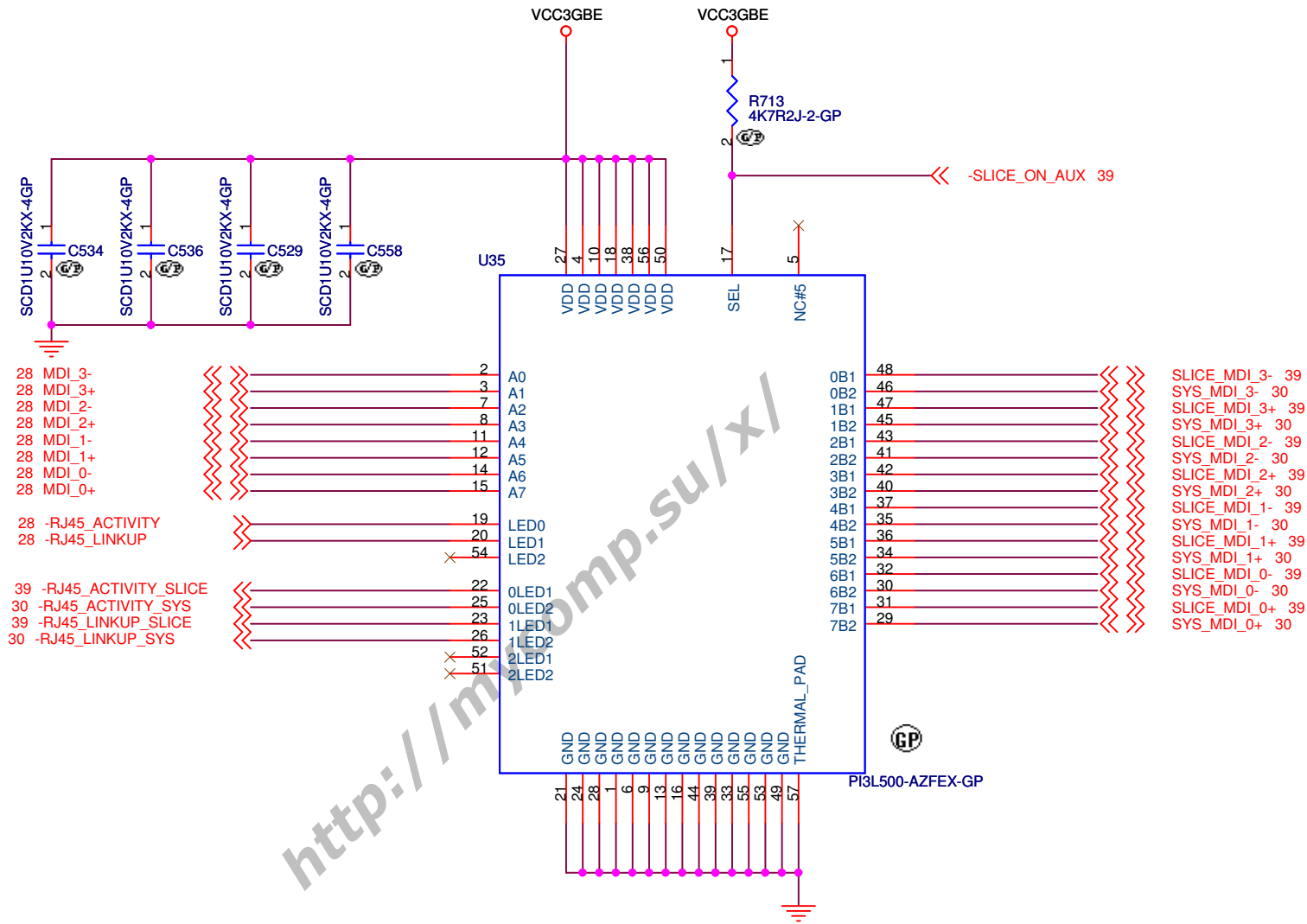
<Core Design>

緯創資通 Wistron Corporation
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Title: **GBE Hanksville**

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

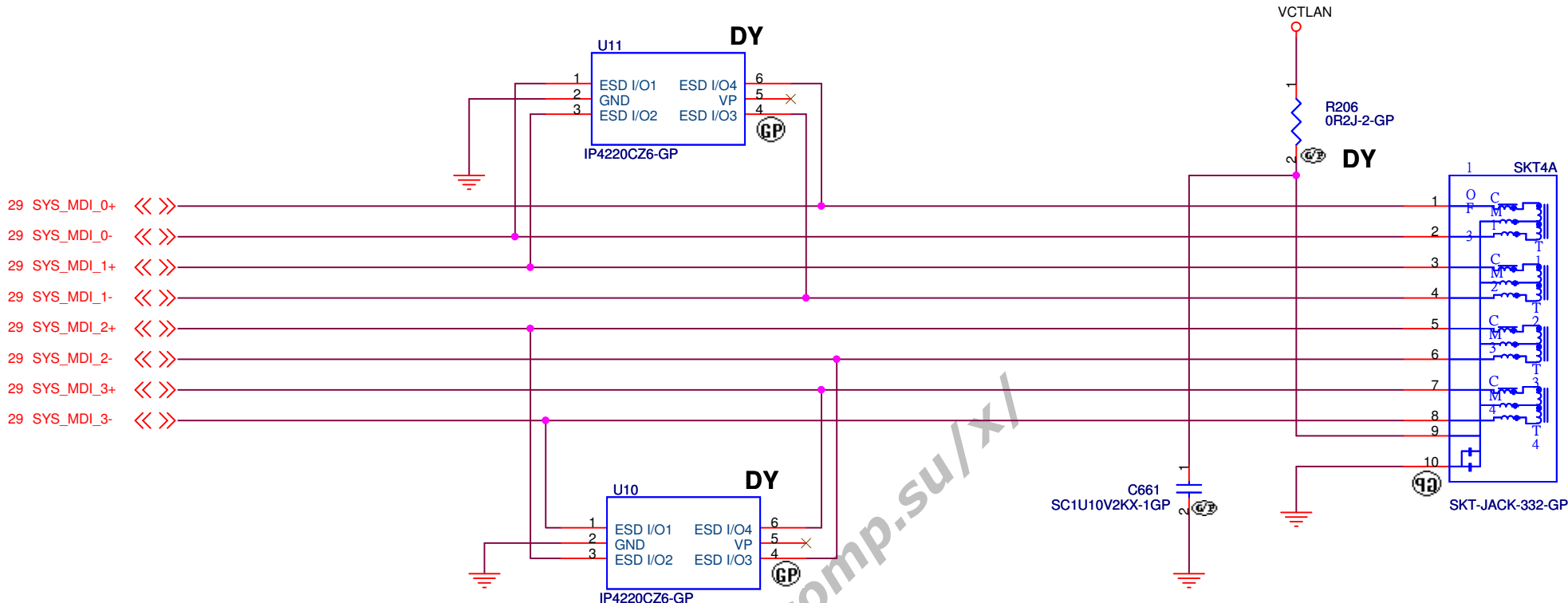
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Wistron Corporation
 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
 Taipei Hsien 221, Taiwan, R.O.C.

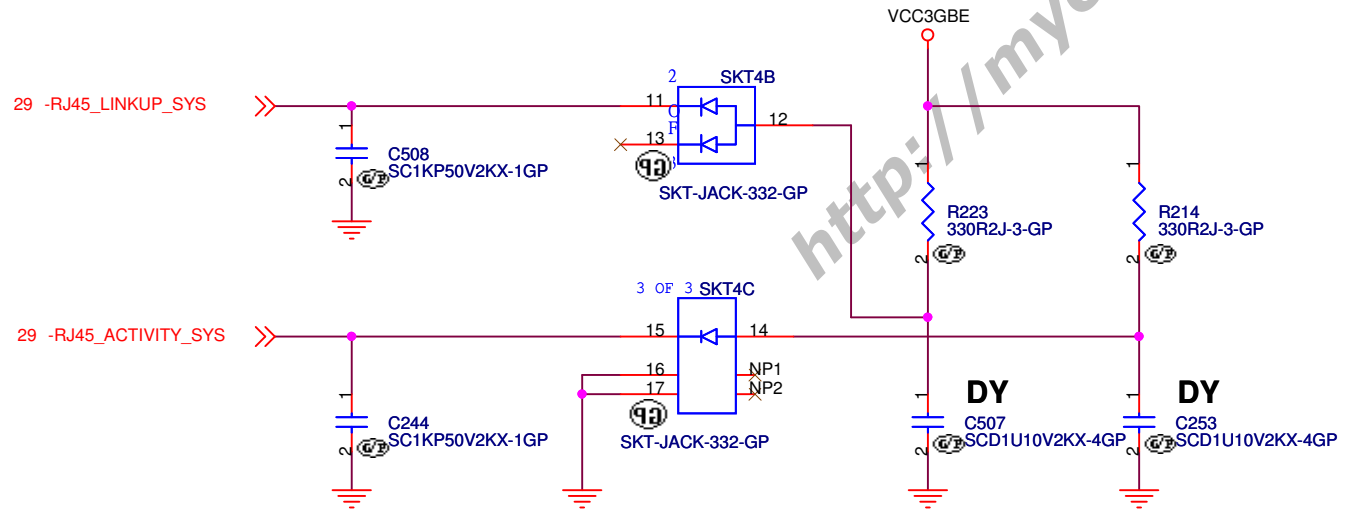
GBE LAN SW

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

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



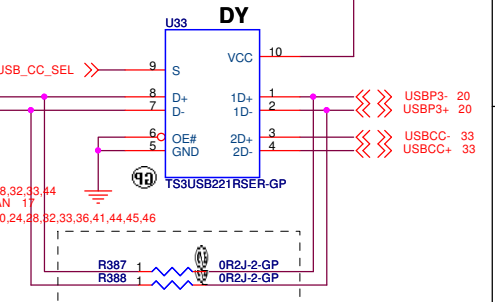
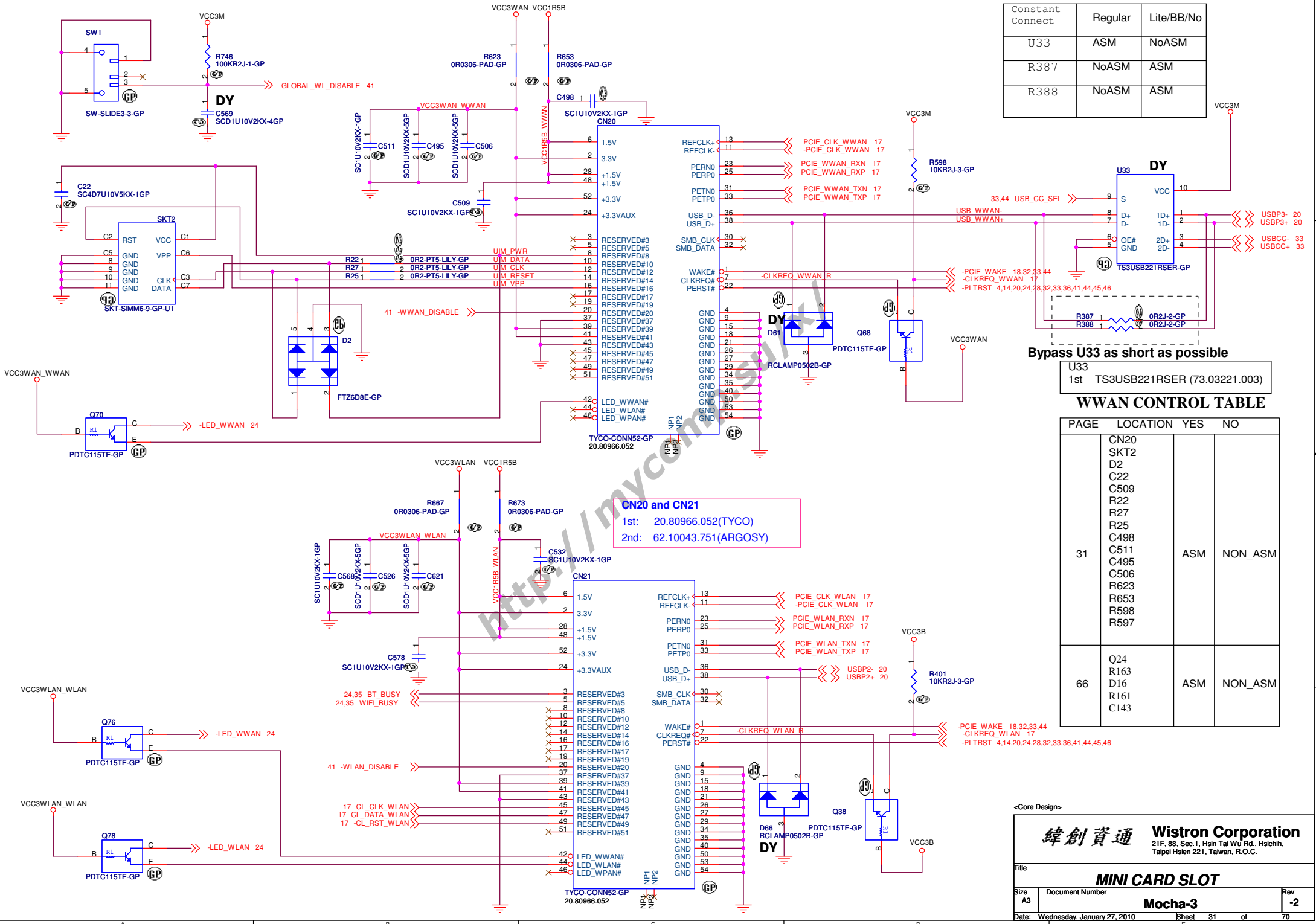
SKT4
 22.10308.021 Tyco
 22.10311.001 Pulse (SVT drop it)
 22.10177.D01 SUYIN



<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 A4 | Document Number | Mocha-3 | |
| Date: | Wednesday, January 27, 2010 | Sheet | 30 of 70 |
| | | Rev | -2 |

| | | |
|------------------|---------|------------|
| 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 | ASM | NON_ASM |
| | C495 | ASM | NON_ASM |
| | C506 | | |
| | R623 | | |
| R653 | | | |
| R598 | | | |
| R597 | | | |
| 66 | Q24 | ASM | NON_ASM |
| | R163 | | |
| | D16 | | |
| | R161 | | |
| | C143 | | |

CN20 and CN21
 1st: 20.80966.052(TYCO)
 2nd: 62.10043.751(ARGOSY)

<Core Design>

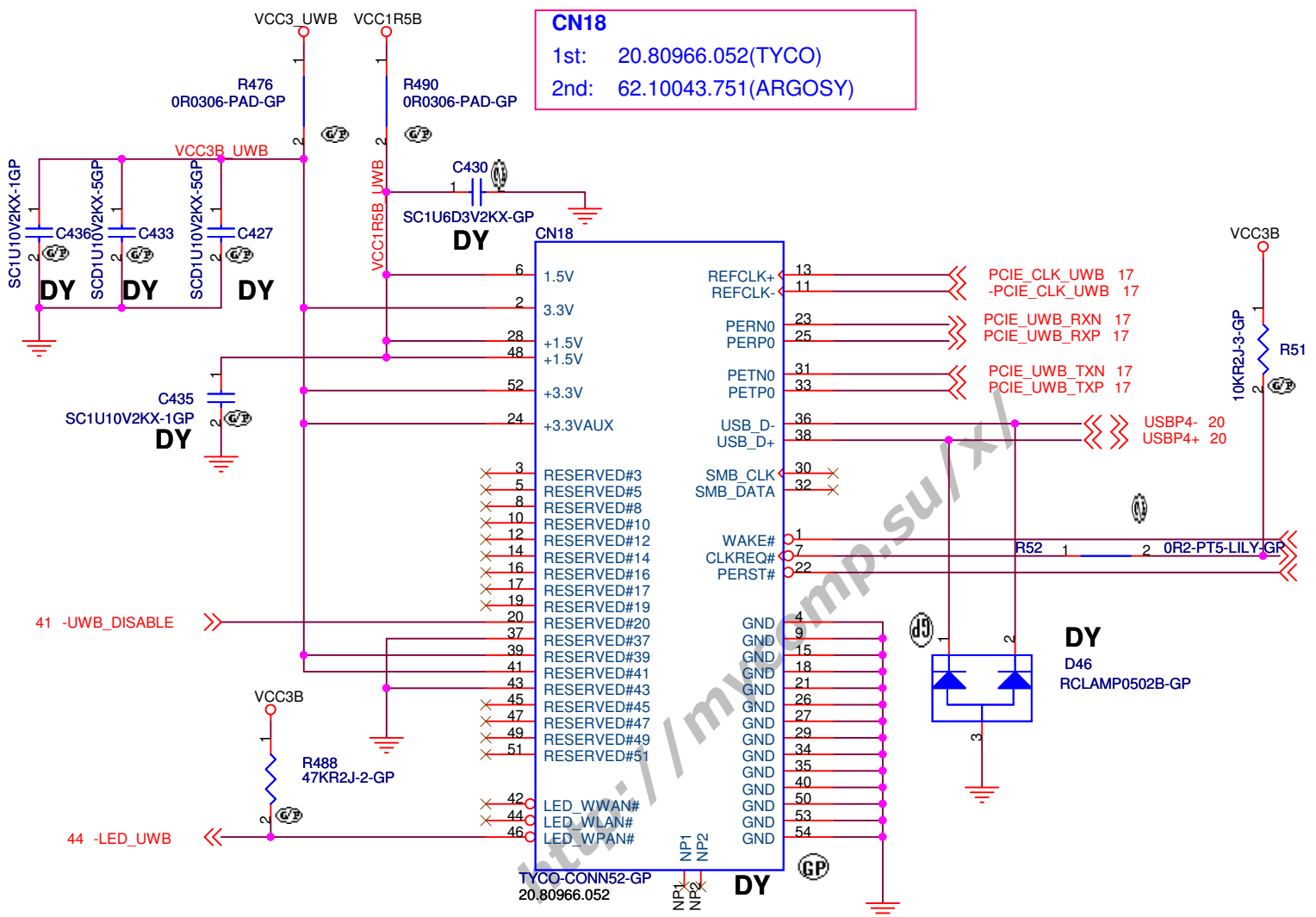
緯創資通 Wistron Corporation
 21F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.

MINI CARD SLOT

Mocho-3

Rev -2

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

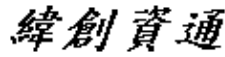


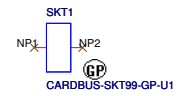
CN18
 1st: 20.80966.052(TYCO)
 2nd: 62.10043.751(ARGOSY)

| 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 |

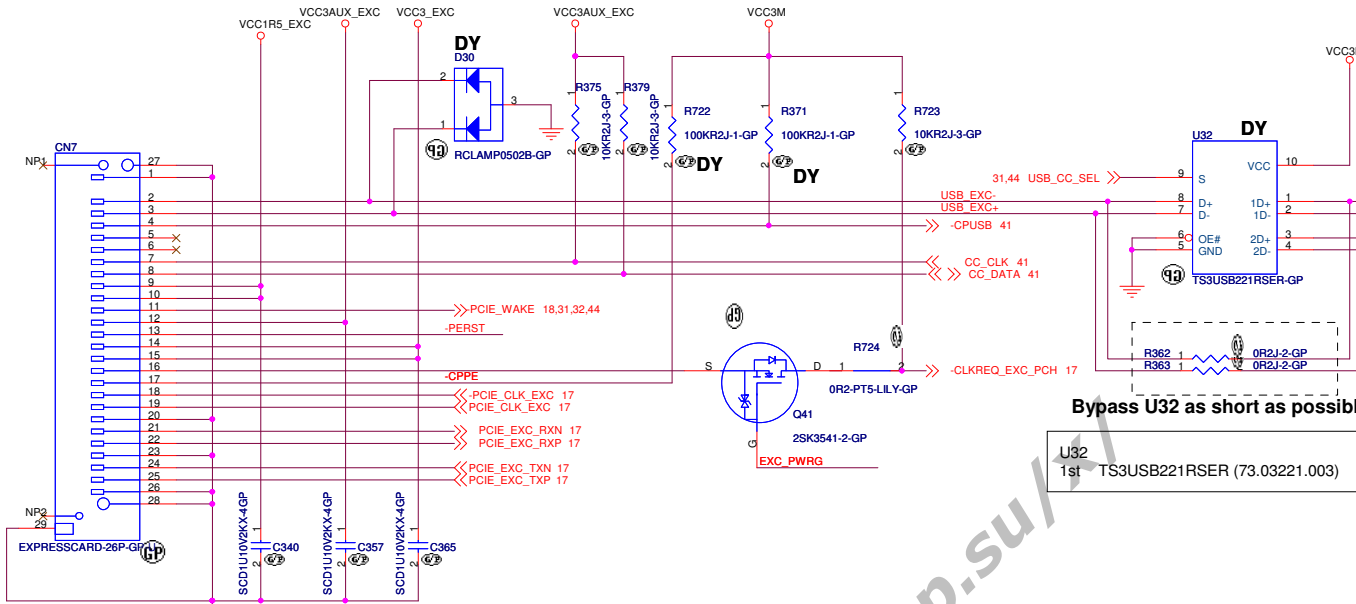
-PCIE_WAKE 18,31,33,44
 -CLKREQ_UWB 17
 -PLTRST 4,14,20,24,28,31,33,36,41,44,45,46

<Core Design>

| | |
|---|-----------------------------------|
|  Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. | |
| MINI CARD SLOT 2 | |
| Title MINI CARD SLOT 2 | Document Number Mocha-3 |
| Size A4 | Rev -2 |
| Date: Wednesday, January 27, 2010 | |
| Sheet 32 of 70 | |



For DIP line

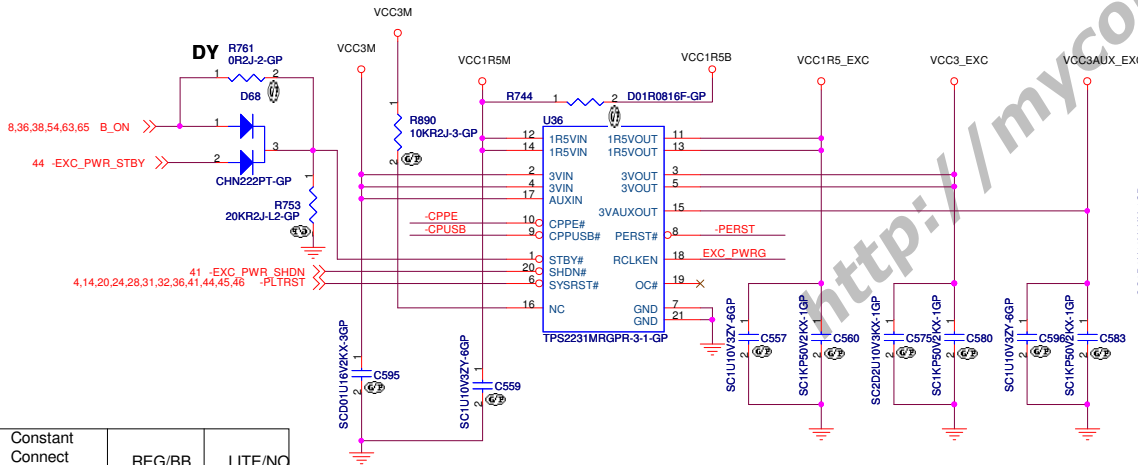


| Constant Connect | REG | LITE/BB/NO |
|------------------|-------|------------|
| U32 | ASM | NoASM |
| R362 | NoASM | ASM |
| R363 | NoASM | ASM |

| 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 |

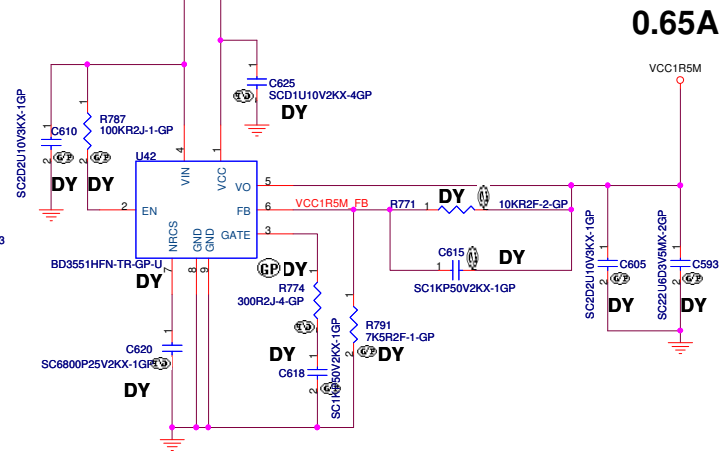
Bypass U32 as short as possible

U32
1st TS3USB221RSER (73.03221.003)



| 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 | | | |



0.65A

<Core Design>

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

Title Express Card Slot/PWR

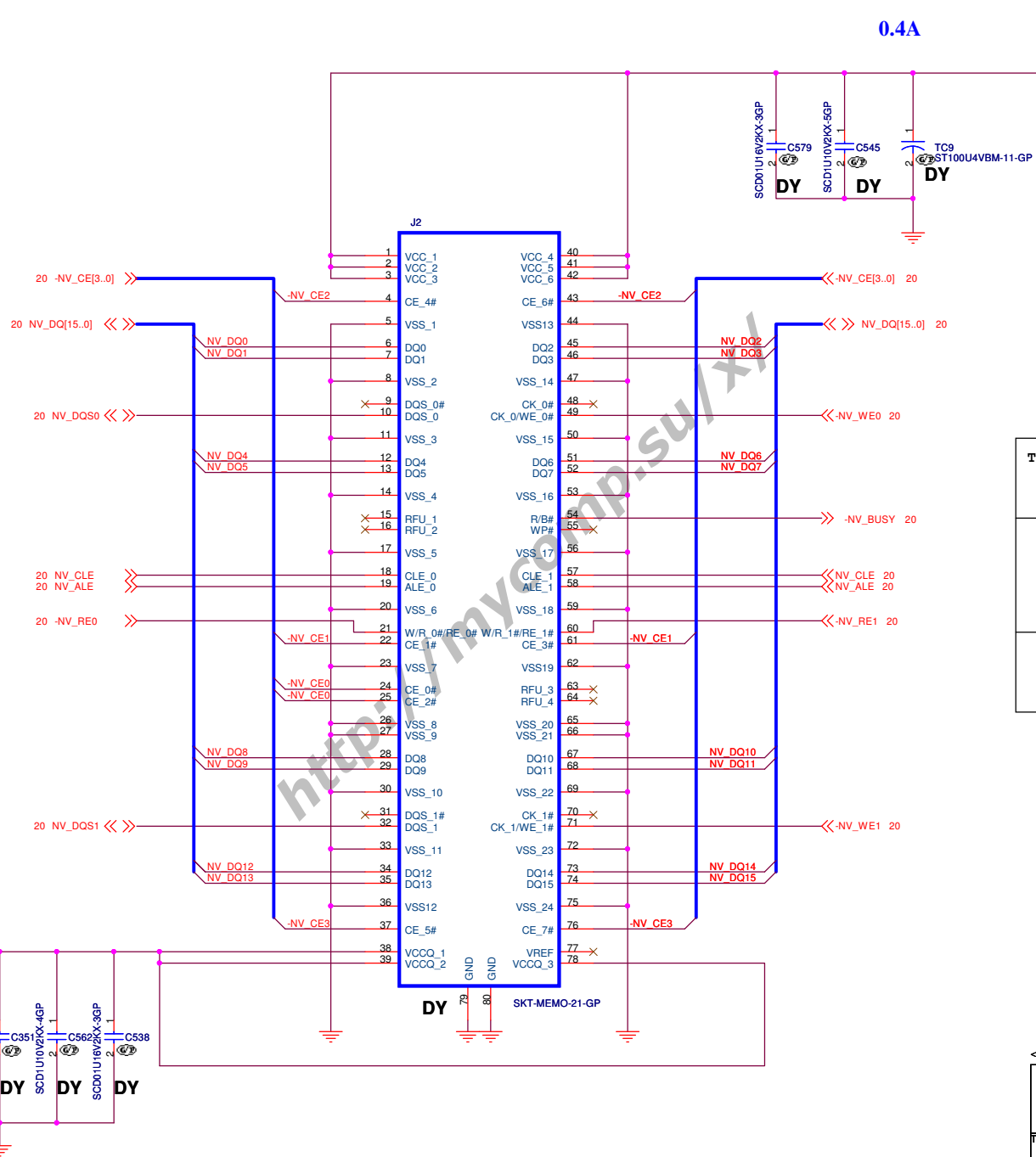
Size Custom Document Number Mocha-3 Rev -2

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

J2
62.10034.331

0.4A
VCC1R8B

0.4A
VCC3B



| 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 |

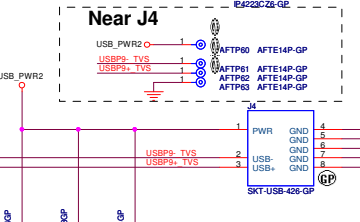
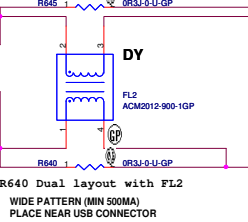
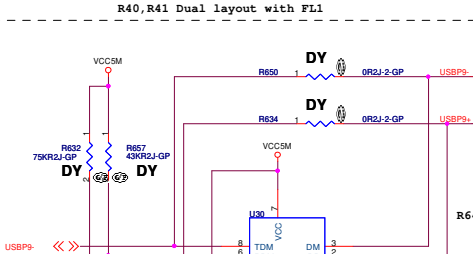
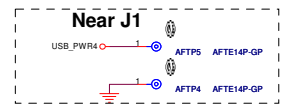
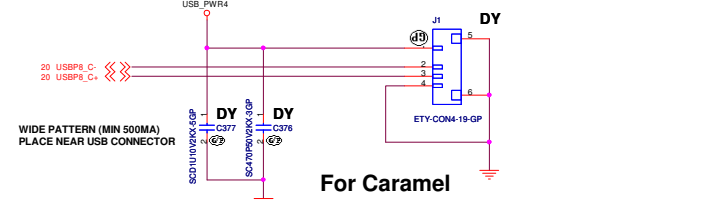
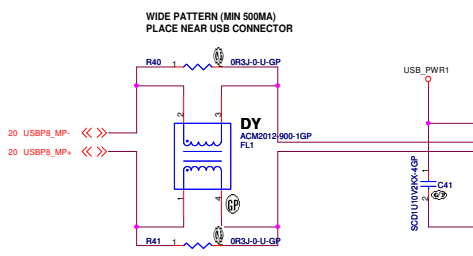
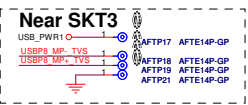
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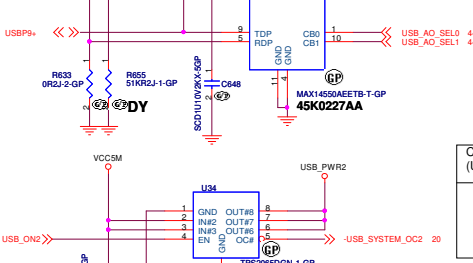
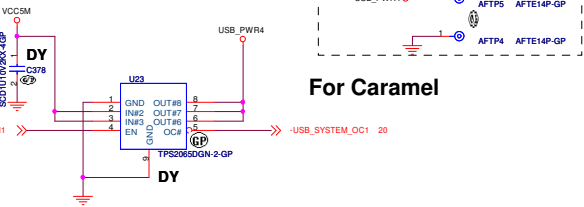
Title: **Braidwood ONFI Connector**

| | | |
|-----------------------------------|-----------------|----------------|
| Size A3 | Document Number | Rev -2 |
| Date: Wednesday, January 27, 2010 | | Sheet 34 of 70 |

Del these circuits for Caramel-3



| | Vendor | Vendor P/N | Wistron P/N |
|-----|---------|-------------|----------------------------|
| 1st | NXP | IP4223C26 | 83.42236.0AE |
| 2nd | SEMTECH | SRV05-4-TCT | 83.00005.BAE /41U5451AA |
| 3rd | AOS | AO28904CIL | 83.08904.0AE |



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

| CB1 (USB_A0_SEL1) | CB0 (USB_A0_SEL0) | Function Mode |
|-------------------|-------------------|----------------|
| Low | Low | Auto |
| Low | High | Force Resistor |
| High | Low | Pass 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 |

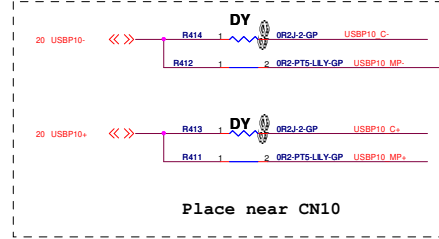
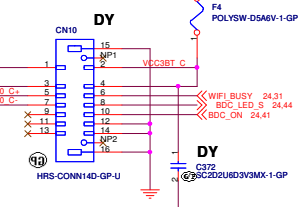
C516 C32

| Vendor | Vendor P/N | Wistron P/N | |
|--------|------------|-----------------------|--------------|
| 1st | NEC/TOKIN | TLP5LV0J157M (40)12RE | 77.C1571.02D |
| 2nd | SANYO | 6TFC150M | 77.21571.03L |
| 3rd | PANASONIC | EEFCX0J151R | 70.35710.2BL |

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 |

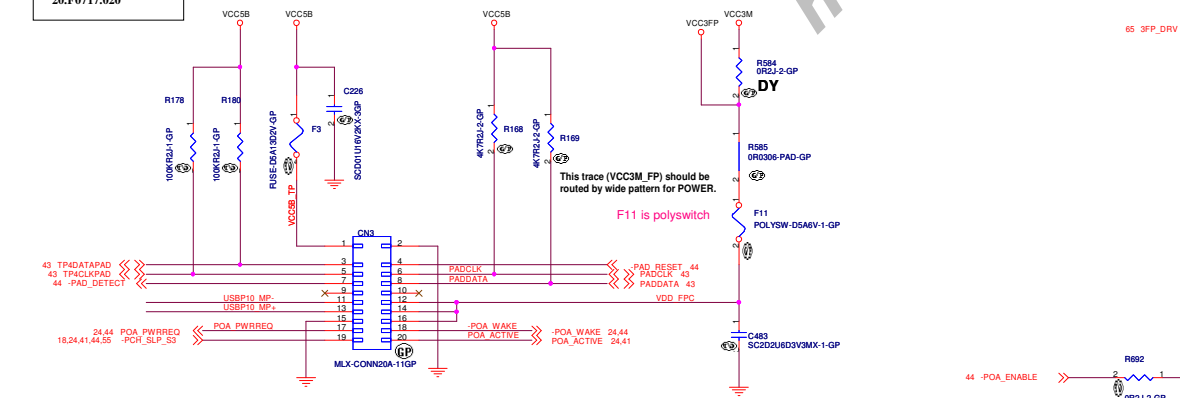
Bluetooth Module



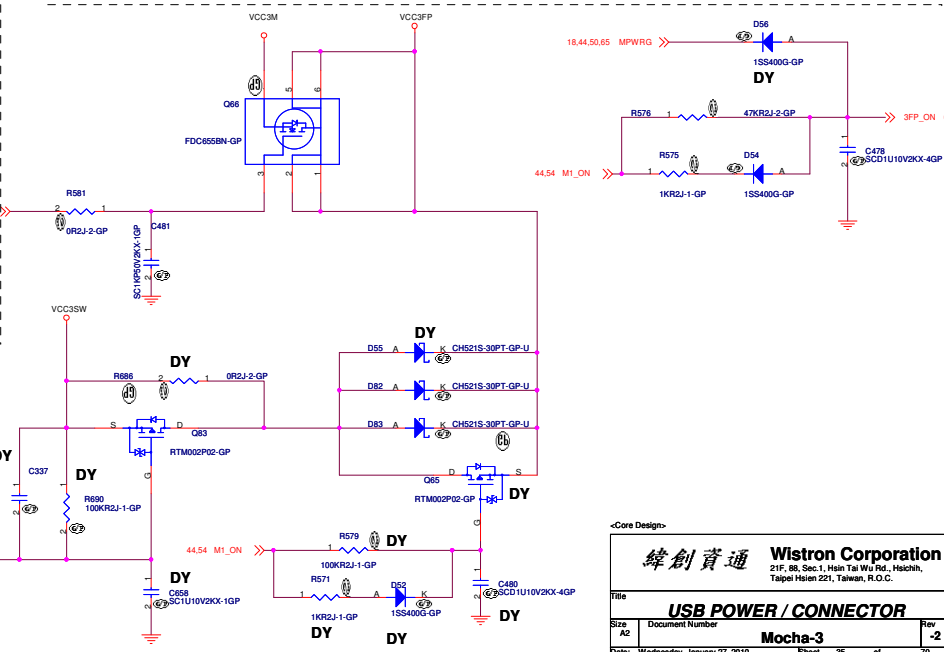
For Caramel

CN3
 MOLEX 54722-0204
 20.F0717.020

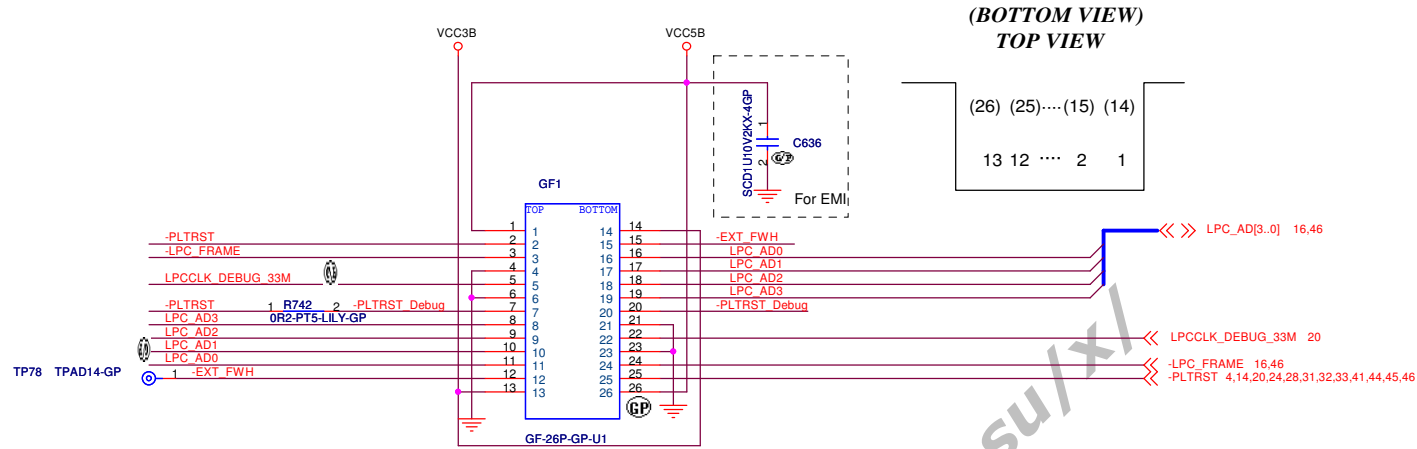
Fingerprint Reader / Touch PAD



Please put CN3 on TOP side



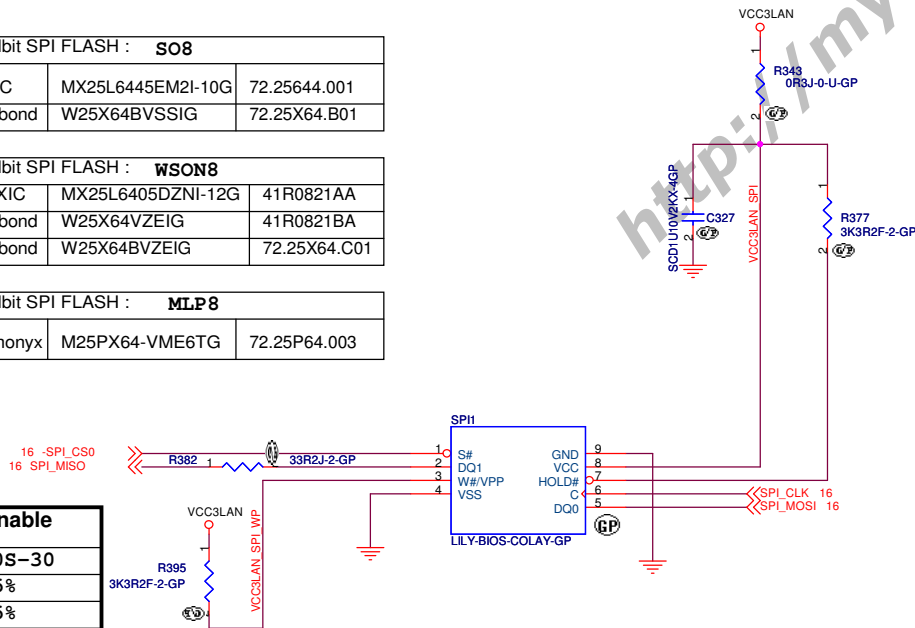
Golden Finger for Debug Board



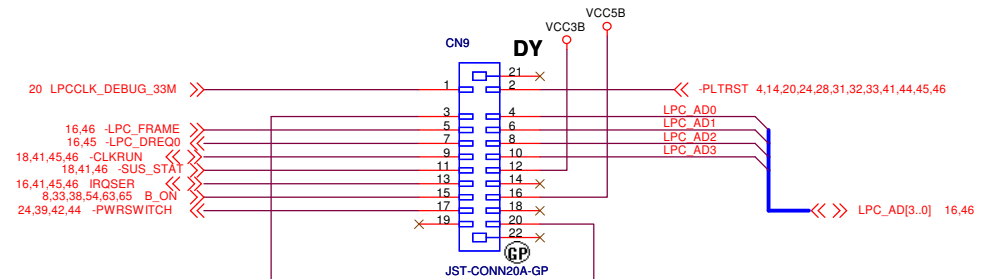
| | | |
|-------------------------------|-------------------|--------------|
| 64Mbit SPI FLASH : SO8 | | |
| MXIC | MX25L6445EM2I-10G | 72.25644.001 |
| Winbond | W25X64BVSSIG | 72.25X64.B01 |

| | | |
|---------------------------------|-------------------|--------------|
| 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 |



Debug card connector



Put "easy-to-access" place

| | Debug | Enable | Disable |
|------|-------|--------|---------|
| CN9 | ASM | DY | |
| R638 | ASM | DY | |

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

SO8 and WSON8 are both supported!

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

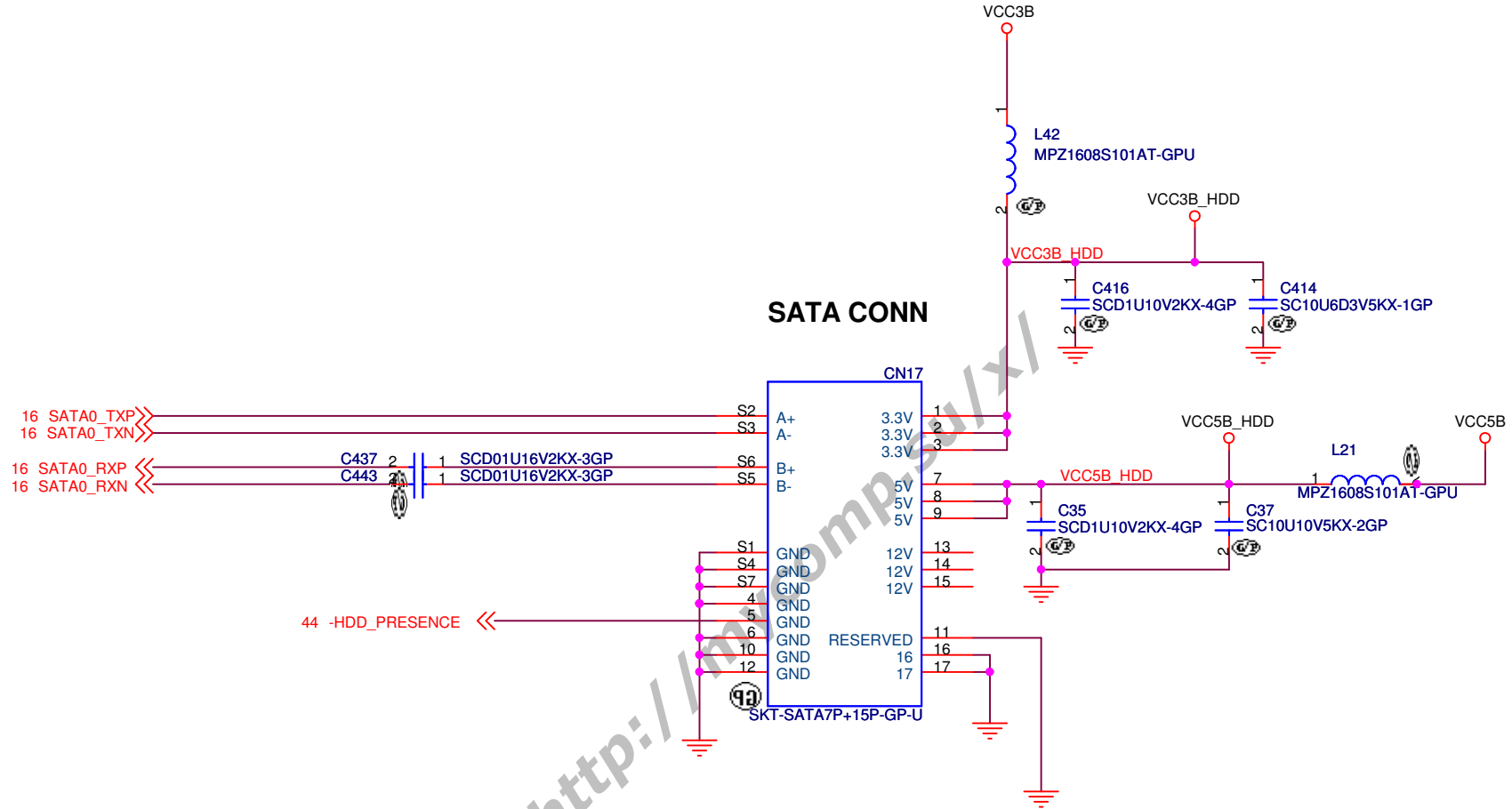
<Core Design>

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Title: **SPI&LPC debug card**

Size A3 Document Number: **Mocho-3** Rev: **-2**

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



<http://www.computer.com.tw>

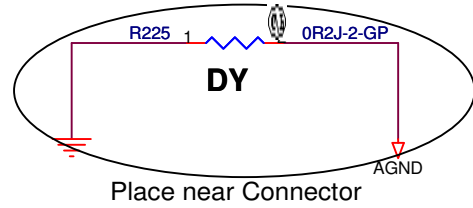
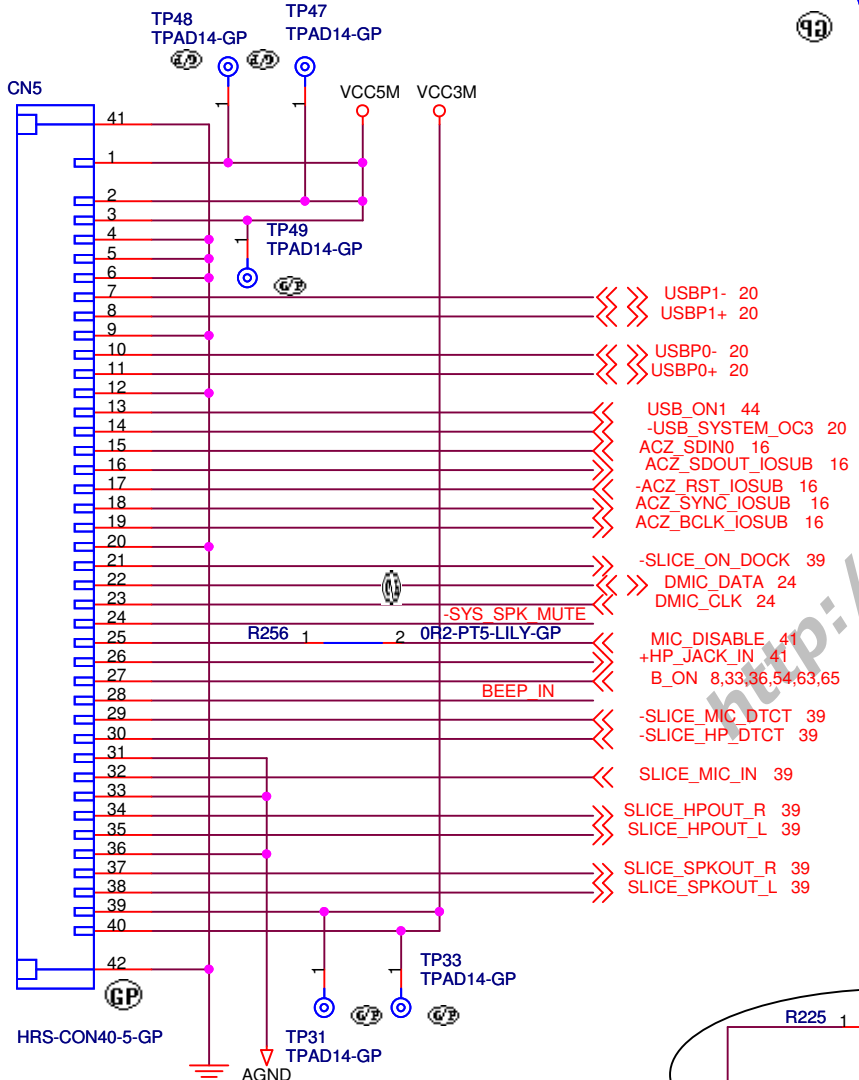
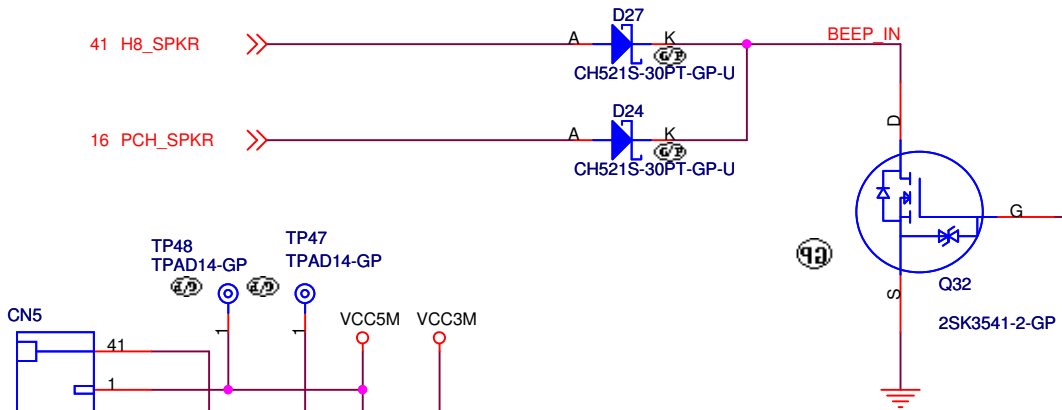
<Core Design>

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

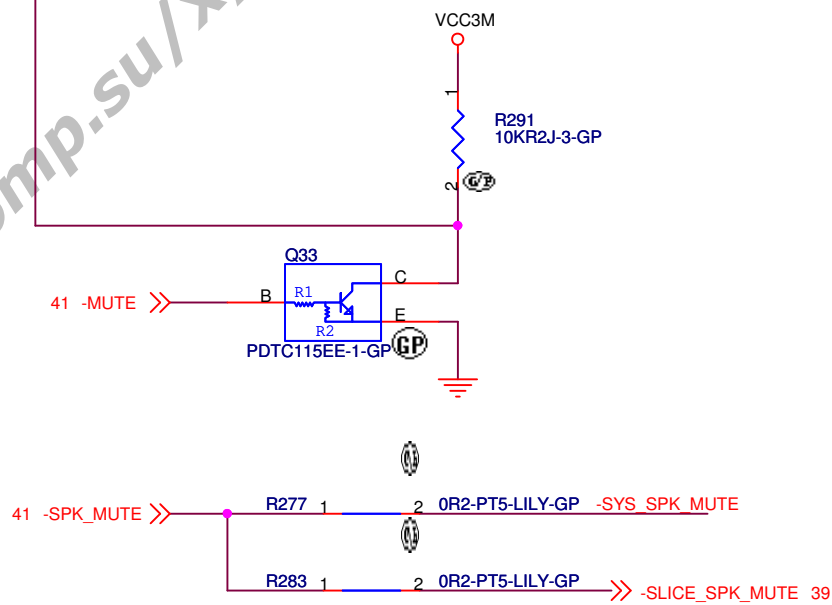
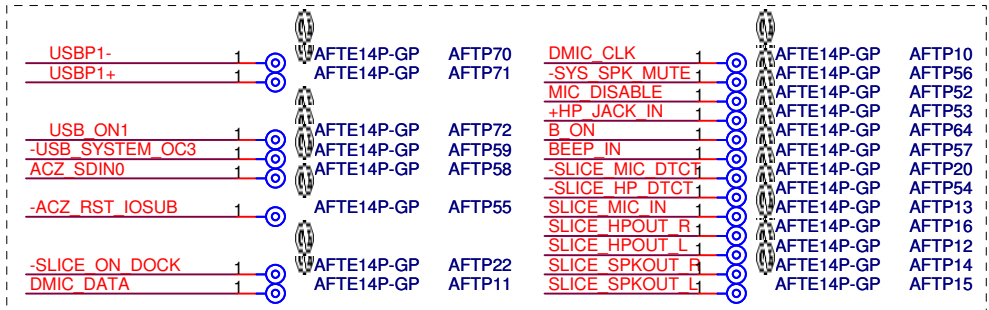
Title **2.5 inch SATA Connector**

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

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



Near CN5

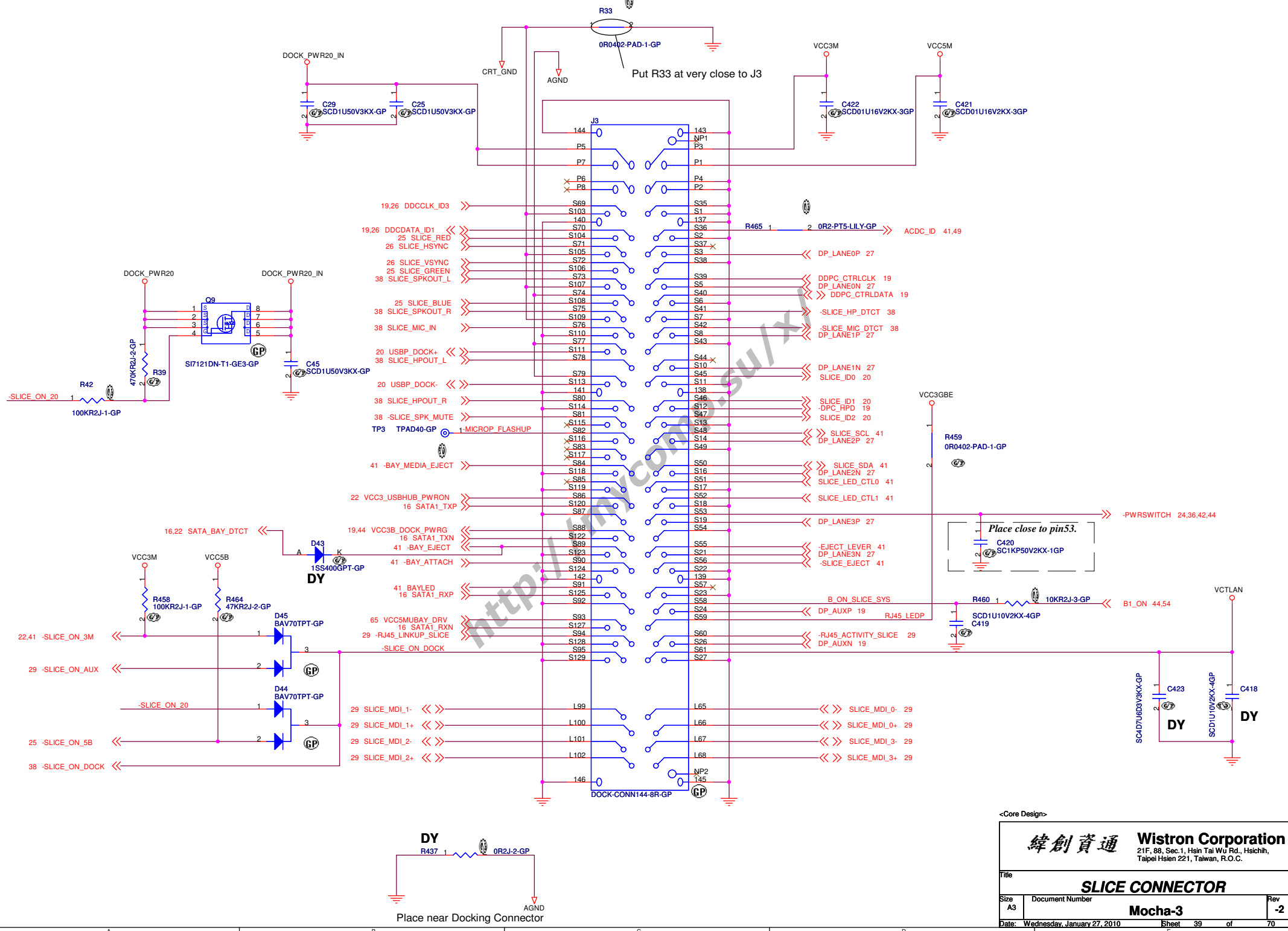


<Core Design>

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

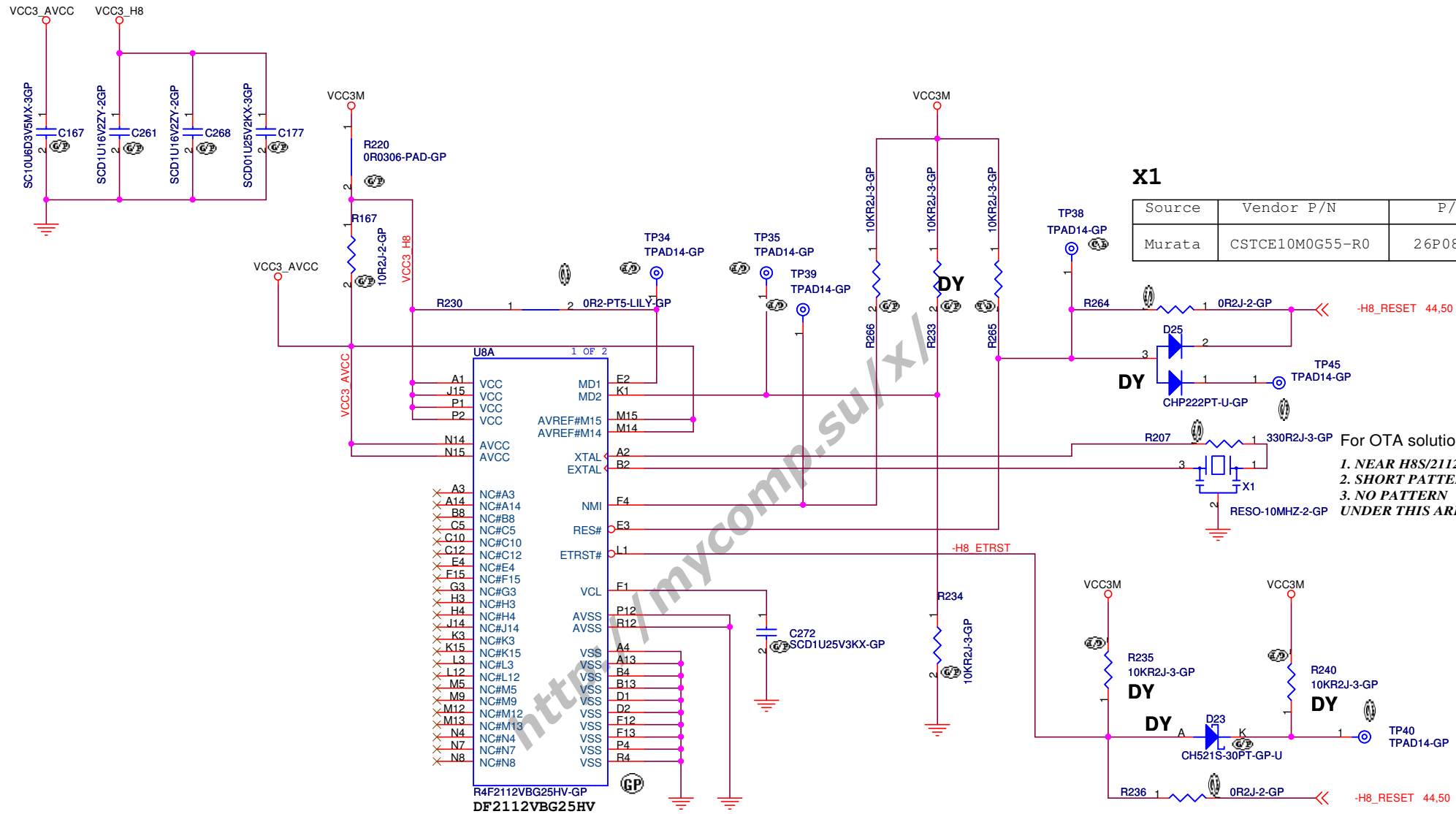


<Core Design>

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**

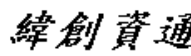
| | | |
|-----------------------------------|--------------------------|----------------|
| Size: A3 | Document Number: Mocha-3 | Rev: -2 |
| Date: Wednesday, January 27, 2010 | | Sheet 39 of 70 |



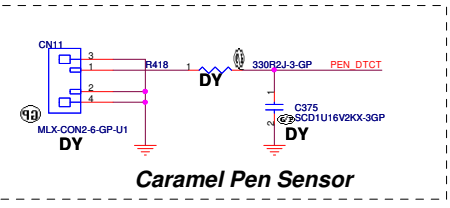
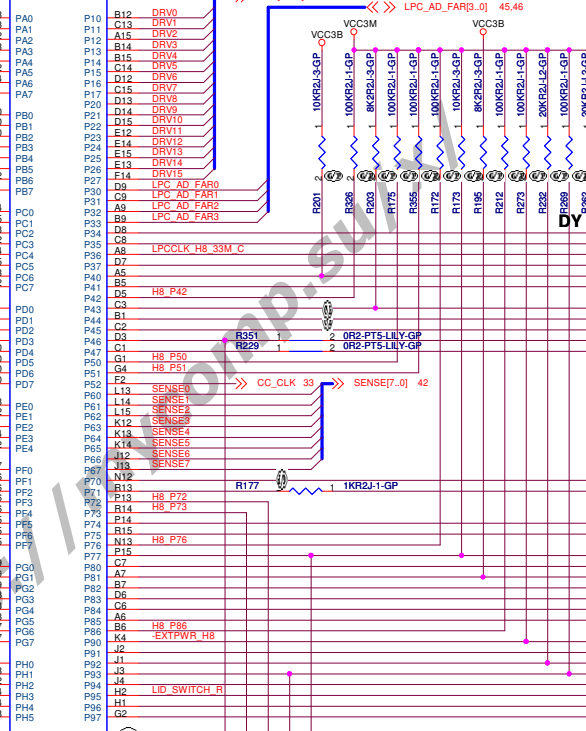
| Source | Vendor P/N | P/N |
|--------|-----------------|-----------|
| Murata | CSTCE10M0G55-R0 | 26P0832AA |

For OTA solution
 1. NEAR H8S/2112;
 2. SHORT PATTERN
 3. NO PATTERN
 UNDER THIS AREA

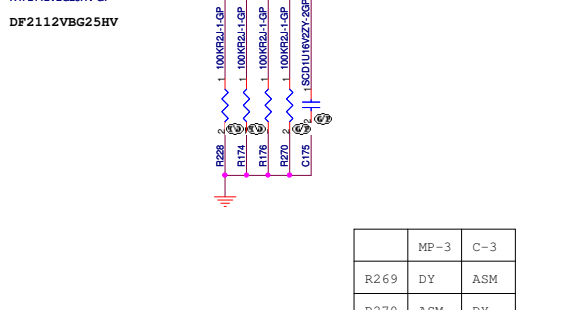
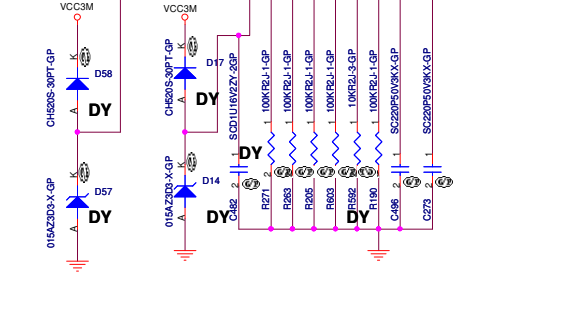
<Core Design>

| | | |
|---|-----------------|----------------|
|  Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. | | |
| H8S/2112 (1/2) | | |
| Size Custom | Document Number | Rev -2 |
| Date: Wednesday, January 27, 2010 | | Sheet 40 of 70 |

- 39 -HP JACK IN
- 31 GLOBAL_WL_DISABLE
- 42.43 IPDCLK
- 42.43 IPDDATA
- 39 -EJECT LEVER
- 33 CPUSS
- 18 -PWRSW_HB
- 16 -EC_WAKE
- 22 -H8S0
- 39 SLICE_LED_CTL0
- 39 SLICE_LED_CTL1
- 44 FAN_FREQ_ASIC
- 44.47 FAN_FREQ
- 44 -M5CSM1
- 49 -90W_AC
- 50 -LPMODE
- 38 MIC_DISABLE
- 24 LEDNUMLOCK
- 24 LEDCPSLOCK
- 39 BAYLED
- 50 ISYS
- 39 -BAY_ATTACH
- 55 5M_CURRENT
- 31 -WLAN_DISABLE
- 31 -WLAN_DISABLE
- 24.35 BDC_ON
- 24 ACDC_LED
- 24.35 POA_ACTIVE
- 42 KBDD0
- 42 KBDD1
- 42 KBDD2
- 32 -UWB_DISABLE
- 24 KBD_LIGHT_ON
- 48 -GSENSE_ON
- 48 GSENSE_TST
- 44 ECSPI_MOSI
- 44 ECSPI_MISO
- 44 ECSPI_CLK
- 44 ECSPI_SS
- 52 I2C_DATA_BTO
- 52 I2C_CLK_BTO
- 11.17 H8_SDA2
- 24 UP_SDA
- 24 UP_SCL
- 39 SLICE_SDA
- 39 SLICE_SCL
- 39 -BAY_EJECT
- 39 -BAY_MEDIA_EJECT
- 38 -SPK_MUTE
- 33 -EXC_PWR_SHDN
- 38 -MUTE
- 49.65 DISCHARGE



| 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 |
| R243 | 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>

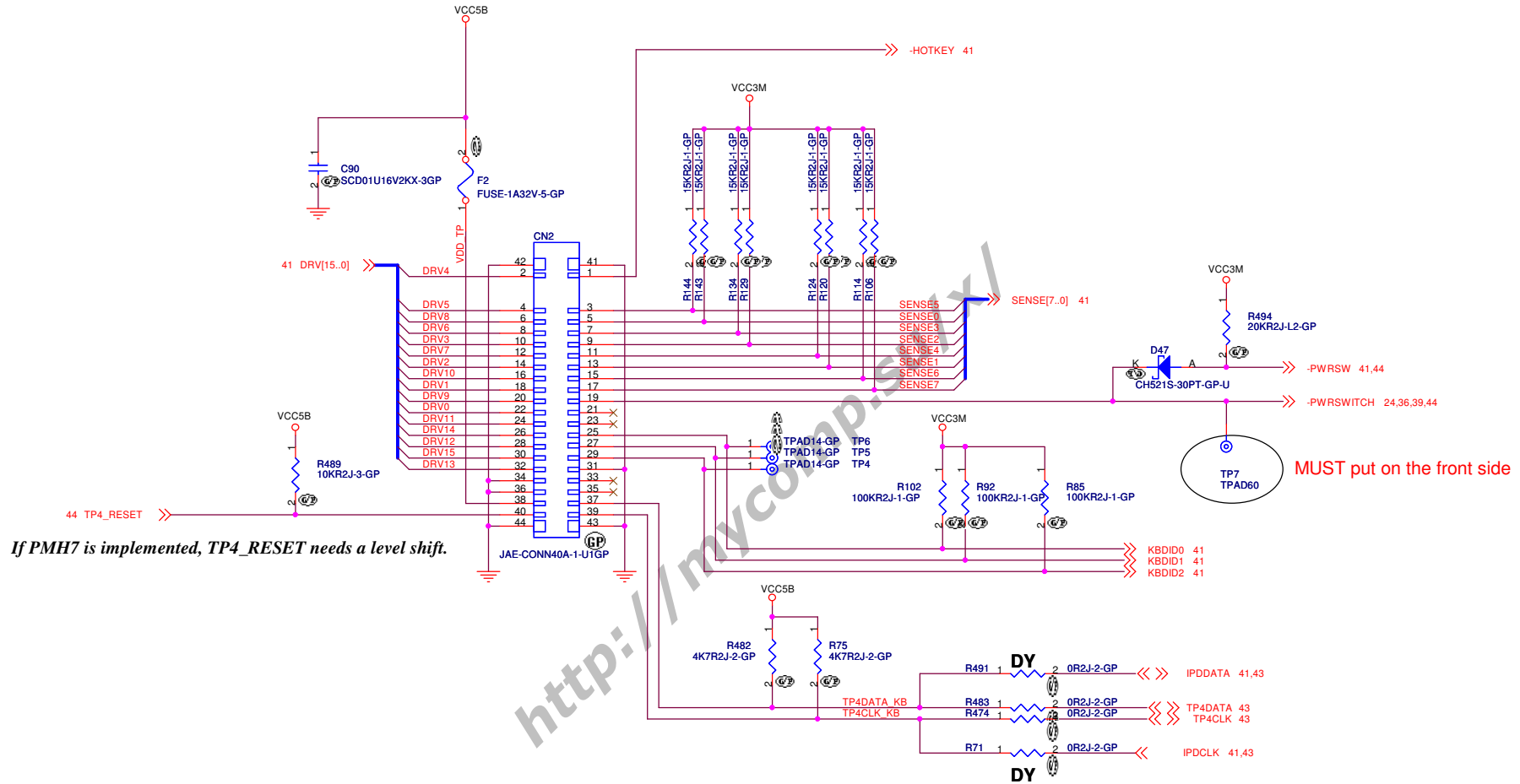
緯創資通 **Wistron Corporation**
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Taipei Hsien 221, Taiwan, R.O.C.

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

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

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

Keyboard Connector



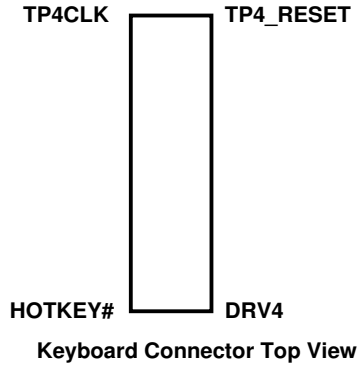
If PMH7 is implemented, TP4_RESET needs a level shift.

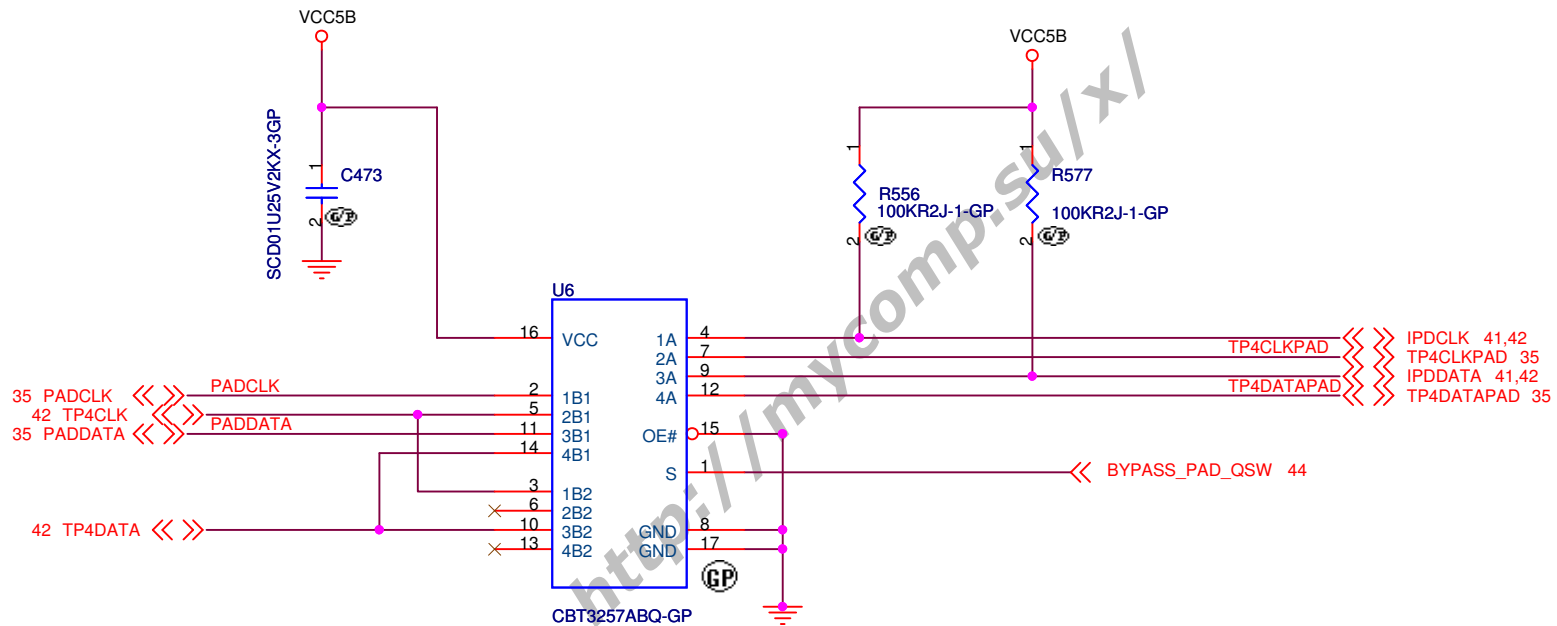
MUST put on the front side

<http://mycomp.com>

Near CN2

| | | | |
|-----------|---|------------|--------|
| DRV4 | 1 | AFTE14P-GP | AFTP49 |
| DRV5 | 1 | AFTE14P-GP | AFTP48 |
| DRV8 | 1 | AFTE14P-GP | AFTP45 |
| DRV6 | 1 | AFTE14P-GP | AFTP42 |
| DRV3 | 1 | AFTE14P-GP | AFTP46 |
| DRV7 | 1 | AFTE14P-GP | AFTP39 |
| DRV2 | 1 | AFTE14P-GP | AFTP38 |
| DRV10 | 1 | AFTE14P-GP | AFTP36 |
| DRV1 | 1 | AFTE14P-GP | AFTP43 |
| DRV9 | 1 | AFTE14P-GP | AFTP33 |
| DRV0 | 1 | AFTE14P-GP | AFTP40 |
| DRV11 | 1 | AFTE14P-GP | AFTP34 |
| DRV14 | 1 | AFTE14P-GP | AFTP30 |
| DRV12 | 1 | AFTE14P-GP | AFTP32 |
| DRV15 | 1 | AFTE14P-GP | AFTP28 |
| DRV13 | 1 | AFTE14P-GP | AFTP27 |
| SENSE5 | 1 | AFTE14P-GP | AFTP50 |
| SENSE0 | 1 | AFTE14P-GP | AFTP47 |
| SENSE3 | 1 | AFTE14P-GP | AFTP44 |
| SENSE2 | 1 | AFTE14P-GP | AFTP41 |
| SENSE4 | 1 | AFTE14P-GP | AFTP37 |
| SENSE1 | 1 | AFTE14P-GP | AFTP35 |
| SENSE6 | 1 | AFTE14P-GP | AFTP31 |
| SENSE7 | 1 | AFTE14P-GP | AFTP29 |
| IPDDATA | 1 | AFTE14P-GP | AFTP25 |
| IPDCLK | 1 | AFTE14P-GP | AFTP24 |
| TP4_RESET | 1 | AFTE14P-GP | AFTP23 |
| VDD_TP | 1 | AFTE14P-GP | AFTP26 |
| -HOTKEY | 1 | AFTE14P-GP | AFTP51 |





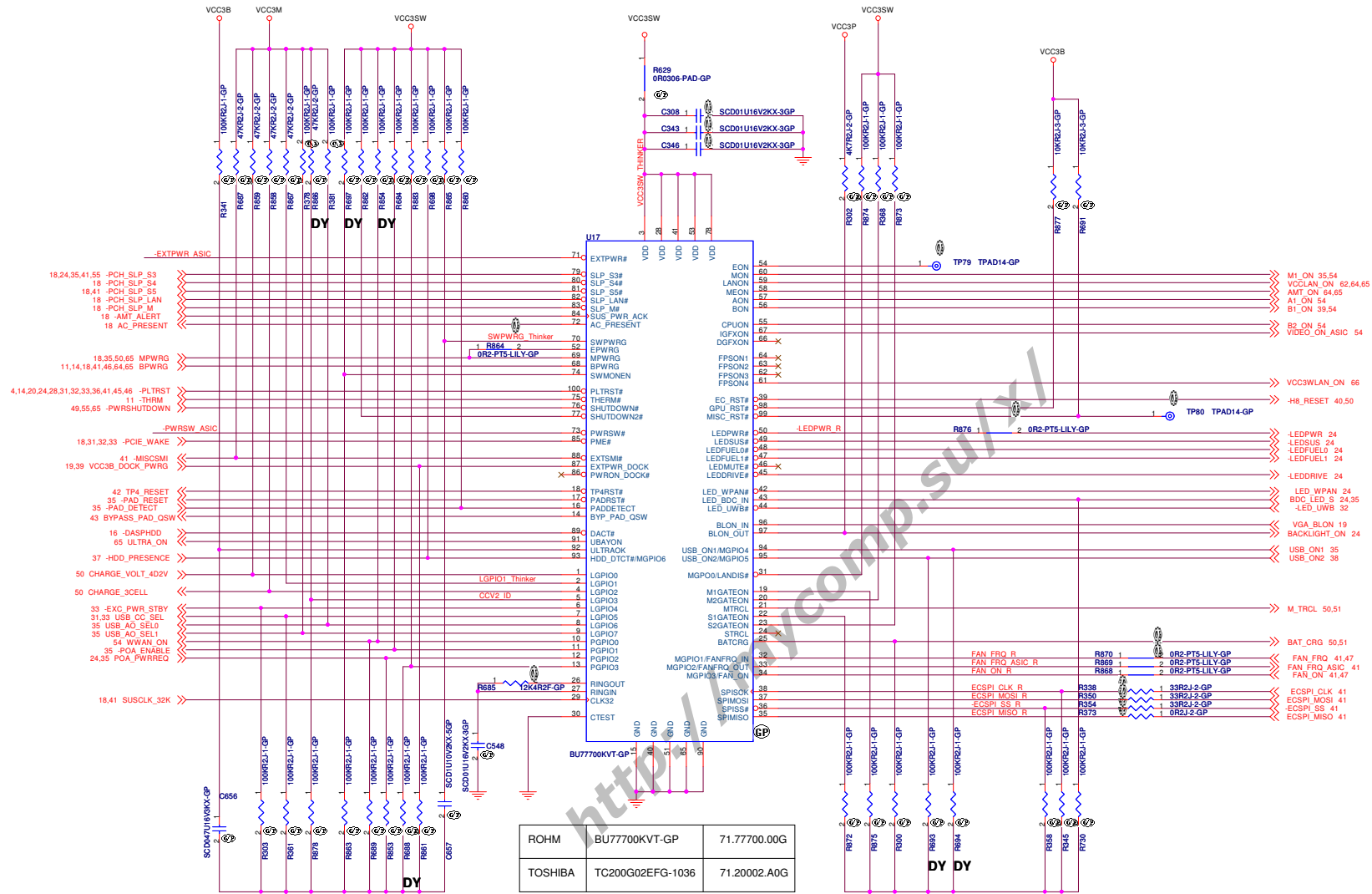
<Core Design>

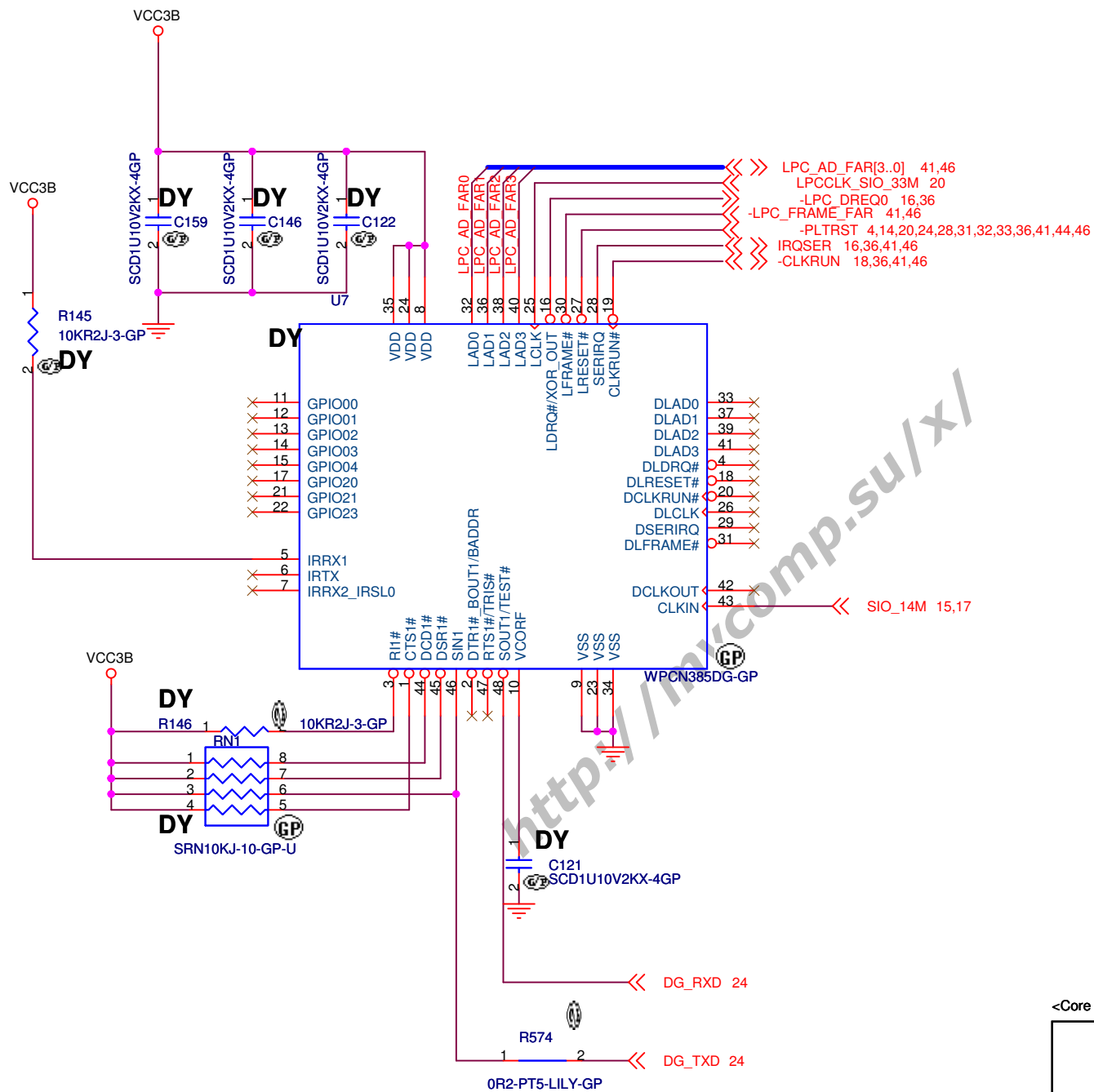
緯創資通 **Wistron Corporation**
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 Taipei Hsien 221, Taiwan, R.O.C.

Title **TOUCH PAD CONNECTOR**

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

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>> LPC_AD_FAR[3..0] 41,46
 >> LPCCLK_SIO_33M 20
 >> -LPC_DREQ0 16,36
 >> -LPC_FRAME_FAR 41,46
 >> -PLTRST 4,14,20,24,28,31,32,33,36,41,44,46
 >> IRQSER 16,36,41,46
 >> -CLKRUN 18,36,41,46

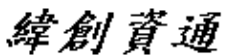
<< SIO_14M 15,17

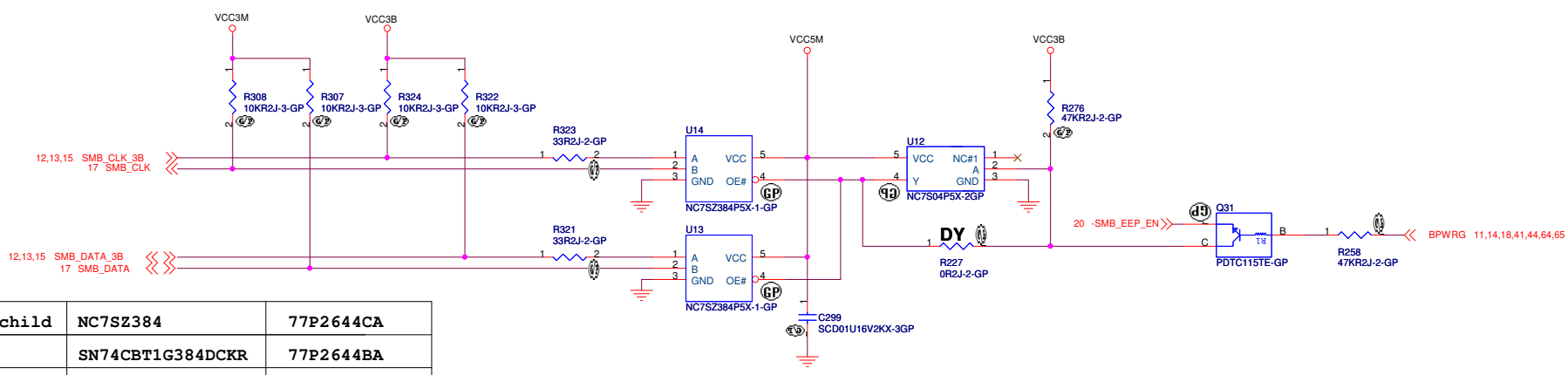
<< DG_RXD 24

<< DG_TXD 24

| | 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>

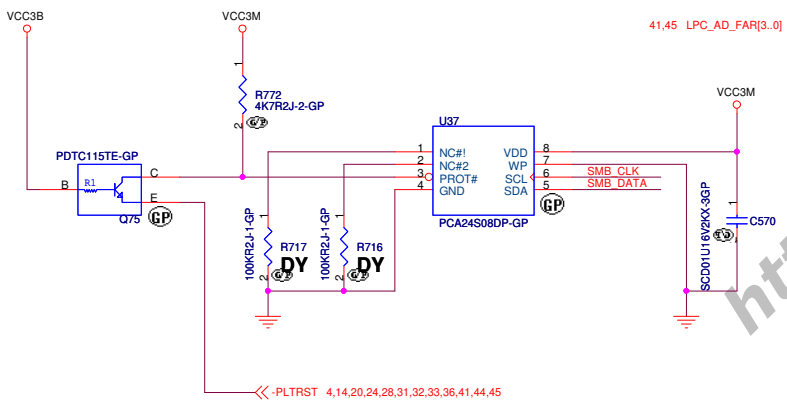
| | | |
|---|-----------------------------------|------------------|
|  Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. | | |
| Title | | |
| WPCN385SDG | | |
| Size A4 | Document Number Mocha-3 | Rev -2 |
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U13, U14

| | | | |
|-----|-----------|------------------|-----------|
| 1st | Fairchild | NC7S2384 | 77P2644CA |
| 2nd | TI | SN74CBT1G384DCKR | 77P2644BA |
| 3rd | Toshiba | TC7SB384FU | 77P2644AA |

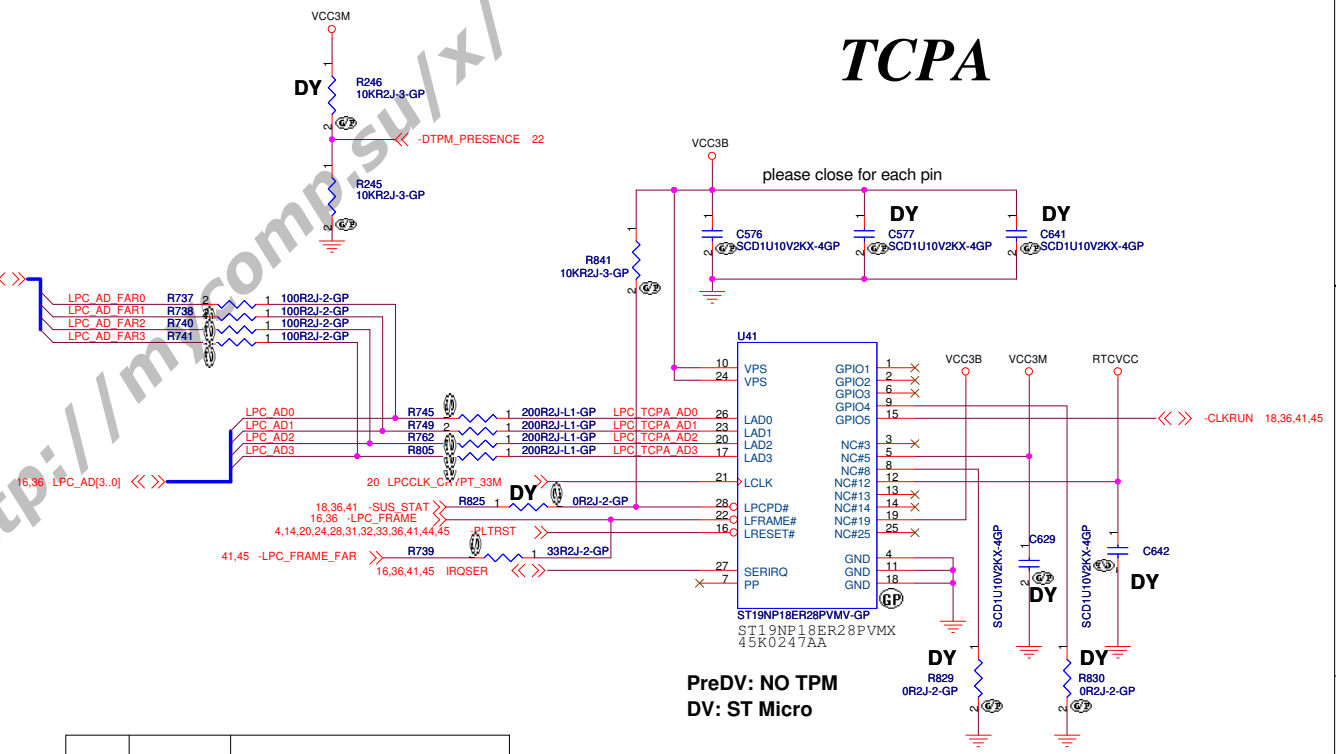
EEPROM



U37

| | | | |
|-----|---------|--------------------|--------------|
| | 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 Microelectronics TPM
from ST19NP18ER28PVMV (F/W Rev: 1.2.8.C)
to ST19NP18ER28PVMX (F/W Rev: 1.2.8.10)

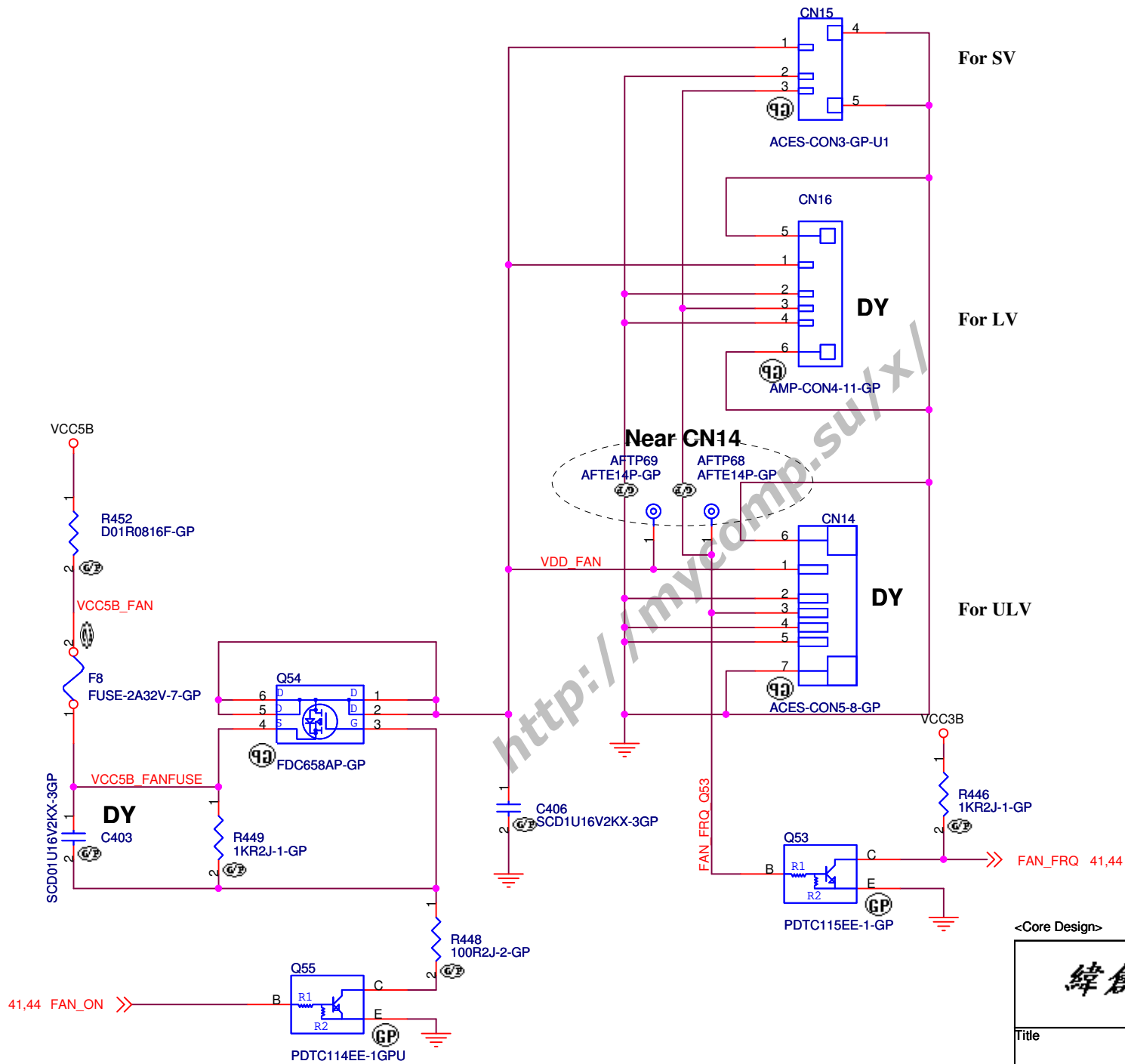
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EEPROM/TCPA

Mocha-3

Rev -2

Wednesday, January 27, 2010



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

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

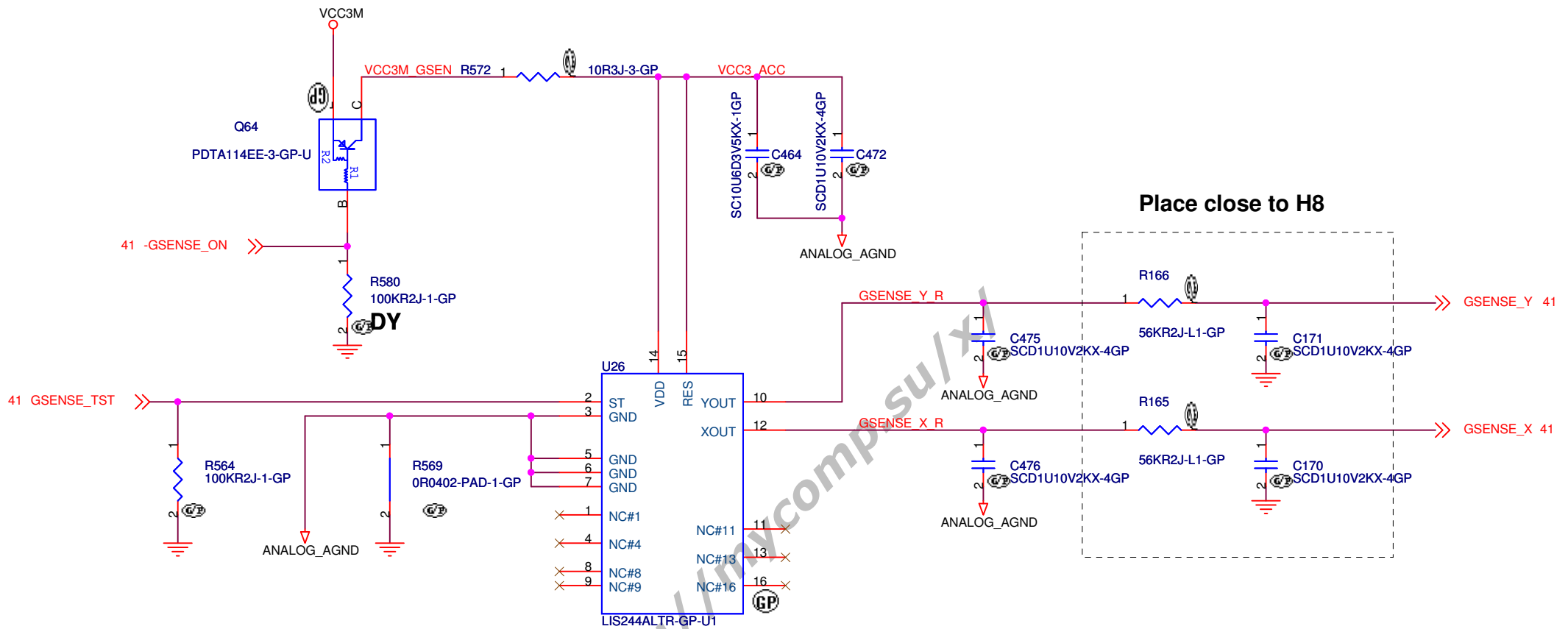
| CN14 | | |
|------|--------------|------|
| 1st | 20.F0714.005 | Aces |
| 2nd | | |

<Core Design>

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FAN CONTROL

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



U26

| | | |
|---------|------------------|--------------|
| Primary | STMicro LIS244AL | 74.00244.0BZ |
| Second | STMicro LIS34AL | 74.00034.0BZ |

Layout Comment :

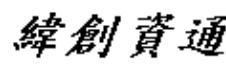
(1) Place C475,C476,Q64,R572,R580
C464,C472,R564,R569 close to U26

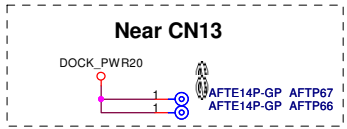
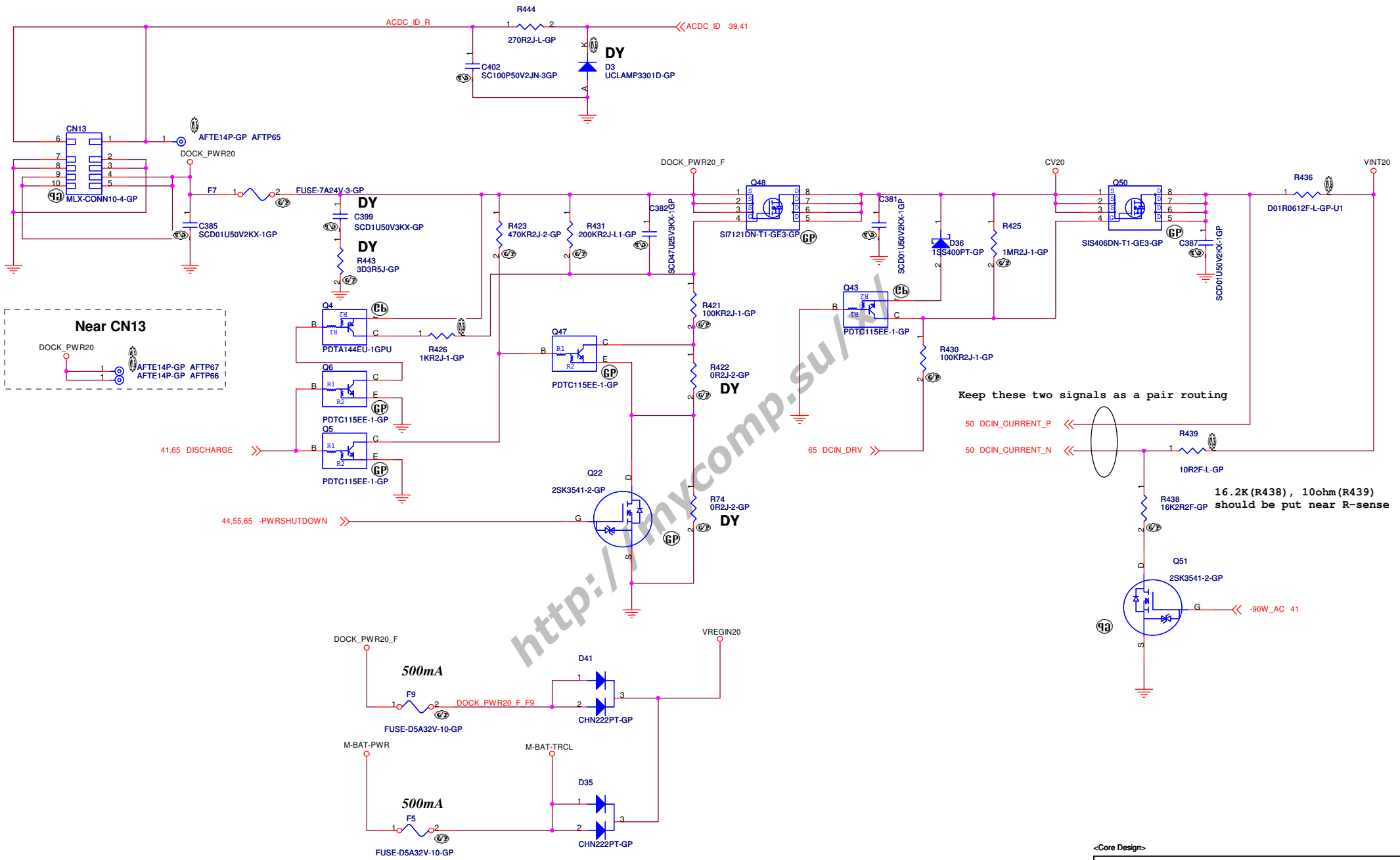
(2) Avoid routing under DCDC switching area.

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

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

<Core Design>

| | |
|---|-----------------------------------|
|  Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. | |
| Title G-SENSOR | |
| Size A4 | Document Number Mocha-3 |
| Date Wednesday, January 27, 2010 | Rev -2 |
| Sheet 48 of 70 | |



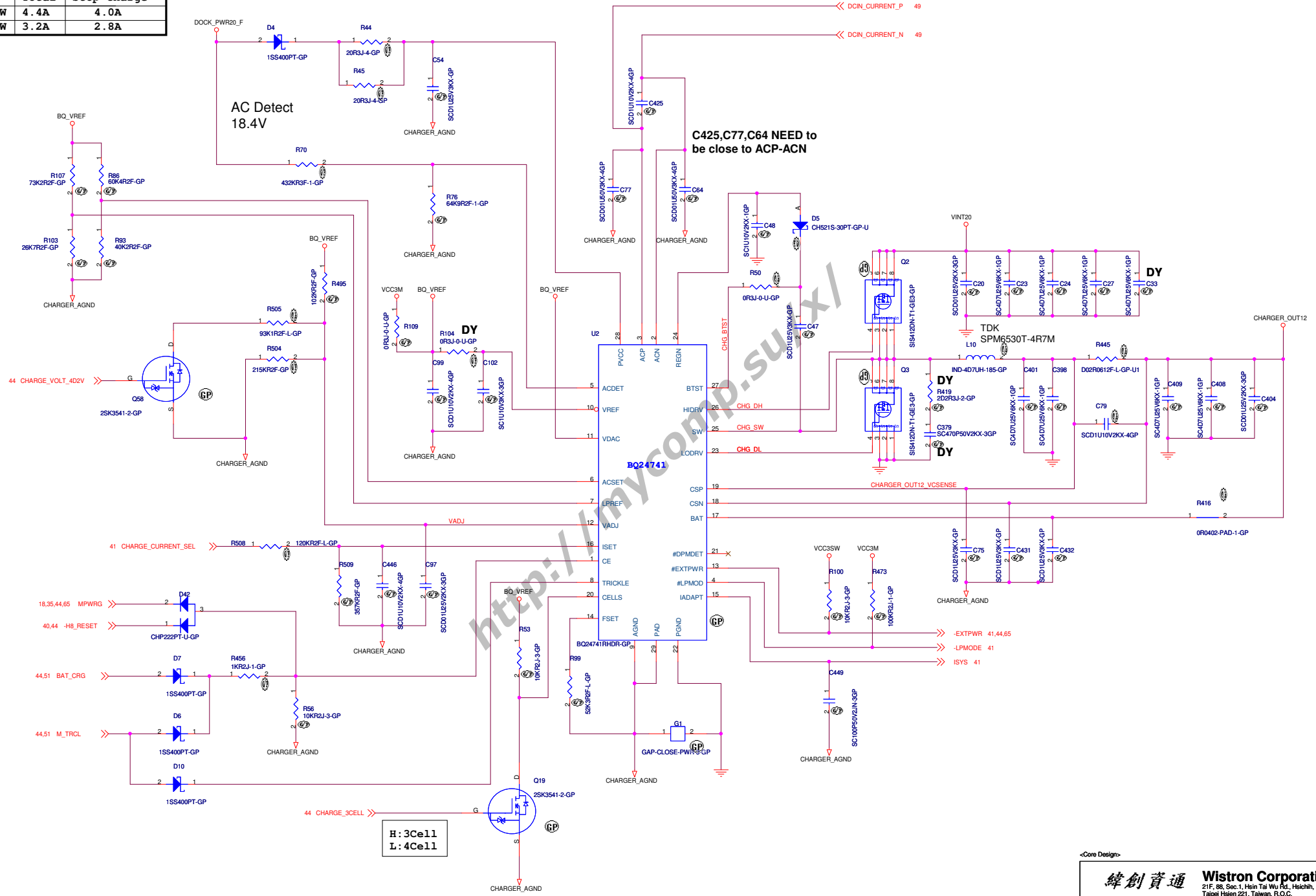
Keep these two signals as a pair routing

50 DCIN_CURRENT_P

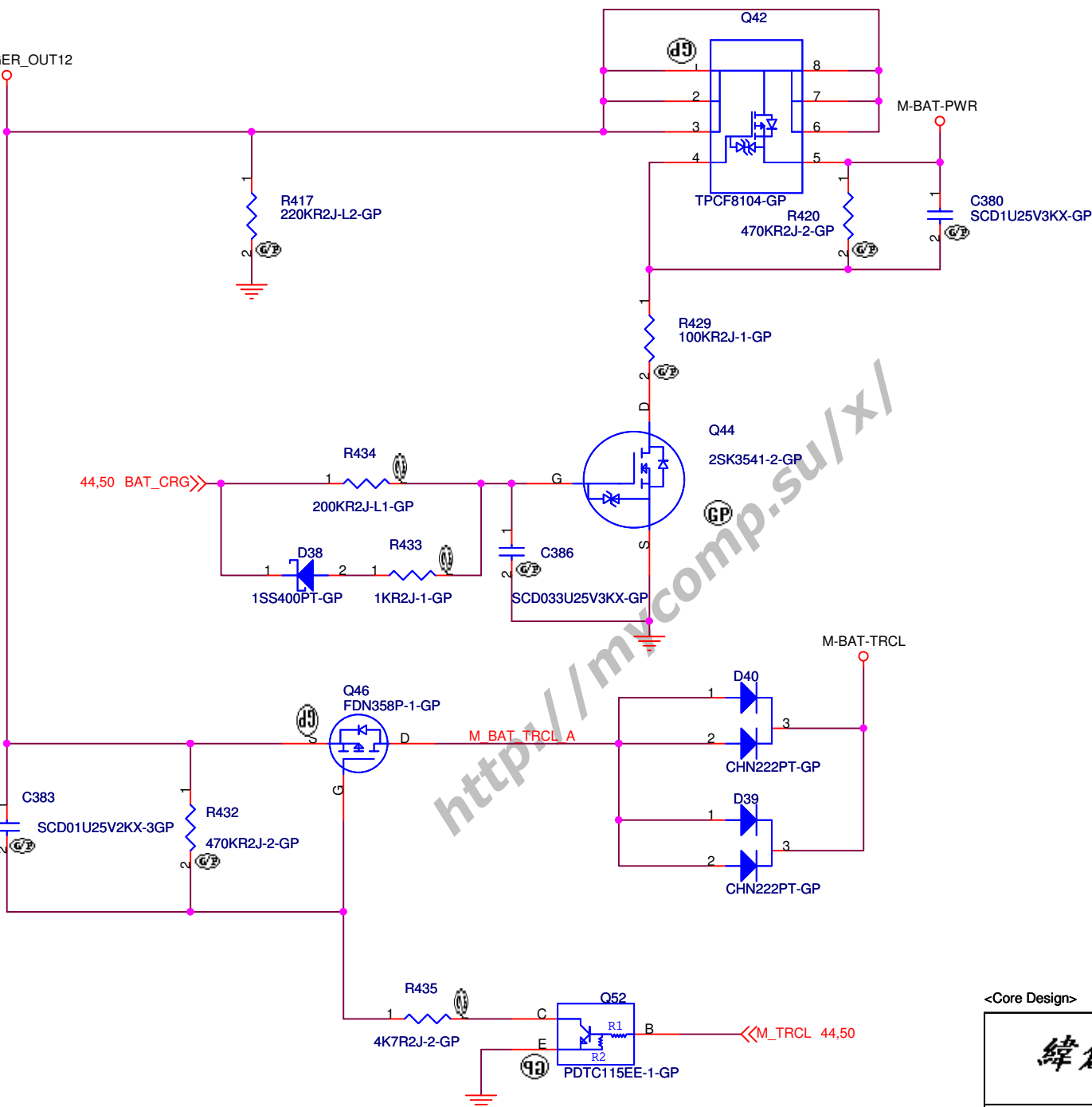
50 DCIN_CURRENT_N

16.2K (R438), 10ohm (R439) should be put near R-sense

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



CHARGER_OUT12



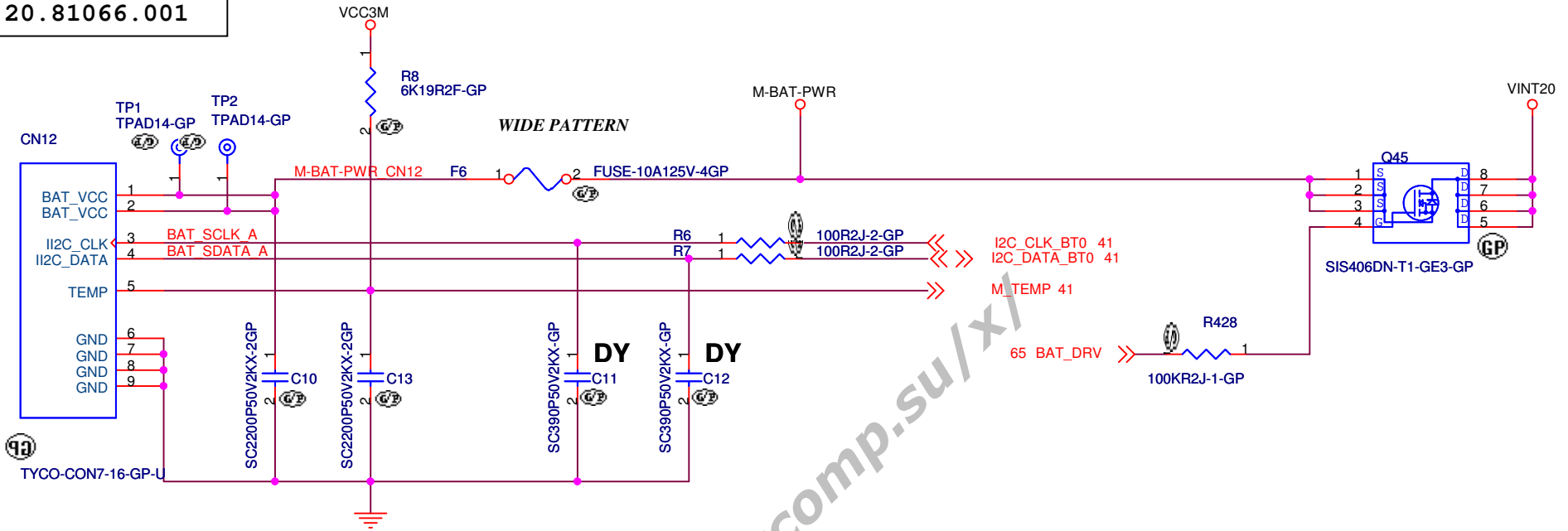
<Core Design>


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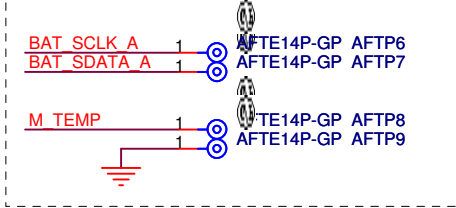
Title **CHARGER SELECT**

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

CN12
AMP 2041614-1
20.81066.001



Near CN12



<http://mycomp.su/xi>

<Core Design>

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

Title

BATTERY INPUT

Size
A4

Document Number

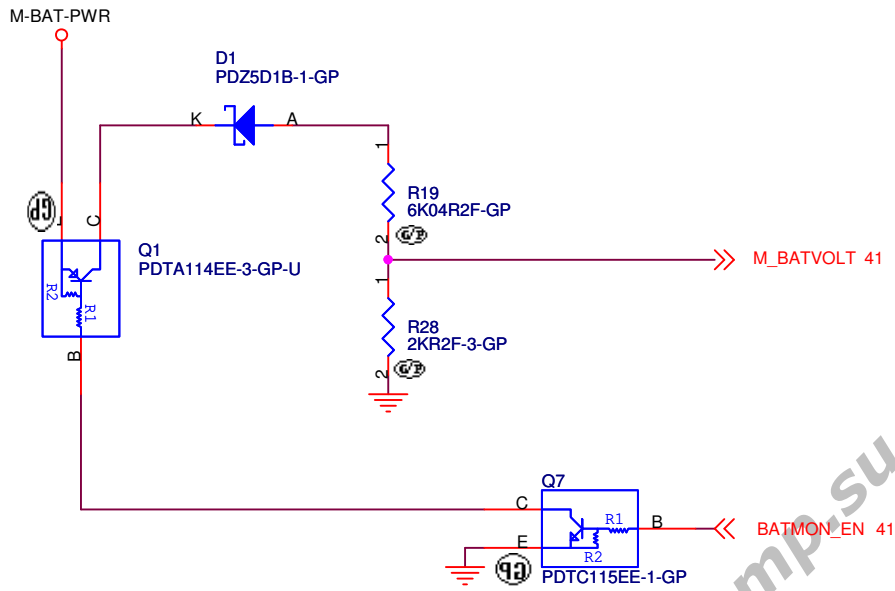
Mocha-3

Rev
-2

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$$V_{OUT} = 0.249 (V_{BAT} - 5)$$



<http://mycomp.su/xl>

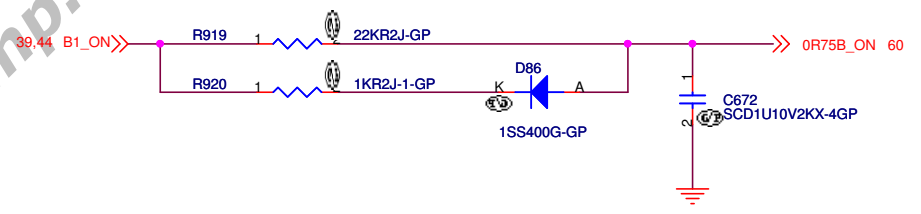
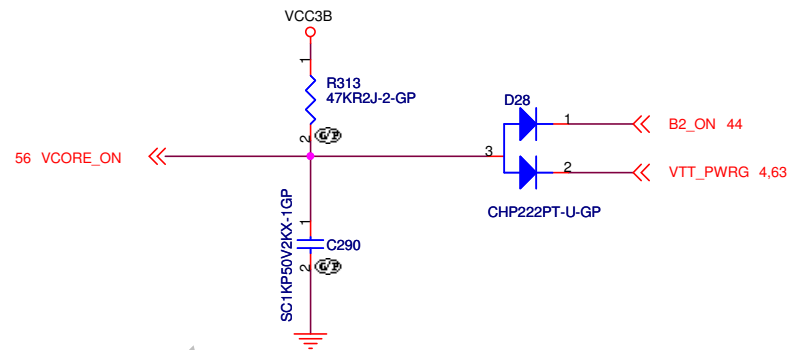
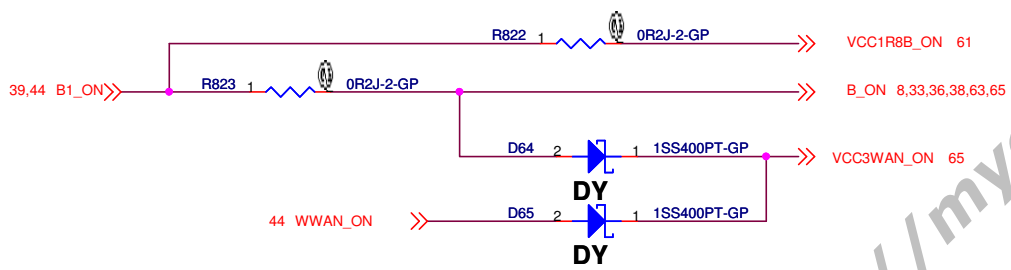
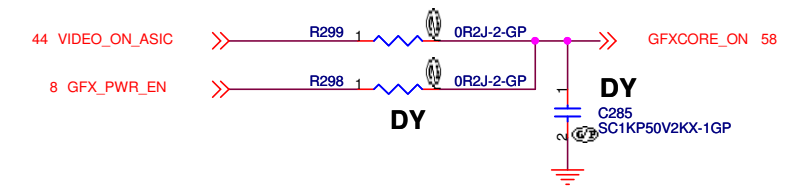
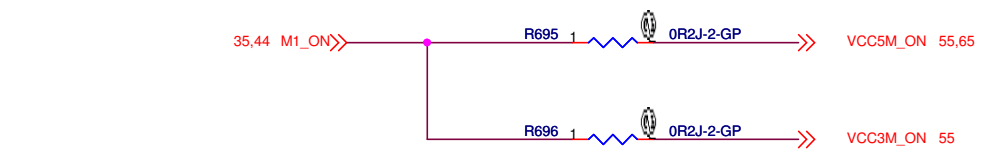
<Core Design>

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

Title **BATTERY MONITOR**

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

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

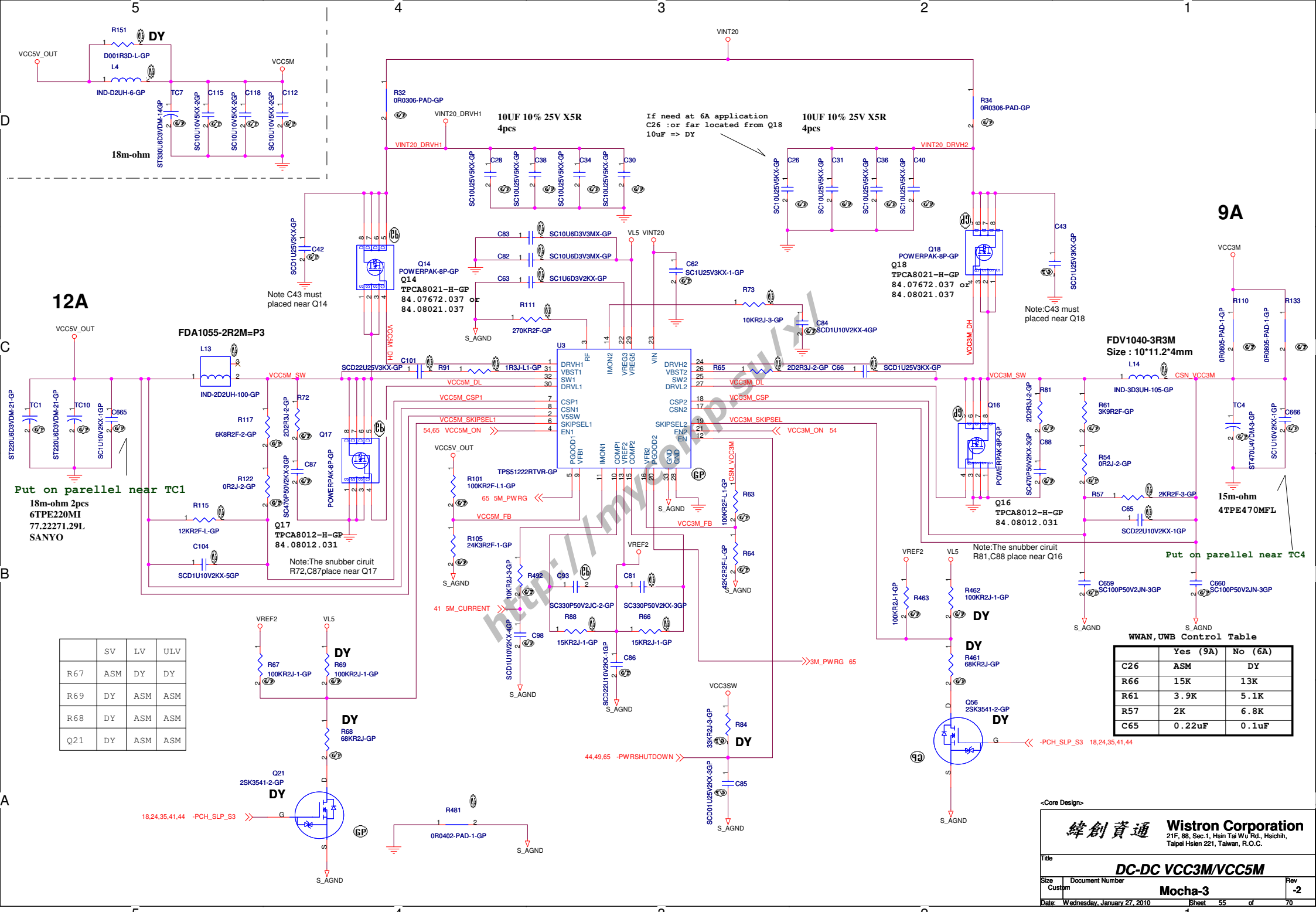


| Constant Connect | Enable | Disable |
|------------------|--------|---------|
| D64 | ASM | NoASM |
| D65 | ASM | NoASM |

<http://mycomp.su/xl>

<Core Design>

| | | |
|-----------------------------------|-----------------------------------|---|
| | | Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichin, Taipei Hsien 221, Taiwan, R.O.C. |
| POWER SEQUENCE | | |
| Size Custom | Document Number Mocha-3 | Rev -2 |
| Date: Wednesday, January 27, 2010 | | Sheet 54 of 70 |



12A

Put on parallel near TC1
 18m-ohm 2pcs
 6TPE220MI
 77.22271.29L
 SANYO

FDA1055-2R2M=P3

L13

IND-2D2UH-100-GP

VCC5M SW

TC10

SC1U10V2KX-1GP

C665

R117

6K8R2F-2-GP

R122

0R2J-2-GP

R115

12KR2F-L-GP

C104

SCD1U10V2KX-5GP

Q17

POWERPAK-8P-GP

R72

2D2R3J-2-GP

R77

SC470P50V2KX-3GP

Q14

TPCA8012-H-GP

84.08012.031

Note: The snubber circuit R72, C87 place near Q17

VREF2

VL5

Q21

2SK3541-2-GP

DY

18,24,35,41,44 -PCH_SLP_S3

S_AGND

FDV1040-3R3M

Size : 10*11.2*4mm

L14

IND-3D3UH-105-GP

VCC3M SW

TC4

SC1U10V2KX-1GP

C666

R110

0R0805-PAD-1-GP

R133

0R0805-PAD-1-GP

Q16

TPCA8012-H-GP

84.08012.031

Note: The snubber circuit R81, C88 place near Q16

VREF2

VL5

Q56

2SK3541-2-GP

DY

18,24,35,41,44

-PCH_SLP_S3

S_AGND

S_AGND

S_AGND

S_AGND

S_AGND

S_AGND

S_AGND

S_AGND

S_AGND

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 |

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

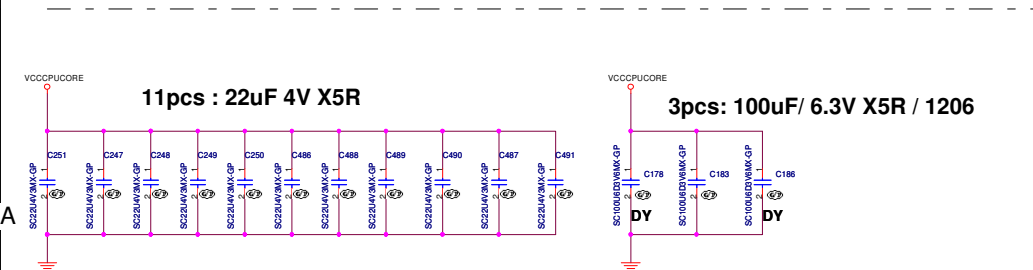
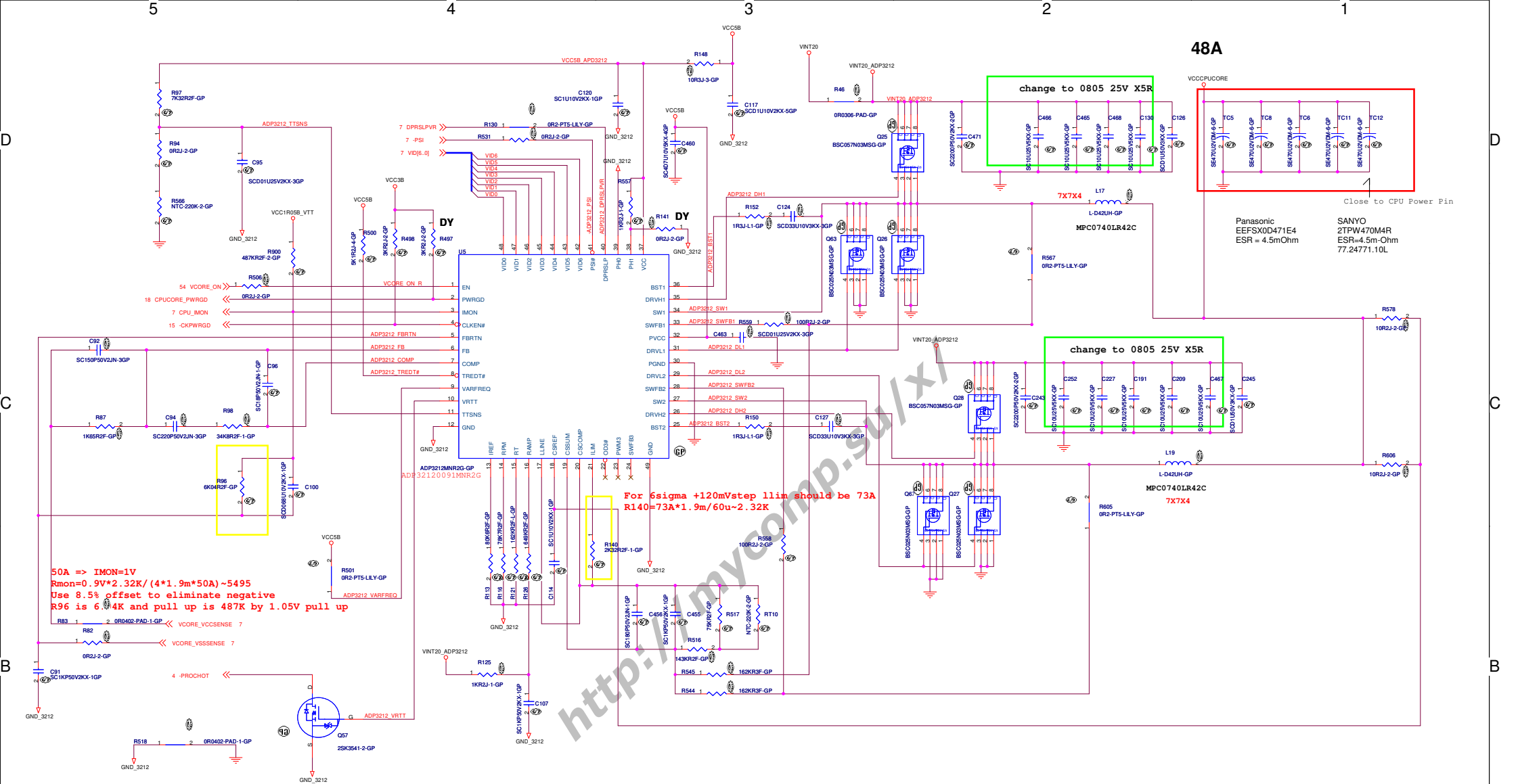
<Core Design>

緯創資通 **Wistron Corporation**
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Title: **DC-DC VCC3M/VCC5M**

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

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



| | 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>

| | | | |
|-----------------------------------|-----------------|---|-----------|
| 緯創資通 | | Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. | |
| Title | | | |
| DC-DC VCCCPUCORE | | | |
| Size A4 | Document Number | | Rev -2 |
| Mocha-3 | | | |
| Date: Wednesday, January 27, 2010 | | Sheet 57 | of 70 |

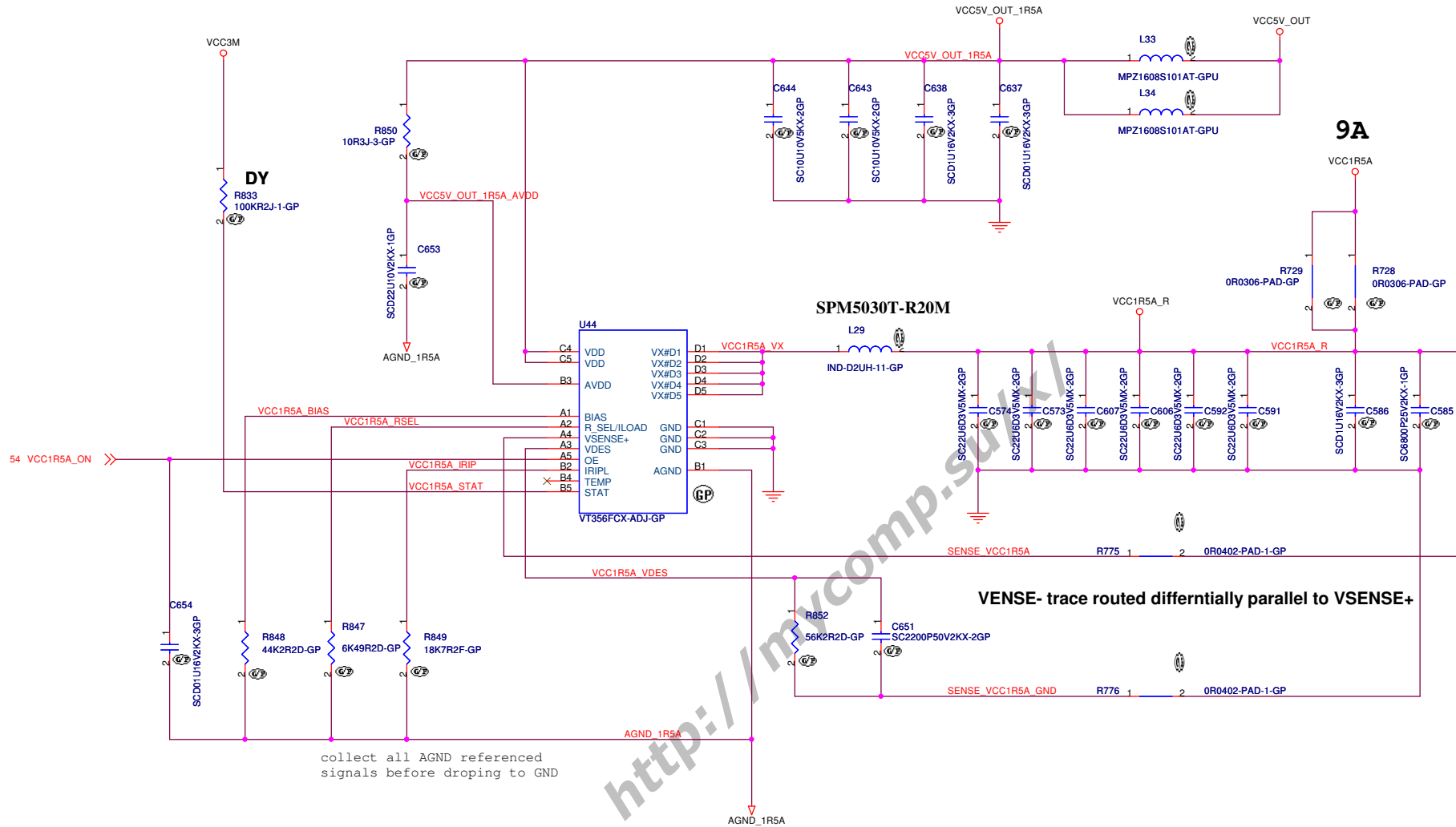
$I_{out}=22A \Rightarrow G_{FX_IMON}=1V$
 Ideal $R_{mon}(900mV): 0.9 \times 13.3K / (10 \times 7m\text{-ohm} \times 22A)$
 Adding positive offset for 8.5%:
 $8.66K + 681K$ pull-up

OCP setting should be 38A to cover 22A
 with Max rush current for cap with 120mV
 rising with regarding to max. spec. R535-13.3K

| | 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 |

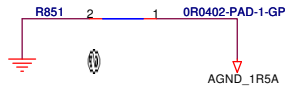
緯創資通 Wistron Corporation
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Title: **DC-DC GFXCORE**
 Size: A2 Document Number: **Mocha-3** Rev: -2
 Date: Wednesday, January 27, 2010 Sheet: 58 of 70



collect all AGND referenced signals before dropping to GND

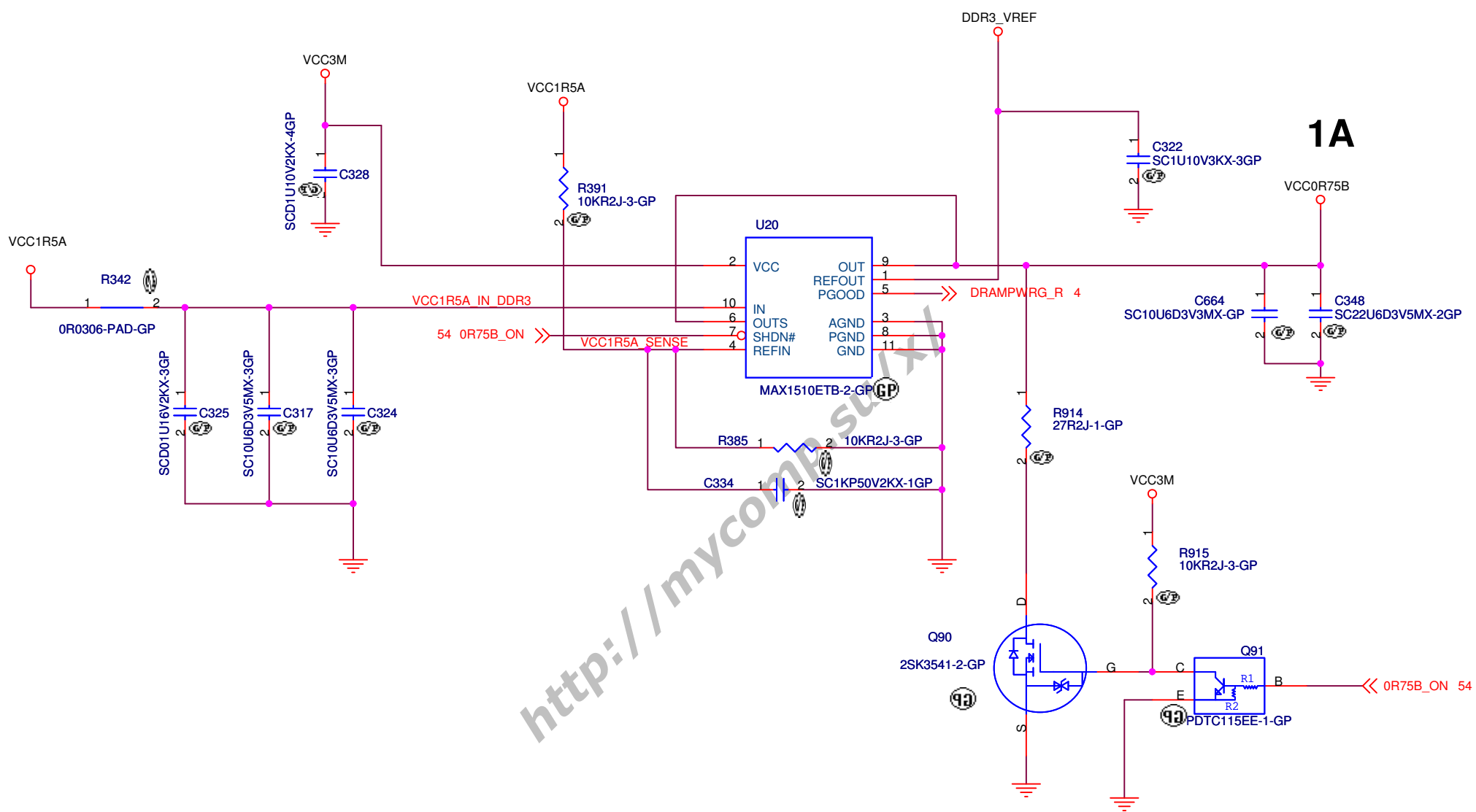
Don't connect AGND and GND under the chip



VENSE- trace routed differentially parallel to VSENSE+

<Core Design>

| | |
|--|----------------------------|
| | |
| Wistron Corporation 21F, 88, Sec. 1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. | |
| DC-DC VCC1R5A | |
| Title DC-DC VCC1R5A | Document Number Mocha-3 |
| Size A3 | Rev -2 |
| Date: Wednesday, January 27, 2010 | Sheet 59 of 70 |



1A

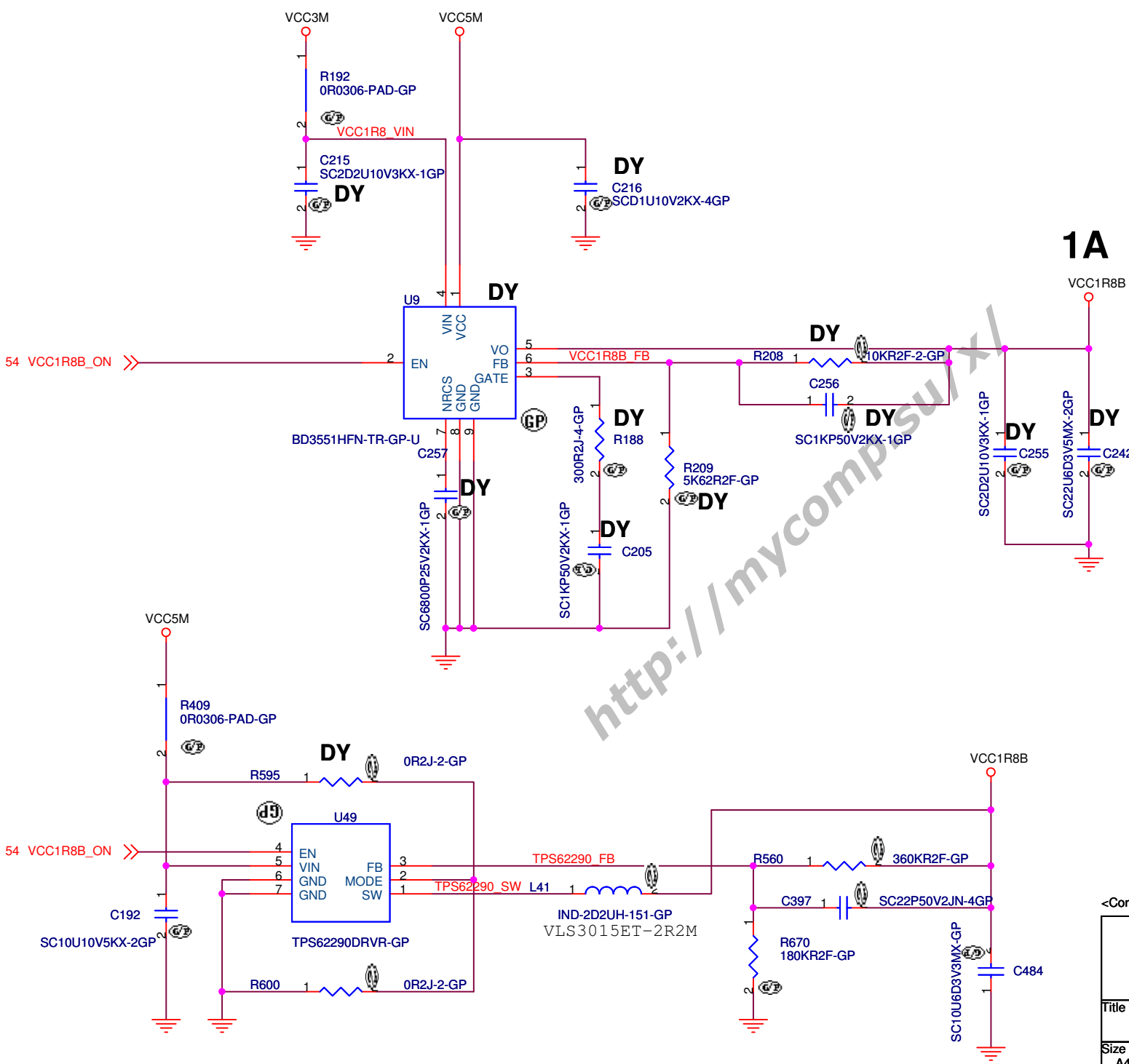
<Core Design>


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Title: **DC-DC VCC0R75B**

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

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

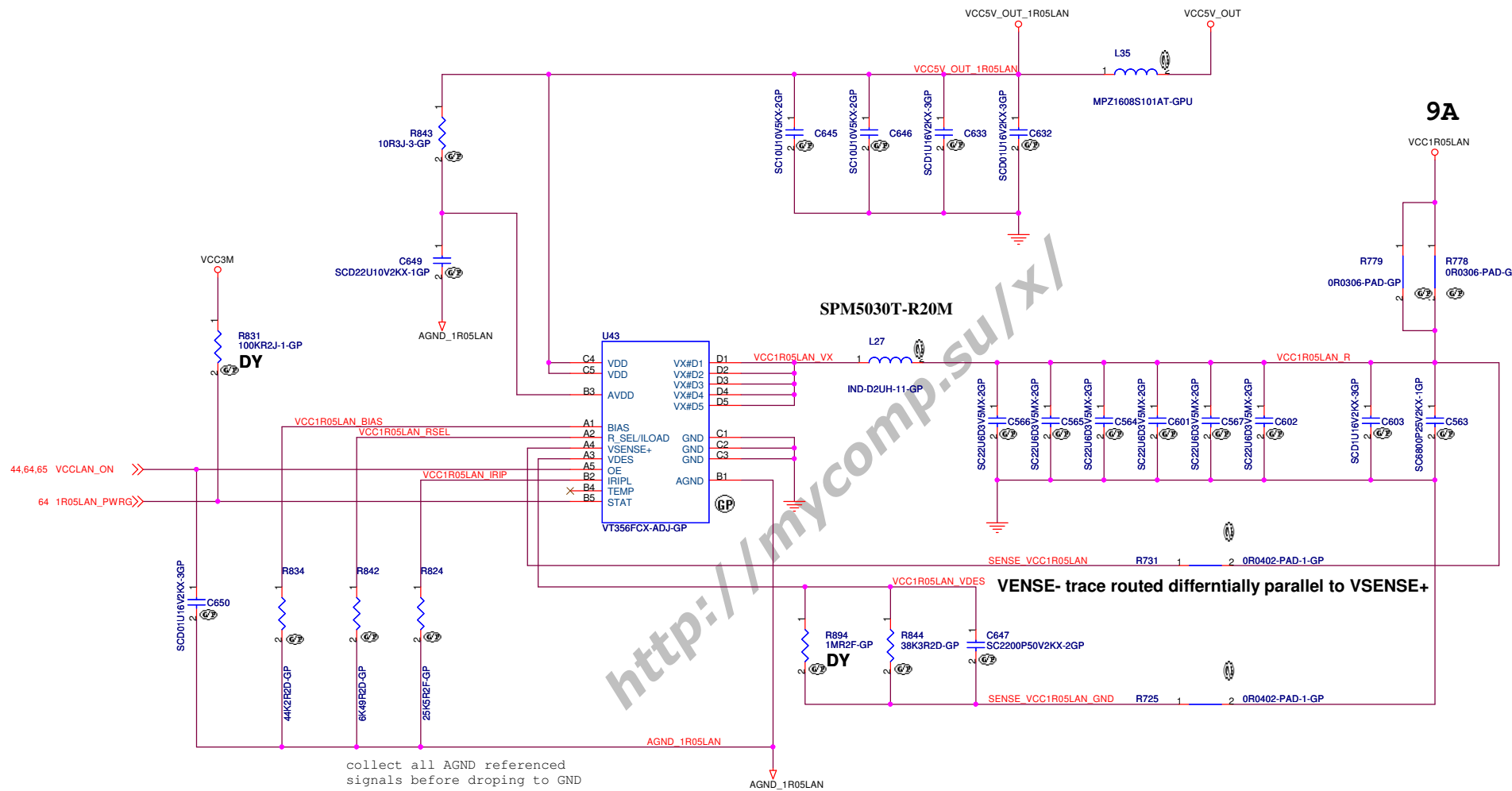


| SOVP | NV/LV/ULV | |
|-------|-----------|-----------|
| SIT-R | | NV |
| SVT | | NV/LV/ULV |
| C215 | ASM | DY |
| C216 | ASM | DY |
| U9 | ASM | DY |
| C257 | ASM | DY |
| R188 | DY | DY |
| C205 | DY | DY |
| R208 | 10K | DY |
| C256 | 1KpF (DY) | DY |
| R209 | 5.62K | DY |
| C255 | ASM | DY |
| 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 |

<Core Design>

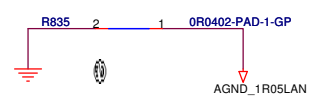
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| | | |
|-----------------------------------|-----------------|-----------|
| Title | | |
| DC-DC VCC1R8B | | |
| Size A4 | Document Number | Rev -2 |
| Mocha-3 | | |
| Date: Wednesday, January 27, 2010 | Sheet 61 | of 70 |



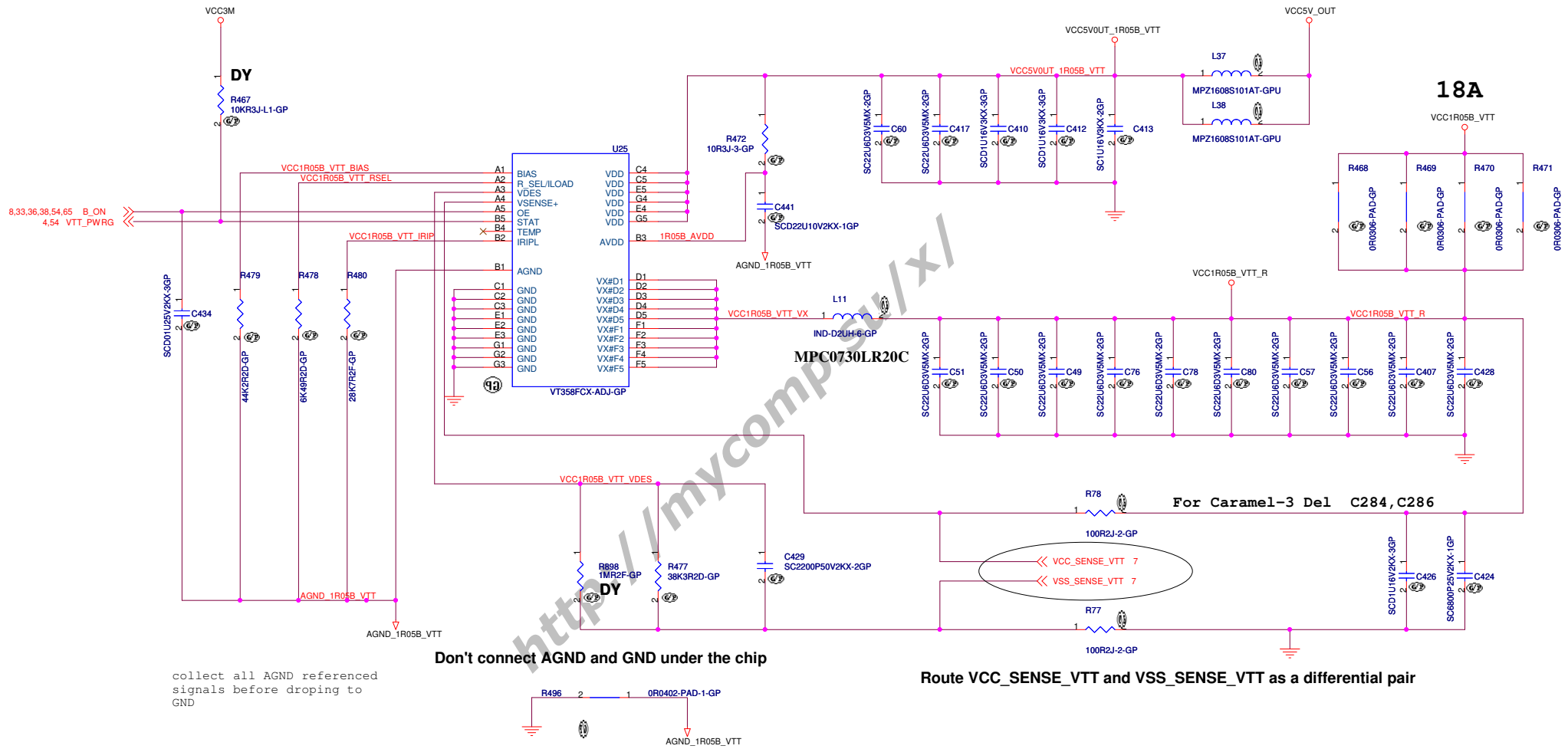
collect all AGND referenced signals before dropping to GND

Don't connect AGND and GND under the chip



<Core Design>

| | |
|--|-----------------|
|  Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. | |
| DC-DC VCC1R05LAN | |
| Size A3 | Document Number |
| Mocha-3 | |
| Date: Wednesday, January 27, 2010 | Sheet 62 of 70 |
| | Rev -2 |



collect all AGND referenced signals before dropping to GND

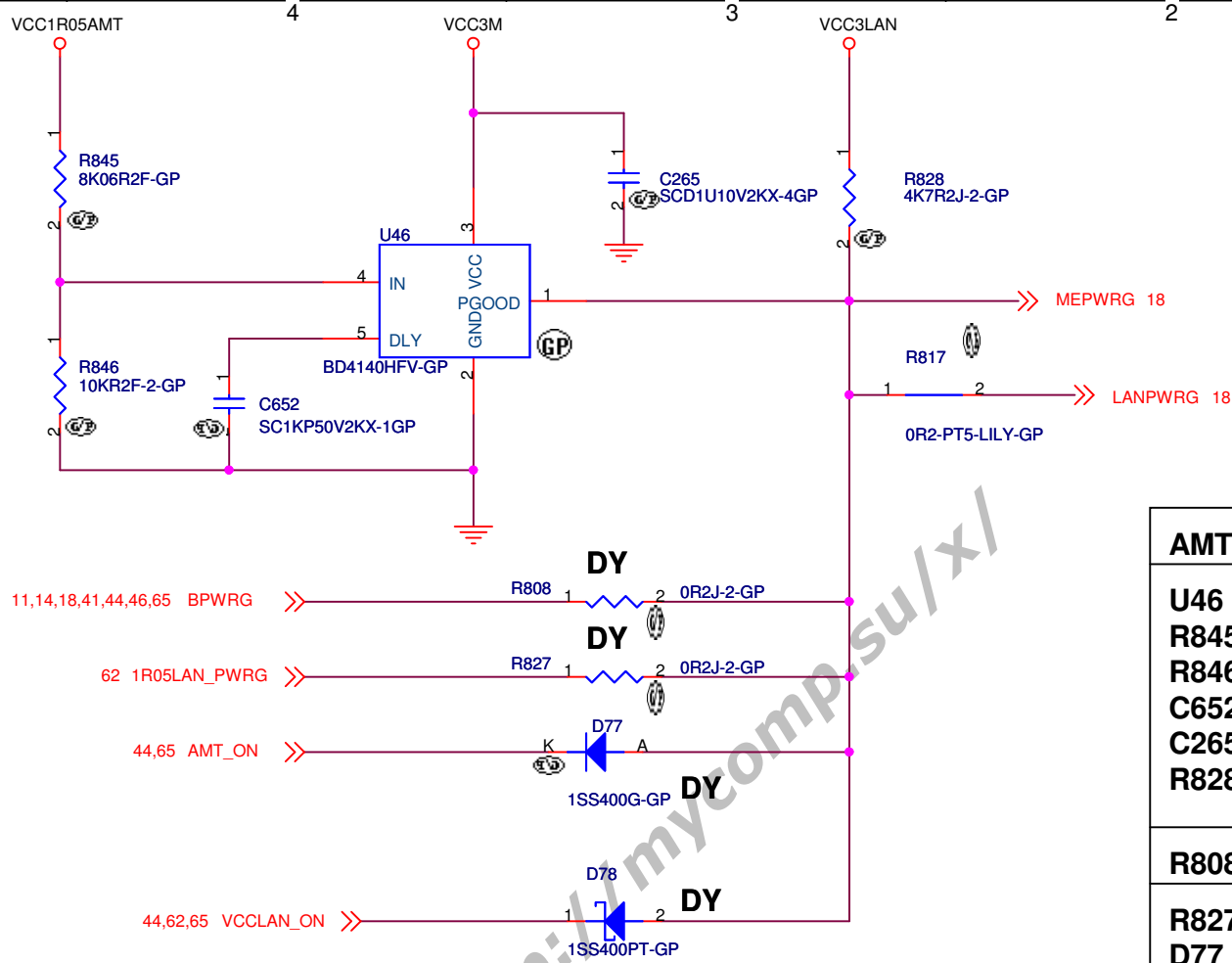
Don't connect AGND and GND under the chip

Route VCC_SENSE_VTT and VSS_SENSE_VTT as a differential pair

| | 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>

| | |
|--|---------------------------------|
| Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C. | |
| Title: DC-DC VCC1R05B VTT | |
| Size: Custom | Document Number: Mocha-3 |
| Date: Wednesday, January 27, 2010 | Rev: -2 |
| Sheet: 63 | of 70 |



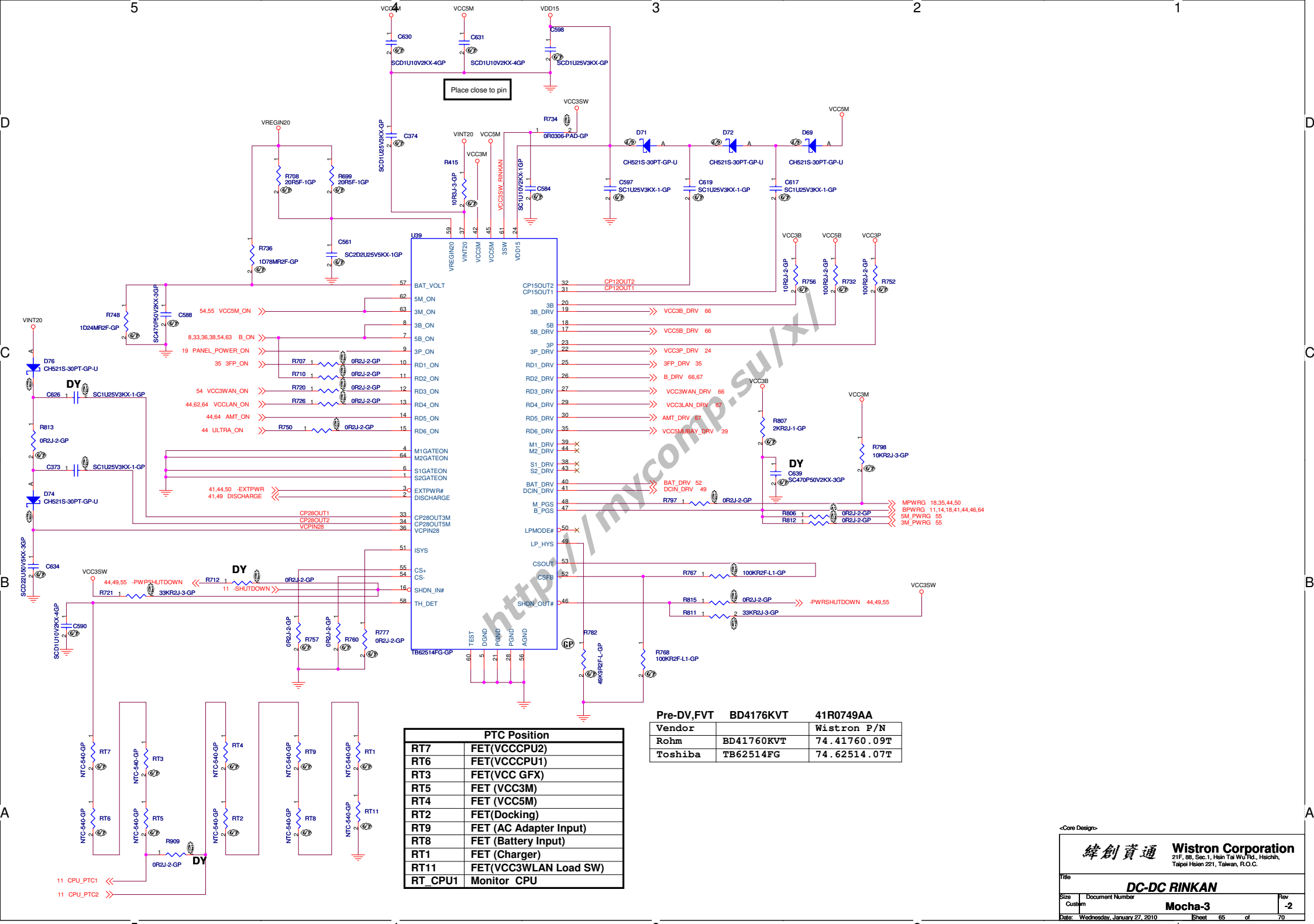
| | AMT | YES | NO |
|------|-----|-----|-----|
| U46 | ASM | DY | DY |
| R845 | ASM | DY | DY |
| R846 | ASM | DY | DY |
| C652 | ASM | DY | DY |
| C265 | ASM | DY | DY |
| R828 | ASM | DY | DY |
| R808 | DY | ASM | ASM |
| R827 | DY | DY | DY |
| D77 | DY | DY | DY |
| D78 | DY | DY | DY |
| R817 |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

<Core Design>

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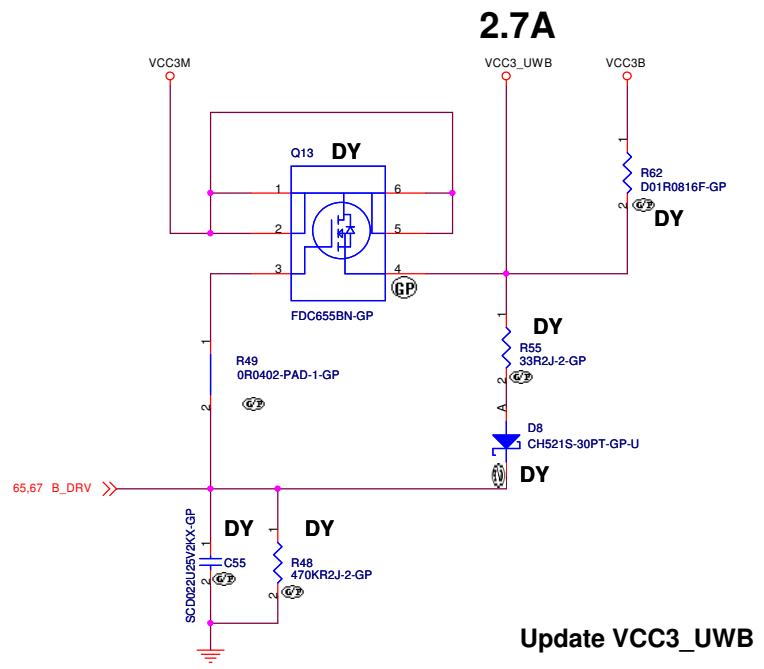
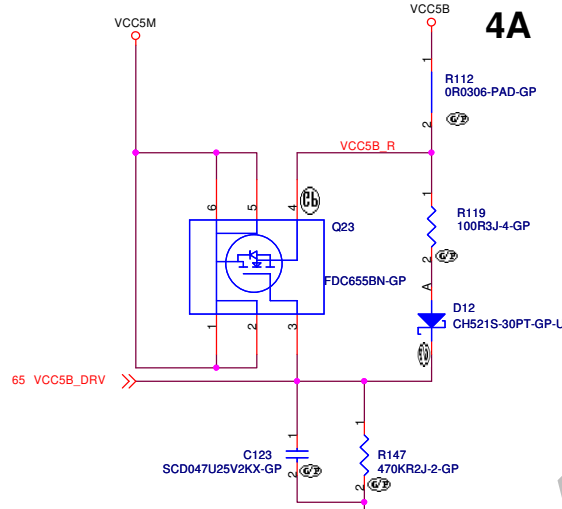
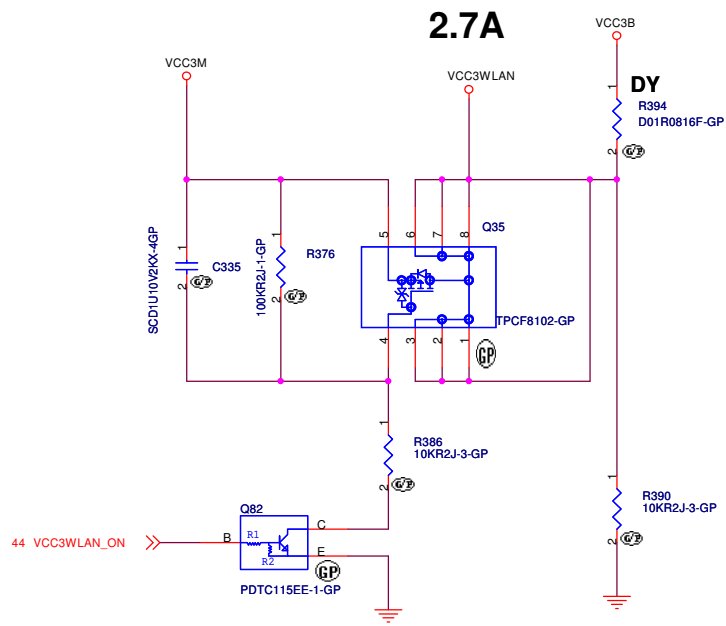
Title: **POWER GOOD**

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

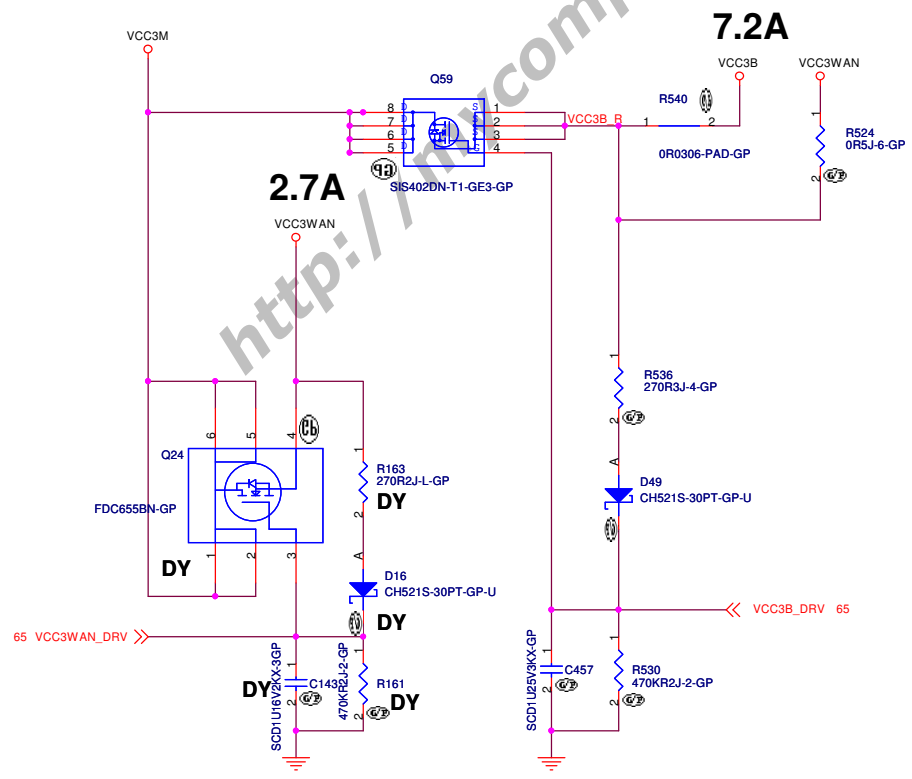


| PTC Position | |
|--------------|------------------------|
| RT7 | FET(VCCCPU2) |
| RT6 | FET(VCCCPU1) |
| RT3 | FET(VCC GFX) |
| RT5 | FET (VCC3M) |
| RT4 | FET (VCC5M) |
| RT2 | FET(Docking) |
| RT9 | FET (AC Adapter Input) |
| RT8 | FET (Battery Input) |
| RT1 | FET (Charger) |
| RT11 | FET(VCC3WLAN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



Update VCC3_UWB



No-asm for no WWAN CONN. MODEL

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

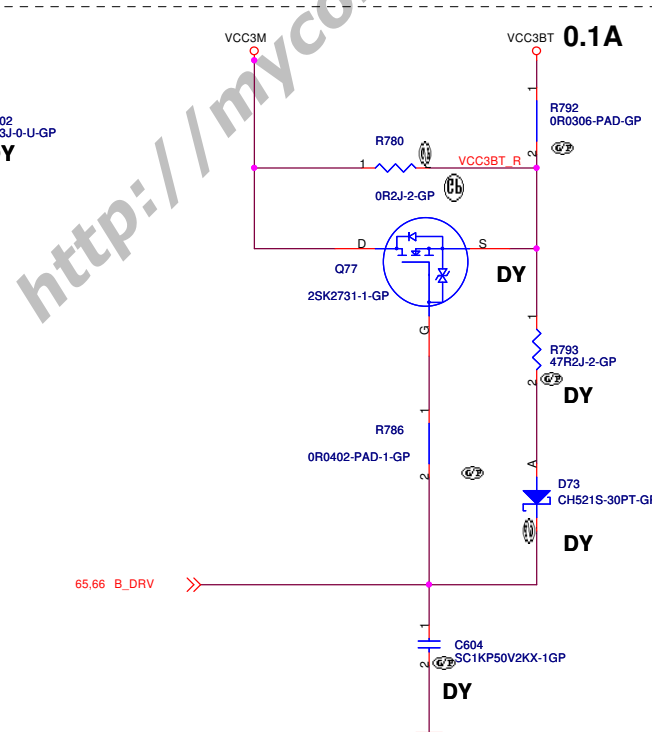
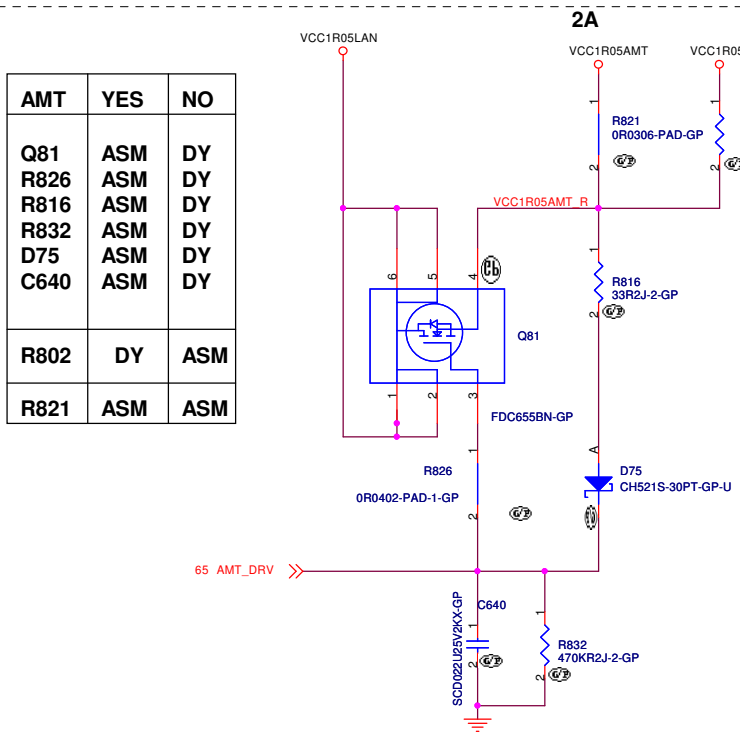
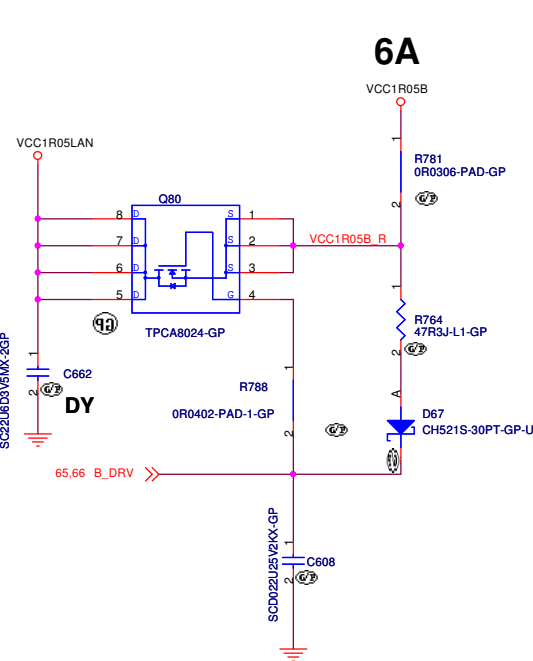
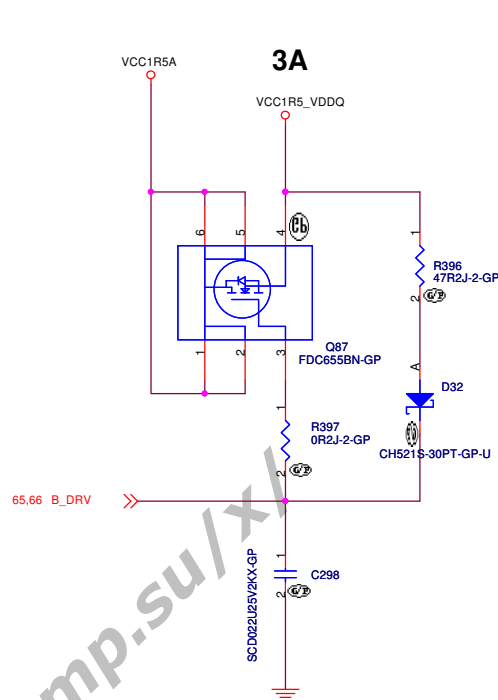
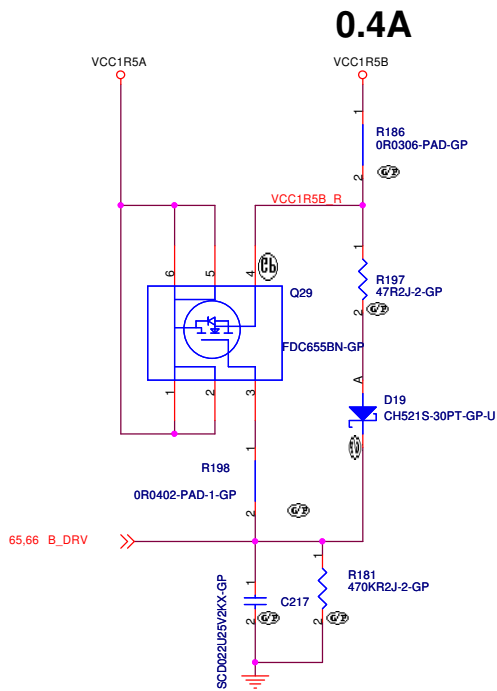
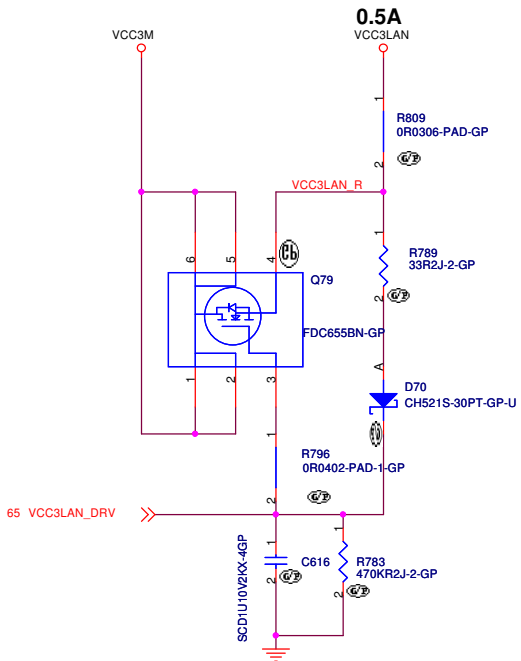
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Title: **LOAD SW 1**

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

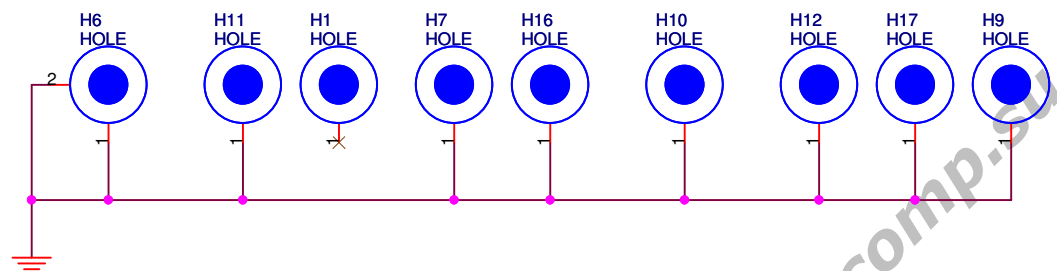
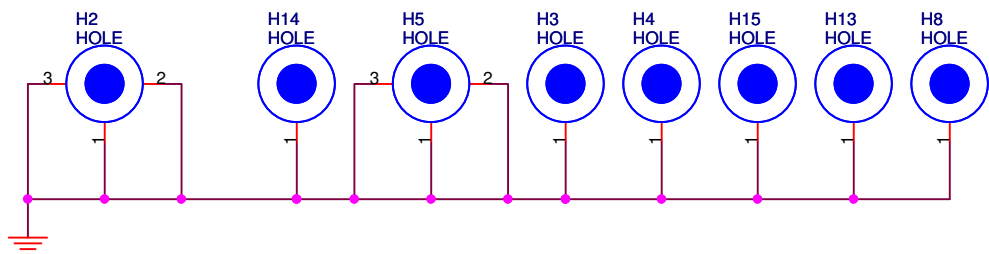
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 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
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Title: **LOAD SW 2**

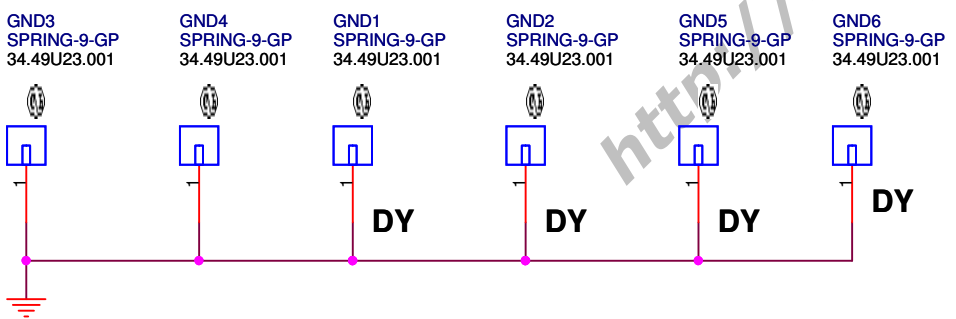
Size: A3 Document Number: **Mocha-3** Rev: -2

Date: Wednesday, January 27, 2010 Sheet: 67 of 70



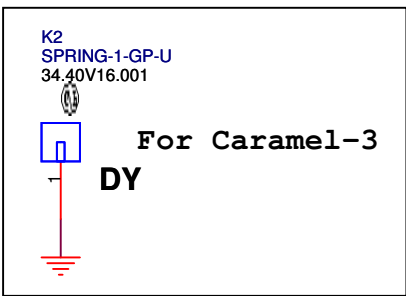
For Caramel-3

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

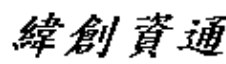


For Caramel-3

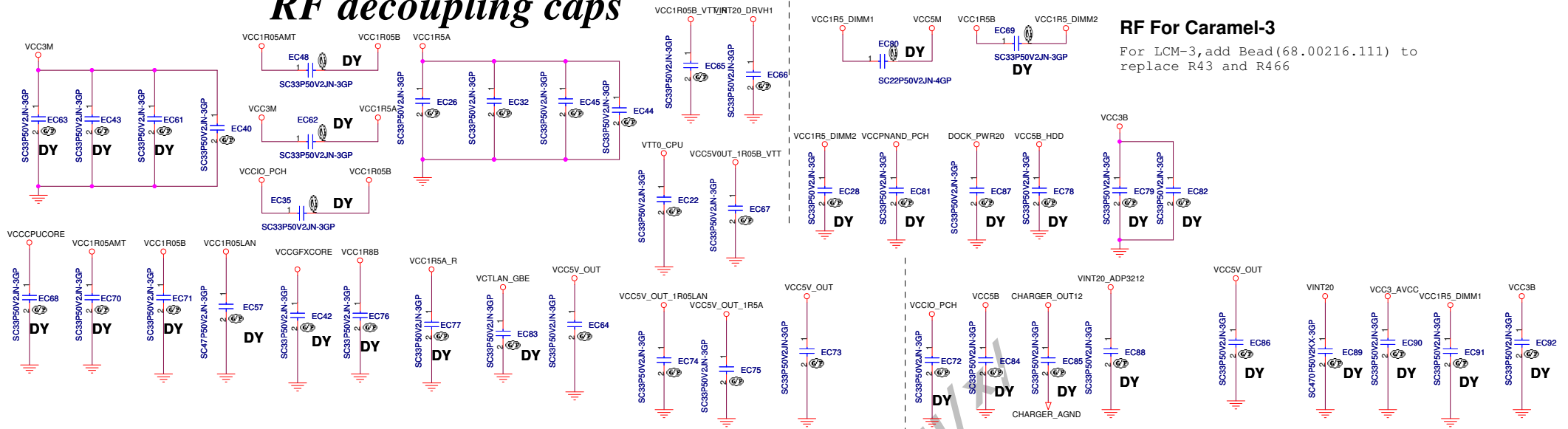
| | | | |
|----------|--------------|--------|-----|
| Standoff | 34.4Y421.001 | H3, H4 | ASM |
|----------|--------------|--------|-----|



<Core Design>

| | |
|---|-------------------------------------|
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| HOLES/GND/PADS | |
| Title Mocha-3 | Document Number Mocha-3 |
| Size A4 | Date Wednesday, January 27, 2010 |
| Rev -2 | Sheet 68 of 70 |

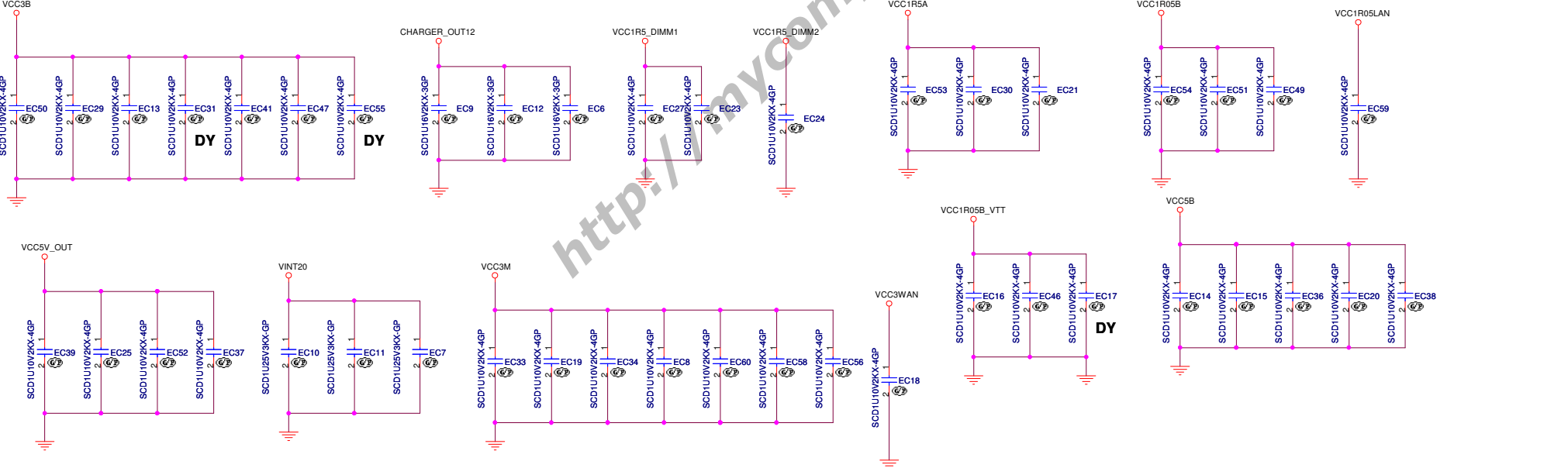
RF decoupling caps



RF For Caramel-3

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

Long power trace EMI decoupling caps



| Function | Location | Mocha-3 | Pecan-3 | Caramel-3 | Function | Location | Mocha-3 | Pecan-3 | Caramel-3 | Function | Location | Mocha-3 | Pecan-3 | Caramel-3 | | |
|-----------|----------|---------|---------|-----------|-------------|----------|---------|---------|-----------|------------|----------|---------|---------|-----------|-----|--|
| USB | R327 | ASM | ASM | DY | Fingerprint | R584 | DY | DY | DY | LCD Conn | R9 | DY | DY | ASM | | |
| | R328 | ASM | ASM | DY | | R585 | ASM | ASM | DY | | R10 | ASM | ASM | ASM | DY | |
| | R329 | DY | DY | ASM | | F11 | ASM | ASM | DY | | R1 | DY | DY | ASM | ASM | |
| | R330 | DY | DY | ASM | | C483 | ASM | ASM | DY | | R5 | ASM | ASM | ASM | DY | |
| | C377 | DY | DY | ASM | | | | | | | R450 | ASM | ASM | DY | ASM | |
| | C376 | DY | DY | ASM | | | | | | | R447 | DY | DY | ASM | ASM | |
| | J1 | DY | DY | ASM | | R168 | ASM | ASM | ASM | | R36 | DY | DY | ASM | ASM | |
| | U23 | DY | DY | ASM | | R169 | ASM | ASM | ASM | | R35 | ASM | ASM | DY | ASM | |
| C378 | DY | DY | ASM | F3 | ASM | ASM | ASM | R453 | ASM | ASM | DY | ASM | | | | |
| Bluetooth | R411 | ASM | ASM | DY | Touch PAD | R178 | ASM | ASM | ASM | Pen Sensor | CN11 | DY | DY | ASM | | |
| | R412 | ASM | ASM | DY | | R180 | ASM | ASM | ASM | | R418 | DY | DY | ASM | ASM | |
| | R413 | DY | DY | ASM | | CN3 | ASM | ASM | ASM | | C375 | DY | DY | ASM | ASM | |
| | R414 | DY | DY | ASM | | U6 | ASM | ASM | ASM | | | | | | | |
| | CN10 | DY | DY | ASM | | C473 | ASM | ASM | ASM | | | | | | | |
| | F4 | DY | DY | ASM | | R556 | ASM | ASM | ASM | | | | | | | |
| | C372 | DY | DY | ASM | | R577 | ASM | ASM | ASM | | | | | | | |
| | | | | | | R483 | ASM | ASM | ASM | | | | | | | |
| | | | | | | R474 | ASM | ASM | ASM | | | | | | | |
| | | | | | | R491 | DY | DY | DY | | | | | | | |
| | | | | R71 | DY | DY | DY | | | | | | | | | |
| Super IO | U7 | DY | DY | ASM | Pecan ID | R293 | ASM | DY | DY | ASM | uP | R599 | DY | DY | ASM | |
| | C159 | DY | DY | ASM | | R286 | DY | ASM | ASM | ASM | H8 | R269 | DY | DY | ASM | |
| | C146 | DY | DY | ASM | | | | | | | | R270 | DY | ASM | 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 | ASM | | | | | | | | | | | | |
| R754 | DY | DY | ASM | | | | | | | | | | | | | |
| R639 | DY | DY | ASM | | | | | | | | | | | | | |

Support Caramel-3 TouchPAD for SIV ⁷

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 |

MP-3 change to Caramel-3 planar

| Cut off portion | | | | HOLE Geometry | |
|-----------------|----------|----------|----------|---------------|------------------|
| Location | 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 |

-Core Design-

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Title: **MP&Caramel difference list**

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

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