Cathedral Peak II Block Diagram

Project code: 91.4K801.001
PCB P/N : 48.4K801.0SC
REVISION : 08219-SC

CLK GEN.
ICS 9LPRS365BKLFT (71.09365.A03)
RTM 875N-606-LFT (71.00875.C03)
3

Mobile CPU
Penryn 479
4, 5

THERMAL EMC2102
21

HOST BUS 667/800/1067MHz@1.05V

CRT 15
LCD 14

DDR2 DIMM1
667/800 MHz
12

DDR2 DIMM2
667/800 MHz
13

667/800MHz

Cantiga
AGTL+ CPU I/F
DDR Memory I/F
INTEGRATED GRAHPICS
LVDS, CRT I/F
6,7,8,9,10,11

X4 DMI 400MHz
C-Link0

INT.MIC 16

Codec ALC268 28
AZALIA

MIC In 29

OP AMP APA2057 29

INT.SPKR 29

Line Out (NO SPDIF) 29

RJ11

MODEM MDC Card 23

ICH9M
6 PCIe ports
PCI/PCI BRIDGE
ACPI 2.0
4 SATA
12 USB 2.0/1.1 ports
ETHERNET (10/100/1000MbE)
High Definition Audio
LPC I/F
Serial Peripheral I/F
Matrix Storage Technology(DO)
Active Managemnet Technology(DO)
17,18,19,20

PCIex1
LAN Giga LAN 88E8071 25
TXFM 26
RJ45 26

PCIex1
New card 27
PWR SW TPS2231 27

PCIex1
Mini Card Kedron a/b/g/n 27

LPC BUS
KBC ENE3310 30
BIOS Winbond W25X16 16M Bits 31
LPC DEBUG CONN 31
Launch Buttom 16

USB
Blue Tooth (USB) 23
Camera (USB) 14
Touch Pad 30
INT. KB 30

SATA
HDD SATA 22
ODD SATA 22

USB 3 Port 23
USB
CardReader Realtek RTS5158E 24
MS/MS Pro/xD /MMC/SD 5 in 1 24

SATA

Launch Board
LED Board
16

PCB STACKUP

TOP	
VCC	
S	
S	
GND	
BOTTOM	

SYSTEM DC/DC
TPS51125 35

INPUTS	OUTPUTS
DCBATOUT	5V_S5 3D3V_S5

SYSTEM DC/DC
TPS51124 37

INPUTS	OUTPUTS
DCBATOUT	1D05V_S0 1D8V_S3

RT9026 36

1D8V_S3	DDR_VREF_S0 DDR_VREF_S3

RT9018A 36

1D8V_S3	1D5V_S0

CFXCORE DC/DC
ISL6263 38

INPUTS	OUTPUTS
DCBATOUT	VGFXCORE 0.7~1.25V

CPU DC/DC
ISL6266A 34

INPUTS	OUTPUTS
DCBATOUT	VCC_CORE_S0 0.35~1.5V

CHARGER
BQ24745 39

INPUTS	OUTPUTS
DCBATOUT	BT+ DCBATOUT

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ICH9M Functional Strap Definitions

Signal	Usage/When Sampled	Comment
HDA_SDOUT	XOR Chain Entrance/ PCIE Port Config1 bit1, Rising Edge of PWROK	Allows entrance to XOR Chain testing when TP3 pulled low.When TP3 not pulled low at rising edge of PWROK,sets bit1 of RPC.PC(Config Registers: offset 224h). This signal has weak internal pull-down
HDA_SYNC	PCIE config1 bit0, Rising Edge of PWROK.	This signal has a weak internal pull-down. Sets bit0 of RPC.PC(Config Registers:Offset 224h)
GNT2#/ GPIO53	PCIE config2 bit2, Rising Edge of PWROK.	This signal has a weak internal pull-up. Sets bit2 of RPC.PC2(Config Registers:Offset 0224h)
GPIO20	Reserved	This signal should not be pulled high.
GNT1#/ GPIO51	ESI Strap (Server Only) Rising Edge of PWROK	ESI compatible mode is for server platforms only. This signal should not be pulled low for desttop and mobile.
GNT3#/ GPIO55	Top-Block Swap Override. Rising Edge of PWROK.	Sampled low:Top-Block Swap mode(inverts A16 for all cycles targeting FWH BIOS space). Note: Software will not be able to clear the Top-Swap bit until the system is rebooted without GNT3# being pulled down.
GNT0#: SPI_CS1#/ GPIO58	Boot BIOS Destination Selection 0:1. Rising Edge of PWROK.	Controllable via Boot BIOS Destination bit (Config Registers:Offset 3410h:bit 11:10). GNT0# is MSB, 01-SPI, 10-PCI, 11-LPC.
SPI_MOSI	Integrated TPM Enable, Rising Edge of CLPWROK	Sample low: the Integrated TPM will be disabled. Sample high: the MCH TPM enable strap is sampled low and the TPM Disable bit is clear, the Integrated TPM will be enable.
GPIO49	DMI Termination Voltage, Rising Edge of PWROK.	The signal is required to be low for desktop applications and required to be high for mobile applications.
SATALED#	PCI Express Lane Reversal. Rising Edge of PWROK.	Signal has weak internal pull-up. Sets bit 27 of MPC.LR(Device 28:Function 0:Offset D8)
SPKR	No Reboot. Rising Edge of PWROK.	If sampled high, the system is strapped to the "No Reboot" mode(ICH9 will disable the TCO Timer system reboot feature). The status is readable via the NO REBOOT bit.
TP3	XOR Chain Entrance. Rising Edge of PWROK.	This signal should not be pull low unless using XOR Chain testing.
GPIO33/ HDA_DOCK _EN#	Flash Descriptor Security Override Strap Rising Edge of PWROK	Sampled low:the Flash Descriptor Security will be overridden. If high,the security measures will be in effect.This should only be enabled in manufacturing environments using an external pull-up resister.

ICH9M Integrated Pull-up and Pull-down Resistors

SIGNAL	Resistor Type/Value
CL_CLK[1:0]	PULL-UP 20K
CL_DATA[1:0]	PULL-UP 20K
CL_RST0#	PULL-UP 20K
DPRSLPVR/GPIO16	PULL-DOWN 20K
ENERGY_DETECT	PULL-UP 20K
HDA_BIT_CLK	PULL-DOWN 20K
HDA_DOCK_EN#/GPIO33	PULL-UP 20K
HDA_RST#	PULL-DOWN 20K
HDA_SDIN[3:0]	PULL-DOWN 20K
HDA_SDOUT	PULL-DOWN 20K
HDA_SYNC	PULL-DOWN 20K
GLAN_DOCK#	The pull-up or pull-down active when configured for native GLAN_DOCK# functionality and determined by LAN controller
GNT[3:0]#/GPIO[55,53,51]	PULL-UP 20K
GPIO[20]	PULL-DOWN 20K
GPIO[49]	PULL-UP 20K
LDA[3:0]#/FHW[3:0]#	PULL-UP 20K
LAN_RXD[2:0]	PULL-UP 20K
LDRQ[0]	PULL-UP 20K
LDRQ[1]/GPIO23	PULL-UP 20K
PME#	PULL-UP 20K
PWRBTN#	PULL-UP 20K
SATALED#	PULL-UP 15K
SPI_CS1#/GPIO58/CLGPIO6	PULL-UP 20K
SPI_MOSI	PULL-DOWN 20K
SPI_MISO	PULL-UP 20K
SPKR	PULL-DOWN 20K
TACH_[3:0]	PULL-UP 20K
TP[3]	PULL-UP 20K
USB[11:0][P,N]	PULL-DOWN 15K

Cantiga chipset and ICH9M I/O controller Hub strapping configuration

Pin Name	Strap Description	Configuration
CFG[2:0]	FSB Frequency Select	000 = FSB1067 011 = FSB667 010 = FSB800 Others = Reserved
CFG[4:3] CFG8 CFG[15:14] CFG[18:17]	Reserved	
CFG5	DMI x2 Select	0 = DMI x2 1 = DMI x4 (Default)
CFG6	iTPM Host Interface	0= The iTPM Host Interface is enabled(Note2) 1=**The iTPM Host Interface is disalbed(default)**
CFG7	Intel Management engine Crypto strap	0 = Transport Layer Security (TLS) cipher suite with no confidentiality **1 = TLS cipher suite with confidentiality (default)**
CFG9	PCIE Graphics Lane	0 = Reverse Lanes,15->0,14->1 ect.. **1= Normal operation(Default):Lane Numbered in order**
CFG10	PCIE Loopback enable	0 = Enable (Note 3) **1= Disabled (default)**
CFG[13:12]	XOR/ALL	00 = Reserve 10 = XOR mode Enabled 01 = ALLZ mode Enabled (Note 3) **11 = Disabled (default)**
CFG16	FSB Dynamic ODT	0 = Dynamic ODT Disabled **1 = Dynamic ODT Enabled (Default)**
CFG19	DMI Lane Reversal	**0 = Normal operation(Default): Lane Numbered in Order** 1 = Reverse Lanes DMI x4 mode[MCH -> ICH]:(3->0,2->1,1->2and0->3) DMI x2 mode[MCH -> ICH]:(3->0,2->1)
CFG20	Digital Display Port (SDVO/DP/iHDMI) Concurrent with PCIe	**0 = Only Digital Display Port or PCIE is operational (Default)** 1 =Digital display Port and PCIe are operting simulataneously via the PEG port
SDVO_CTRLDATA	SDVO Present	**0 =No SDVO Card Present (Default)** 1 = SDVO Card Present
L_DDC_DATA	Local Flat Panel (LFP) Present	**0 = LFP Disabled (Default)** 1= LFP Card Present; PCIE disabled

NOTE:
1. All strap signals are sampled with respect to the leading edge of the (G)MCH Power OK (PWROK) signal.
2. iTPM can be disabled by a 'Soft-Strap' option in the Flash-decriptor section of the Firmware. This 'Soft-Strap' is activated only after enabling iTPM via CFG6. Only one of the CFG10/CFG/12/CFG13 straps can be enabled at any time.

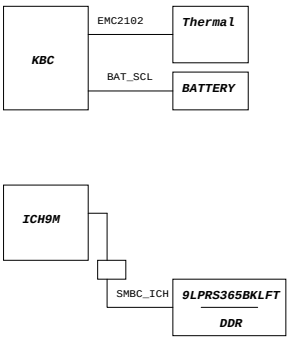
PCIE Routing

LANE1	LAN MARVELL 88E8071
LANE2	MiniCard WLAN
LANE3	*NC*
LANE4	*NC*
LANE5	NewCard
LANE6	*NC*

USB Table

USB	
Pair	*Device*
0	*USB1*
1	*NC*
2	*USB2*
3	*NC*
4	*USB3*
5	*Bluetooth*
6	*NC*
7	*MINIC1*
8	*WEBCAM*
9	*NEW1*
10	Card Reader
11	*NC*

SMBus



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Title: **Reference**

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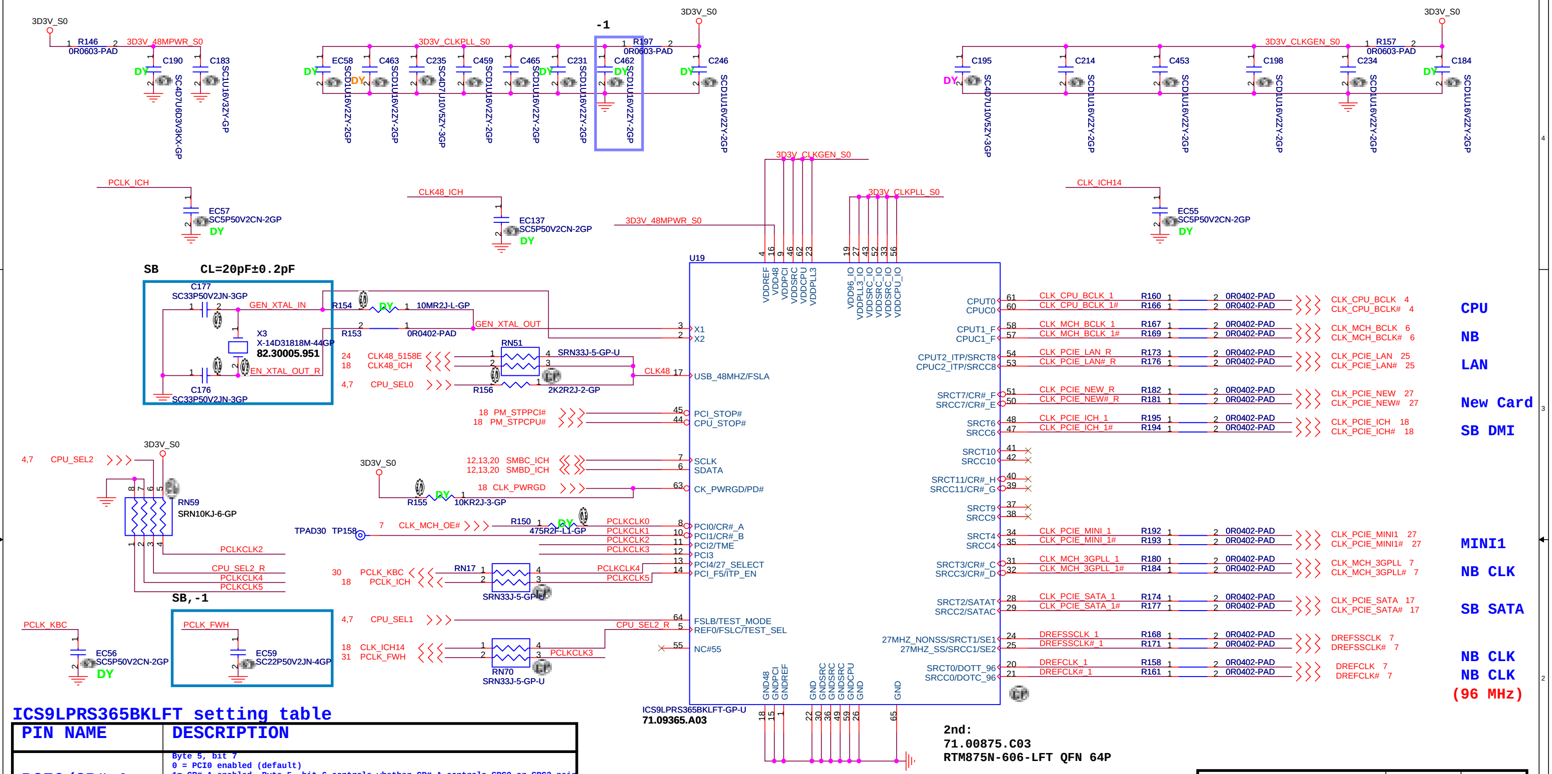

ICS9LPRS365BKLFT setting table

PIN NAME	DESCRIPTION
PCI0/CR#_A	Byte 5, bit 7 0 = PCI0 enabled (default) 1= CR#_A enabled. Byte 5, bit 6 controls whether CR#_A controls SRC0 or SRC2 pair Byte 5, bit 6 0 = CR#_A controls SRC0 pair (default), 1= CR#_A controls SRC2 pair
PCI1/CR#_B	Byte 5, bit 5 0 = PCI1 enabled (default) 1= CR#_B enabled. Byte 5, bit 6 controls whether CR#_B controls SRC1 or SRC4 pair Byte 5, bit 4 0 = CR#_B controls SRC1 pair (default) 1= CR#_B controls SRC4 pair
PCI2/TME	0 = Overclocking of CPU and SRC Allowed 1 = Overclocking of CPU and SRC NOT allowed
PCI3	3.3V PCI clock output
PCI4/27M_SEL	0 = Pin24 as SRC-1, Pin25 as SRC-1#, Pin20 as DOT96, Pin21 as DOT96# 1 = Pin24 as 27MHz, Pin25 as 27MHz_SS, Pin20 as SRC-0, Pin21 as SRC-0#
PCI_F5/ITP_EN	0 =SRC8/SRC8# 1 = ITP/ITP#
SRCT3/CR#_C	Byte 5, bit 3 0 = SRC3 enabled (default) 1= CR#_C enabled. Byte 5, bit 2 controls whether CR#_C controls SRC0 or SRC2 pair Byte 5, bit 2 0 = CR#_C controls SRC0 pair (default), 1= CR#_C controls SRC2 pair

PIN NAME	DESCRIPTION
SRCC3/CR#_D	Byte 5, bit 1 0 = SRC3 enabled (default) 1= CR#_D enabled. Byte 5, bit 0 controls whether CR#_D controls SRC1 or SRC4 pair Byte 5, bit 0 0 = CR#_D controls SRC1 pair (default) 1= CR#_D controls SRC4 pair
SRCC7/CR#_E	Byte 6, bit 7 0 = SRC7# enabled (default) 1= CR#_F controls SRC6
SRCT7/CR#_F	Byte 6, bit 6 0 = SRC7 enabled (default) 1= CR#_F controls SRC8
SRCC11/CR#_G	Byte 6, bit 5 0 = SRC11# enabled (default) 1= CR#_G controls SRC9
SRCT11/CR#_H	Byte 6, bit 4 0 = SRC11 enabled (default) 1= CR#_H controls SRC10

SEL2 FSC	SEL1 FSB	SEL0 FSA	CPU	FSB
1	0	1	100M	X
0	0	1	133M	533M
0	1	1	166M	667M
0	1	0	200M	800M
0	0	0	266M	1066M

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Title: Clock Generator
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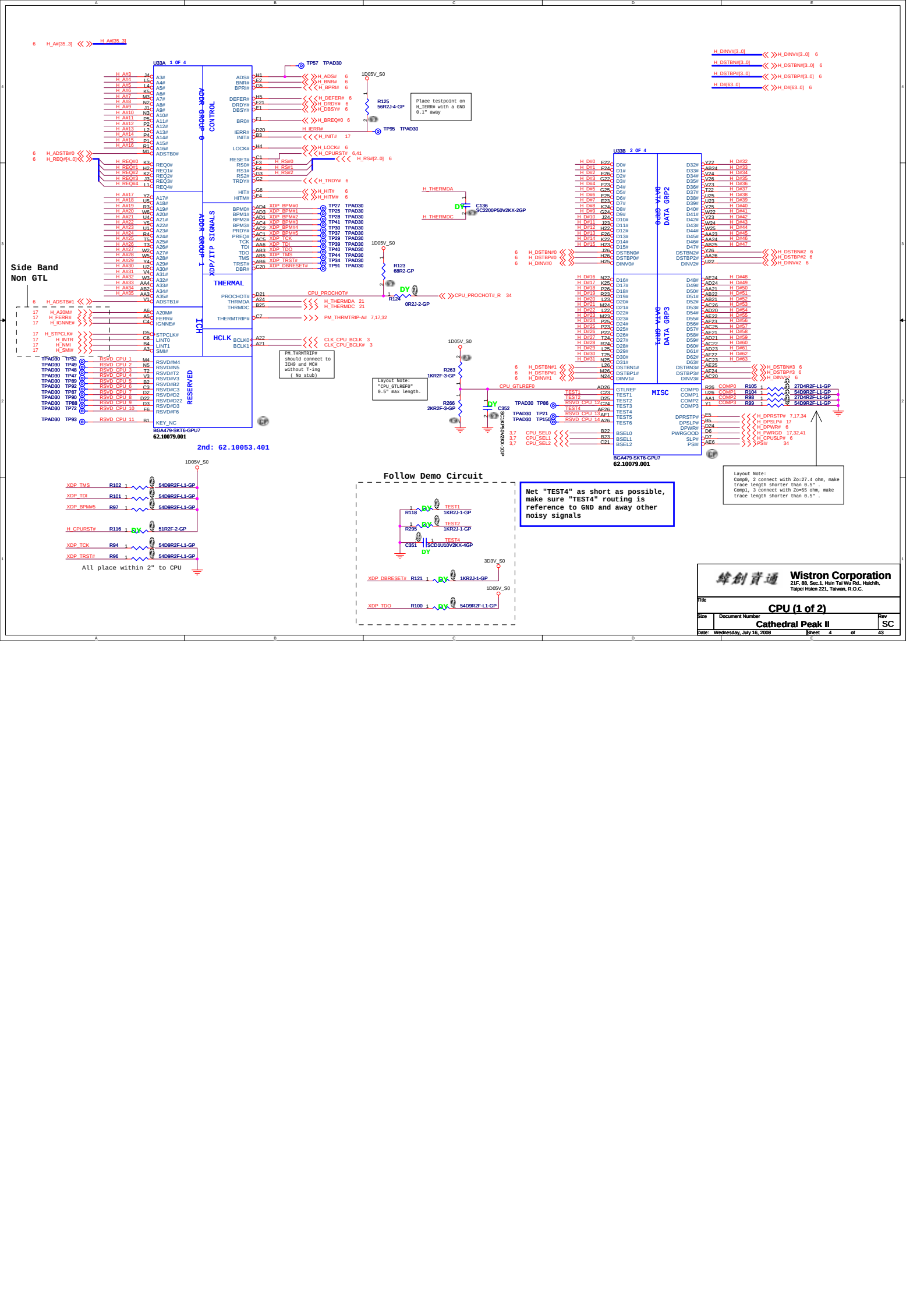
Side Band
Non GTL
U33A 1 OF 4
ADDR GROUP 0
ADDR GROUP 1
CONTROL
XDP/ITP SIGNALS
THERMAL
TCK
HCLK
RESERVED
BGA479-SKT6-GPU7
62.10079.001
2nd: 62.10053.401
U33B 2 OF 4
DATA GRP2
DATA GRP3
MISC
BGA479-SKT6-GPU7
62.10079.001
Follow Demo Circuit
Net "TEST4" as short as possible, make sure "TEST4" routing is reference to GND and away other noisy signals
All place within 2" to CPU
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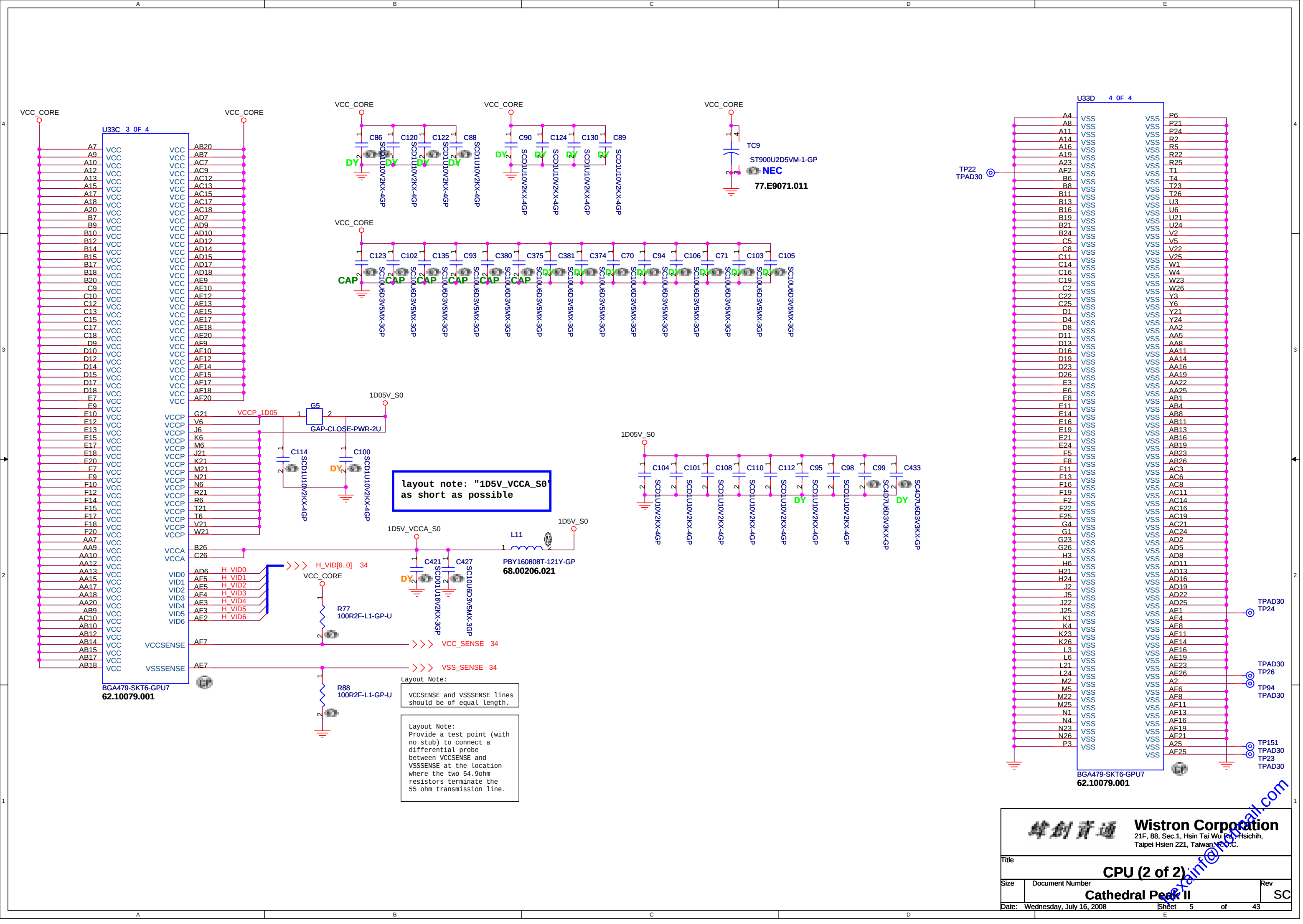

VCC_CORE
U33C 3 OF 4
BGA479-SKT6-GPU7
62.10079.001
VCCP_1D05
G5
GAP-CLOSE-PWR-2U
1D05V_S0
C114
C100
DY
layout note: "1D5V_VCCA_S0" as short as possible
1D5V_VCCA_S0
1D5V_S0
L11
PBY160808T-121Y-GP
68.00206.021
C421
C427
H_VID[6..0] 34
H_VID0
H_VID1
H_VID2
H_VID3
H_VID4
H_VID5
H_VID6
R77
100R2F-L1-GP-U
R88
100R2F-L1-GP-U
VCC_SENSE 34
VSS_SENSE 34
VCCSENSE
VSSSENSE
Layout Note:
VCCSENSE and VSSSENSE lines should be of equal length.
Layout Note:
Provide a test point (with no stub) to connect a differential probe between VCCSENSE and VSSSENSE at the location where the two 54.9ohm resistors terminate the 55 ohm transmission line.
C86
C120
C122
C88
C90
C124
C130
C89
TC9
ST900U2D5VM-1-GP
NEC
77.E9071.011
C123
C102
C135
C93
C380
C375
C381
C374
C70
C94
C106
C71
C103
C105
CAP
1D05V_S0
C104
C101
C108
C110
C112
C95
C98
C99
C433
U33D 4 OF 4
TP22
TPAD30
TP24
TP26
TP94
TP151
TP23
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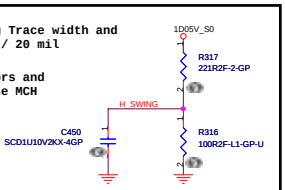
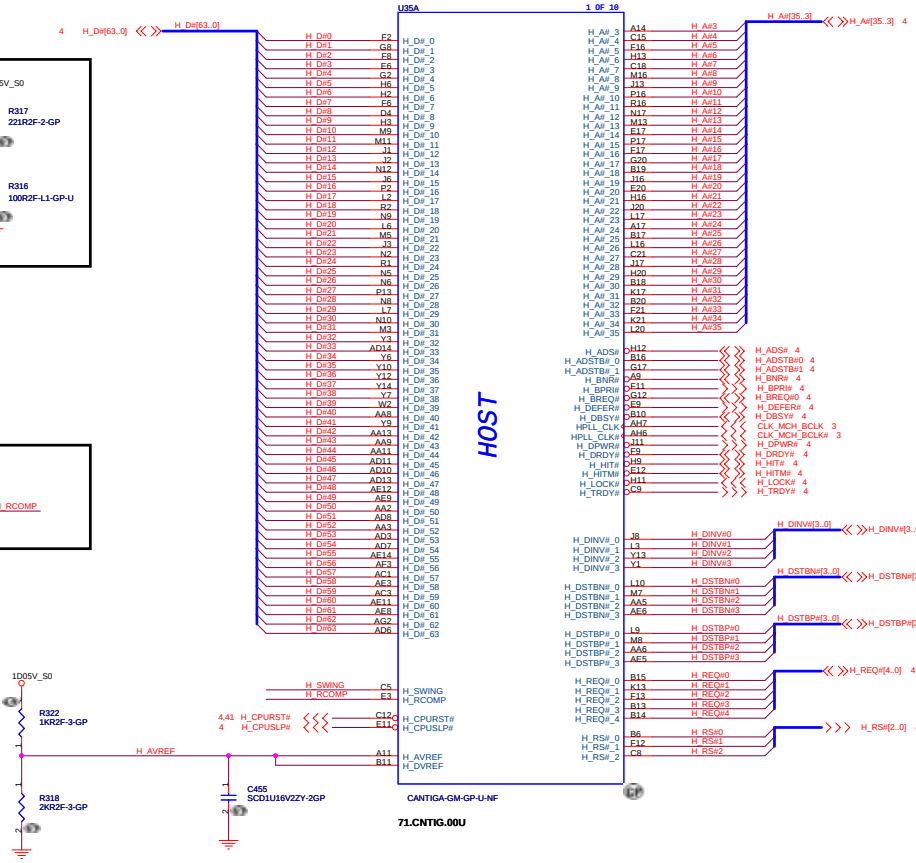
H_SWING routing Trace width and Spacing use 10 / 20 mil

H_SWING Resistors and Capacitors close MCH 500 mil (MAX)



H_RCOMP routing Trace width and Spacing use 10 / 20 mil

Place them near to the chip (< 0.5")



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Title: Cantiga (1 of 6)			
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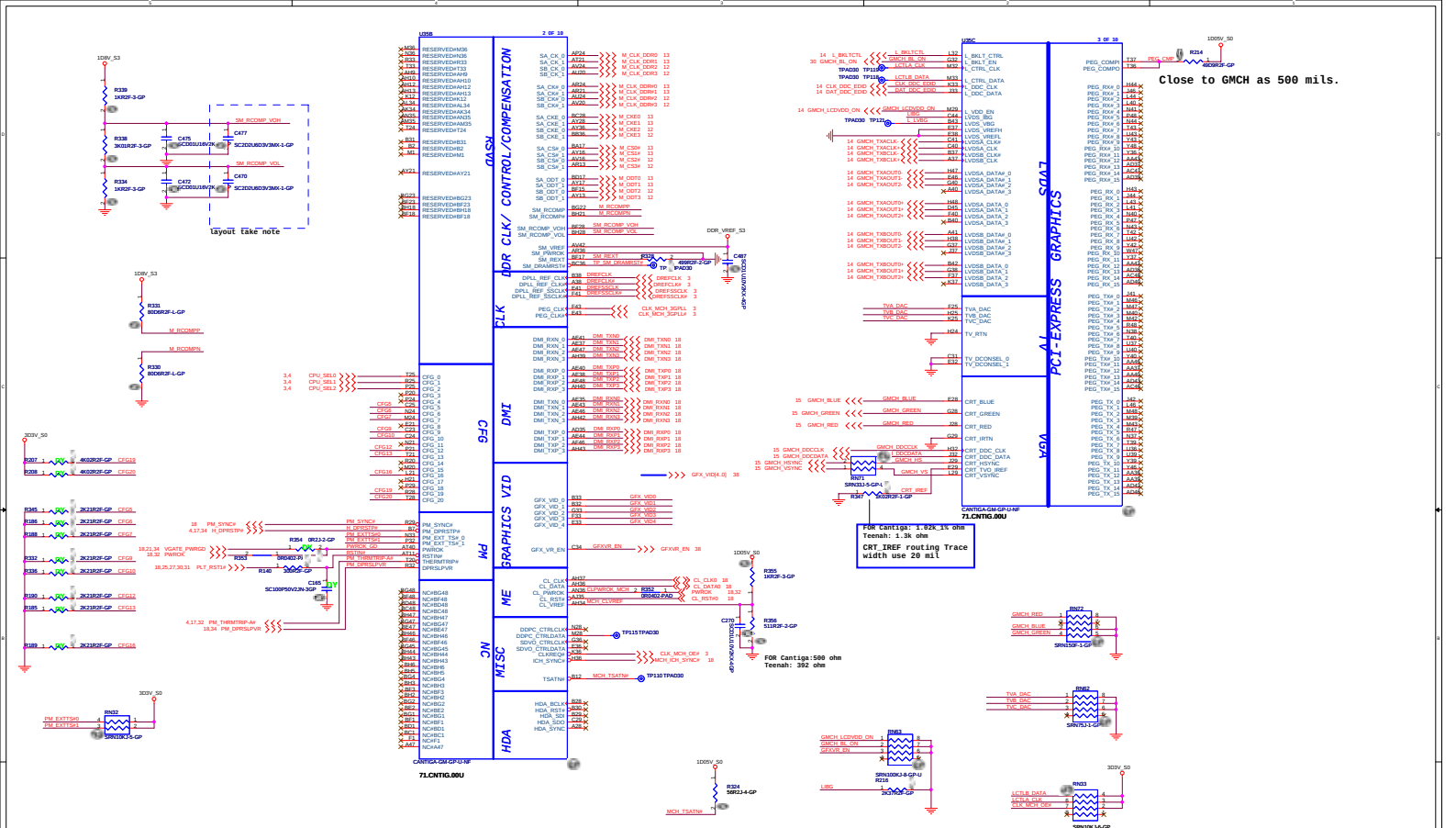

Pin Name	Strap Description	Configuration
CFG20	Digital DisplayPort (SDVO/DP/HDMI) Concurrent with PCIE	Low = Only digital DisplayPort (SDVO/DP/HDMI) or PCIE is operational (default) High = Digital DisplayPort (SDVO/DP/HDMI) and PCIE are operating simultaneously via the PEG port

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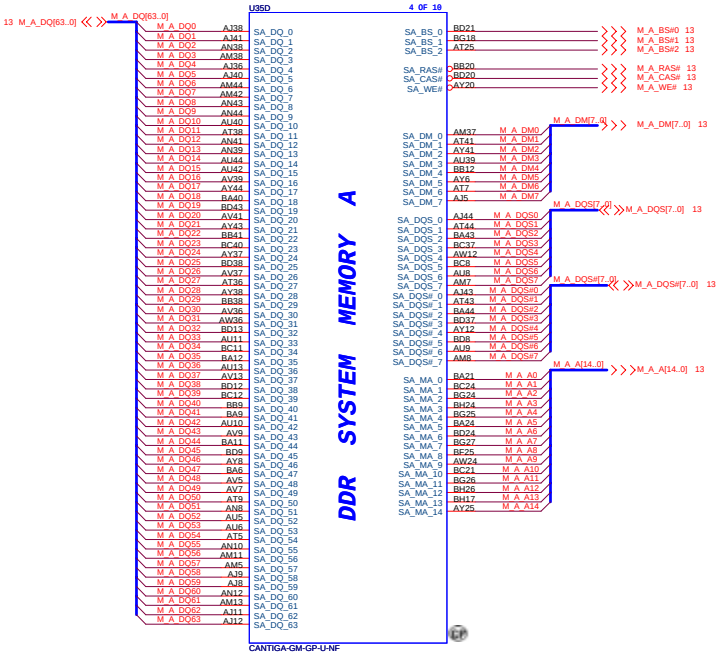

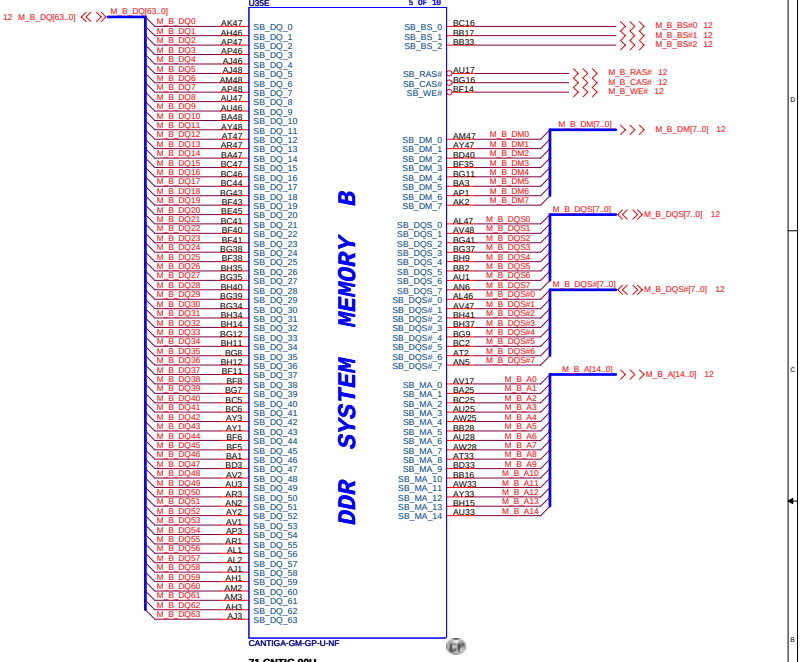

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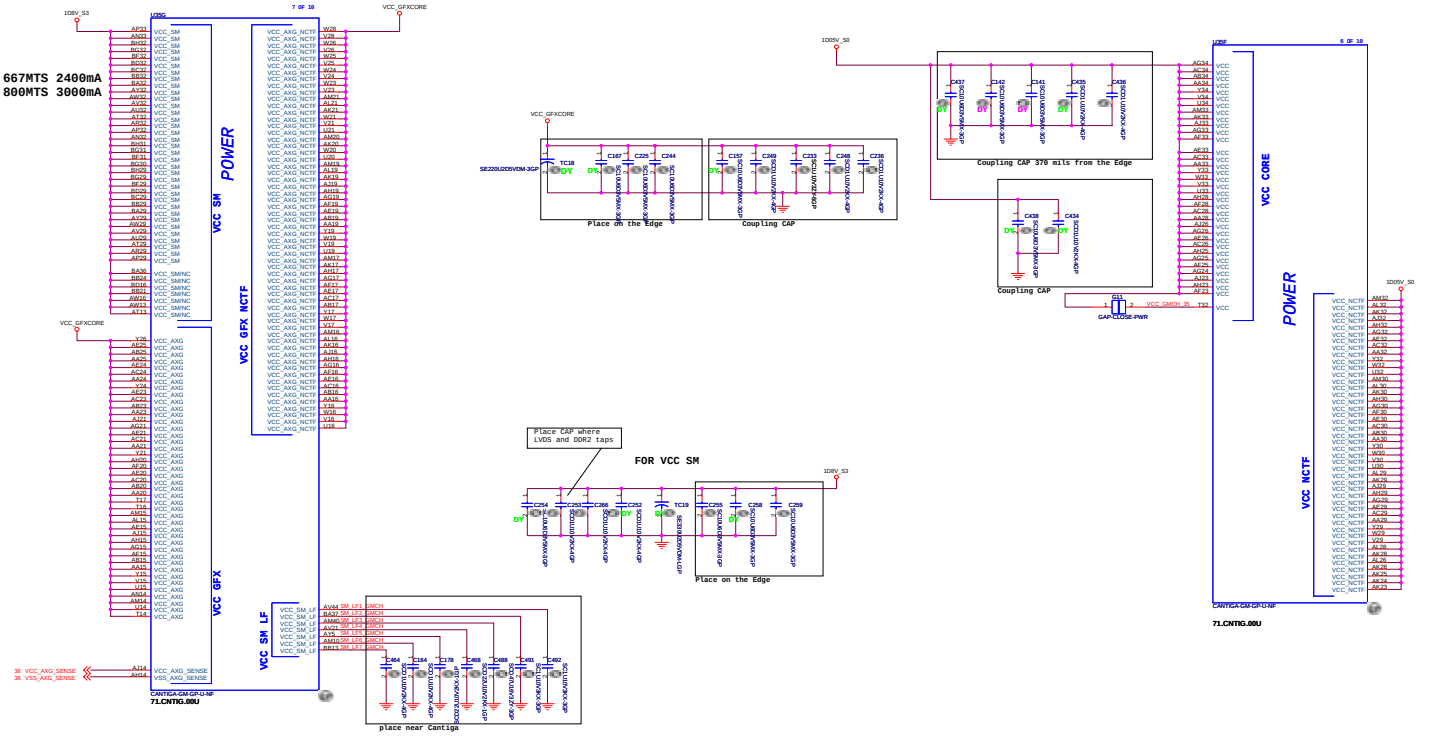

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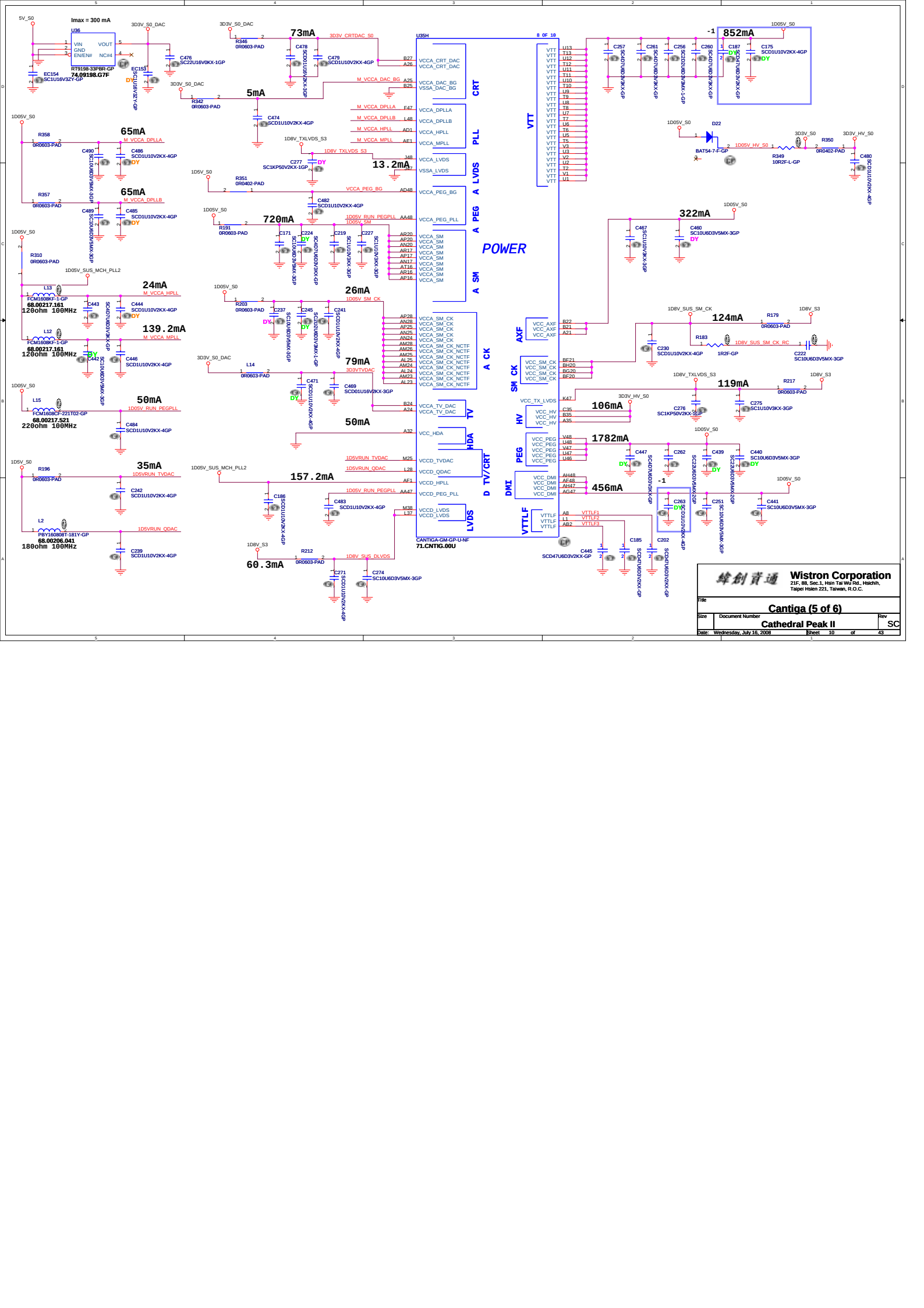
Imax = 300 mA
U36
RT9198-33PBR-GP
74.09198.G7F
73mA
5mA
65mA
65mA
24mA
139.2mA
50mA
35mA
720mA
26mA
79mA
50mA
157.2mA
60.3mA
13.2mA
322mA
124mA
119mA
106mA
1782mA
456mA
852mA
-1
-1
U35H
8 OF 10
CANTIGA-GM-GP-U-NF
71.CNTIG.00U
CRT
PLL
A LVS
A PEG
POWER
A SM
A CK
TV
HDA
D TV/CRT
LVDS
AXF
SM CK
HV
PEG
DMI
VTTLF
VTT
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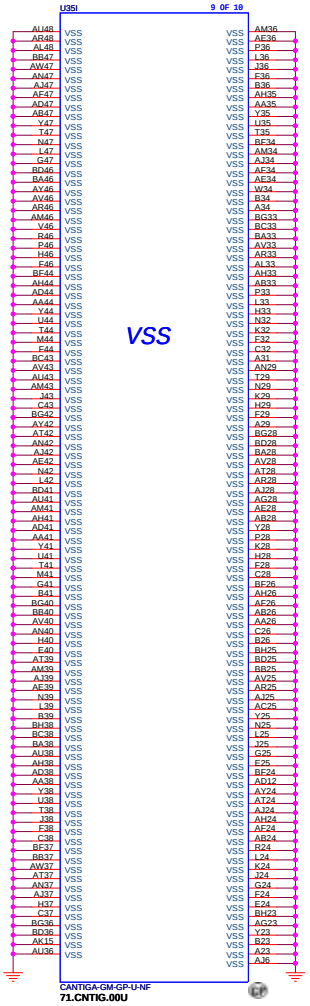

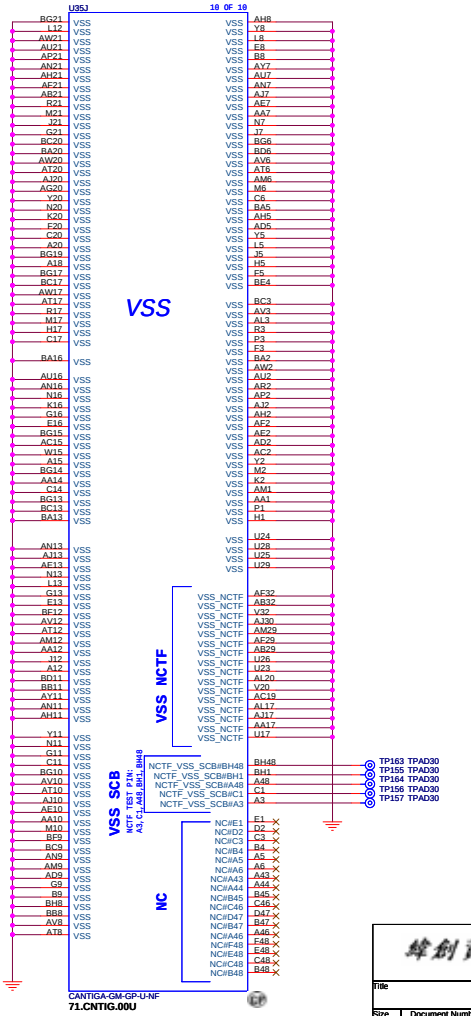

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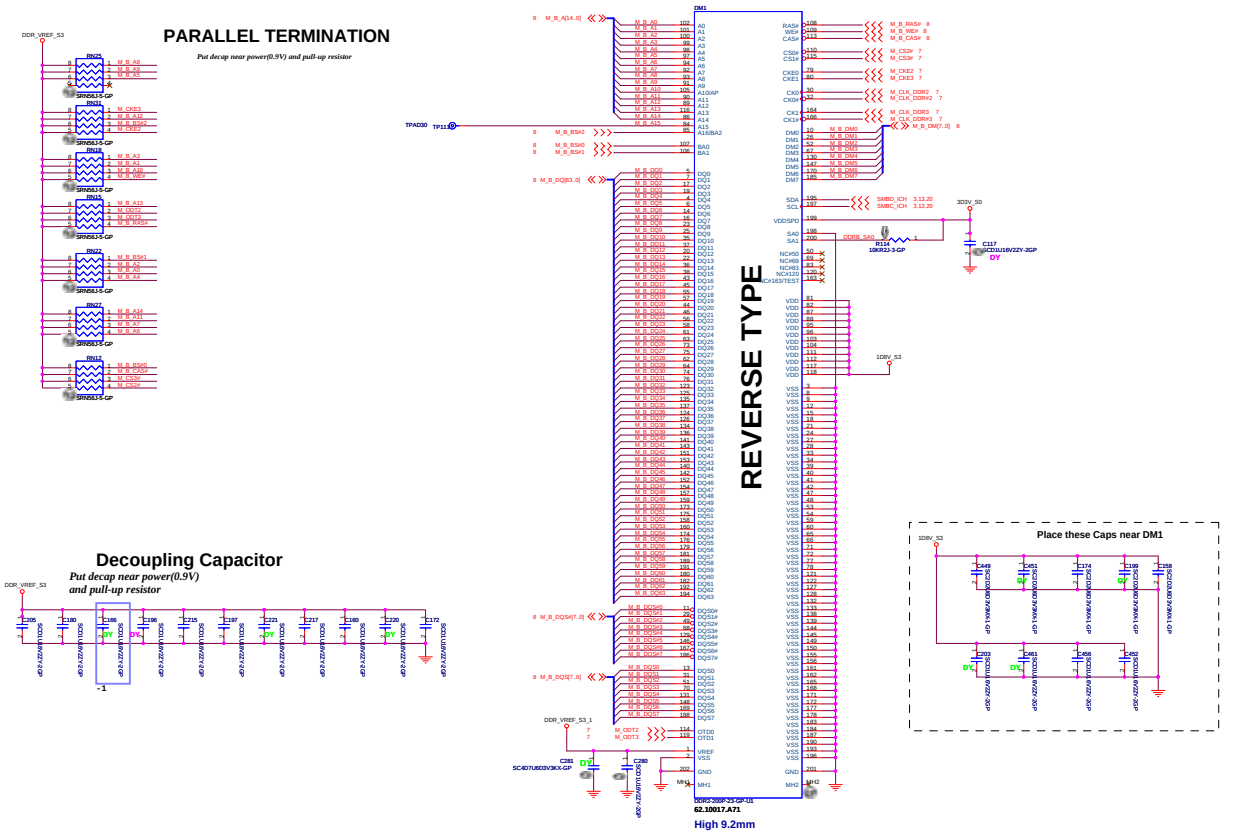

Wistron Corporation	Title: DDR2 Socket 0 (DM1)	
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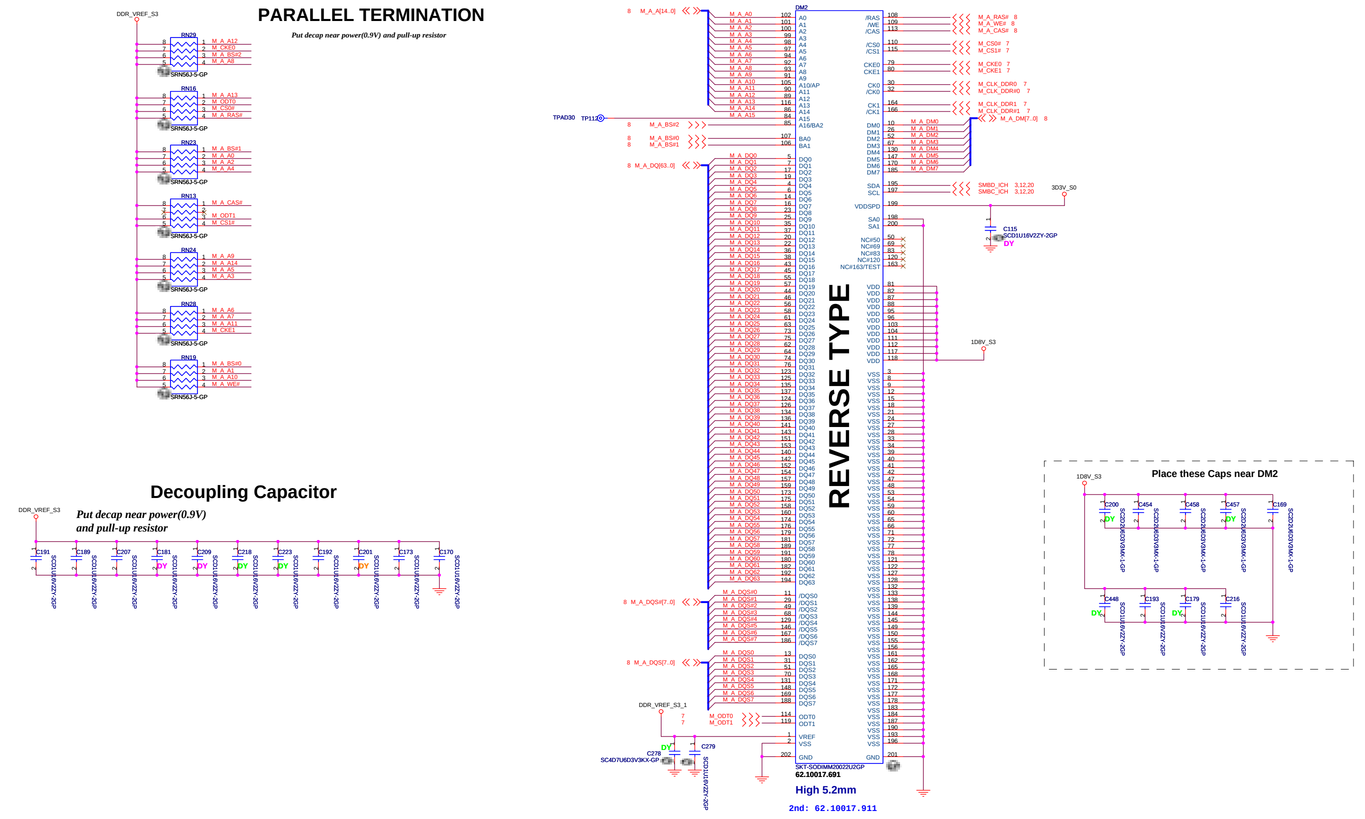

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Title	DDR2 Socket 1 (DM2)	
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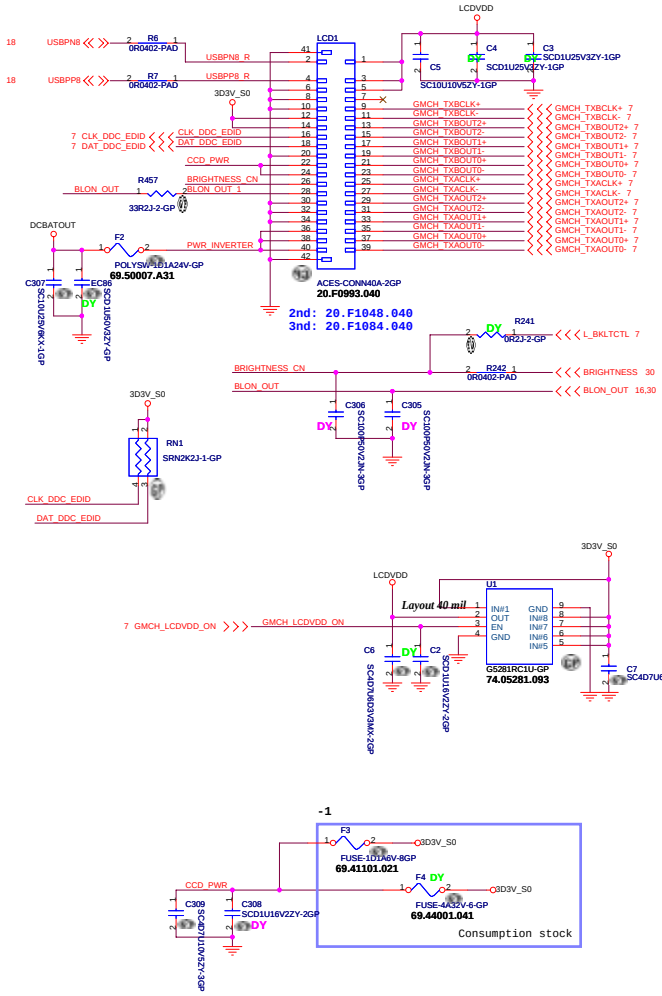
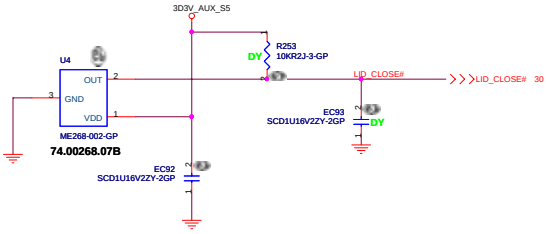
LCD/INVERTER/CCD CONN



Inverter Pin	
Pin	Symbol
1	Vin
2	Vin
3	Brightness
4	BLON
5	GND
6	GND

CCD Pin	
Pin	Symbol
1	CCD_PWR
2	USB-
3	USB+
4	GND
5	GND

Cover Up Switch

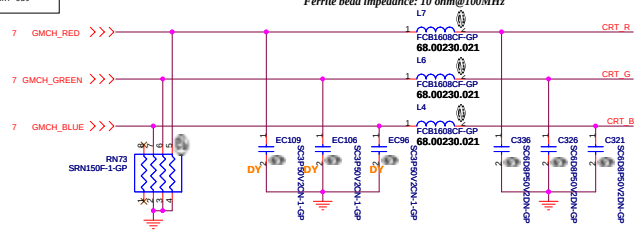


74.00268.A7B
74.00268.C7B

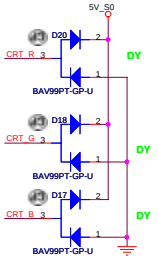
蜂創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.			
Title: LCD CONN			
Size	Document Number: Cathedral Peak II		Rev: SC
Date: Wednesday, July 16, 2008	Sheet 14 of 43		

Layout Note:
Place these resistors close to the CRT-out connector

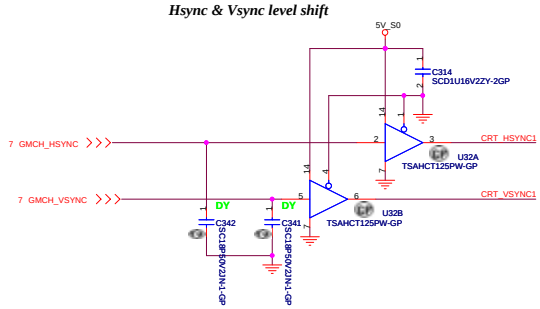
Ferrite bead impedance: 10 ohm@100MHz



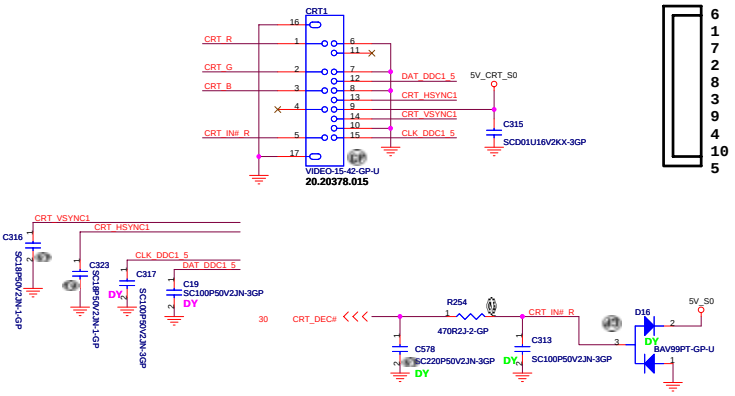
Layout Note:
**** Must be a ground return path between this ground and the ground on the VGA connector.***
Pi-filter & 150 Ohm pull-down resistors should be as close as to CRT CONN. RGB will hit 75 Ohm first, pi-filter, then CRT CONN.



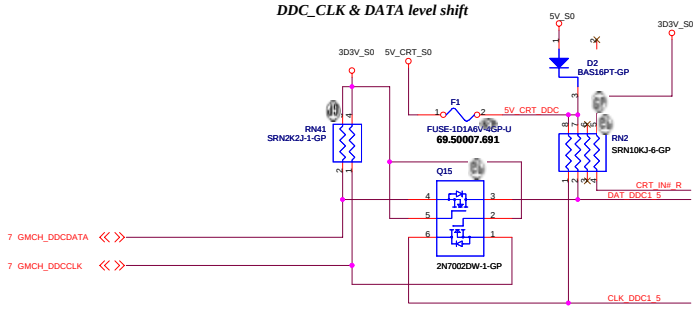
Hsync & Vsync level shift



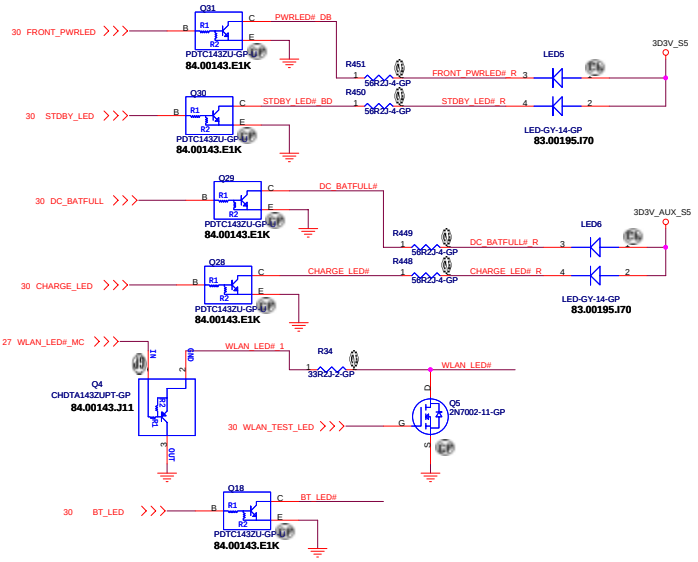
CRT I/F & CONNECTOR



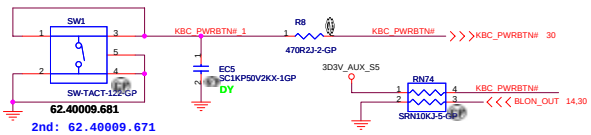
DDC_CLK & DATA level shift



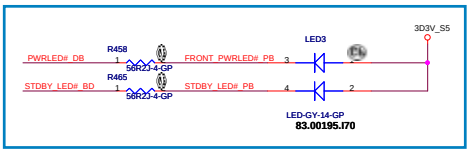
蜂創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	**CRT Connector**	
Size	Document Number: **Cathedral Peak II**	Rev: SC
Date: Wednesday, July 16, 2008	Sheet 15 of 43	



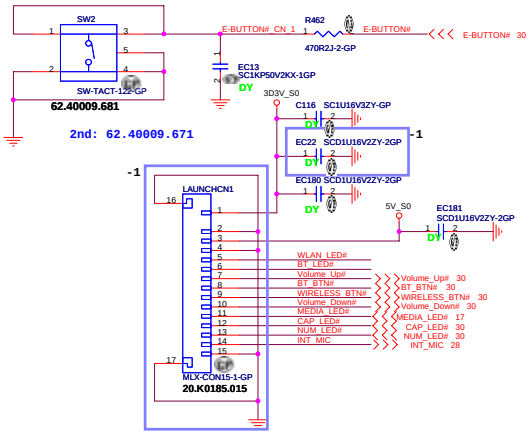
Power Button

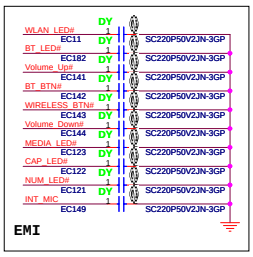


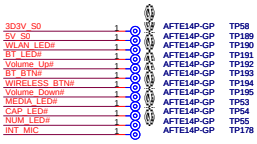
SB



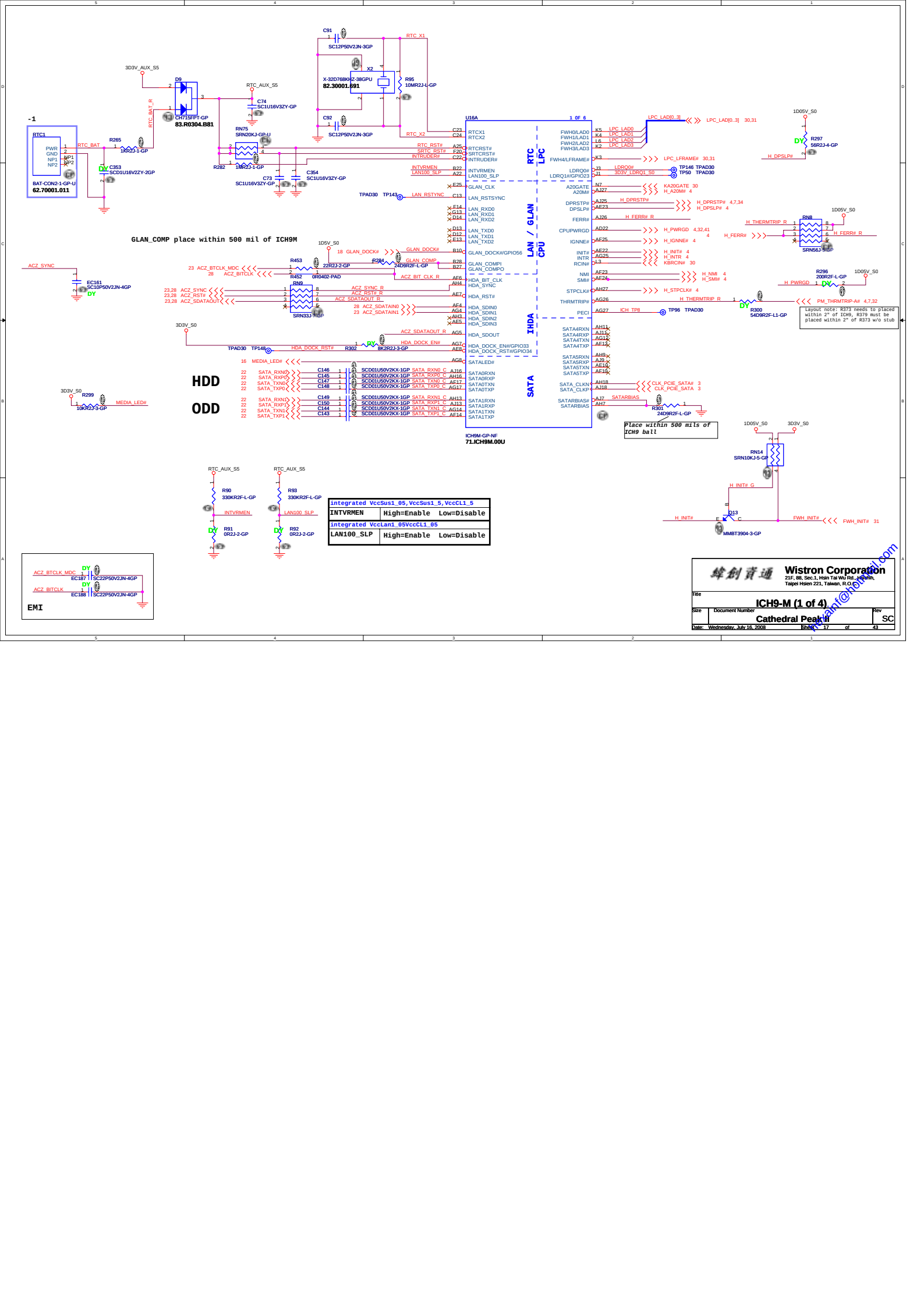
E Power Button

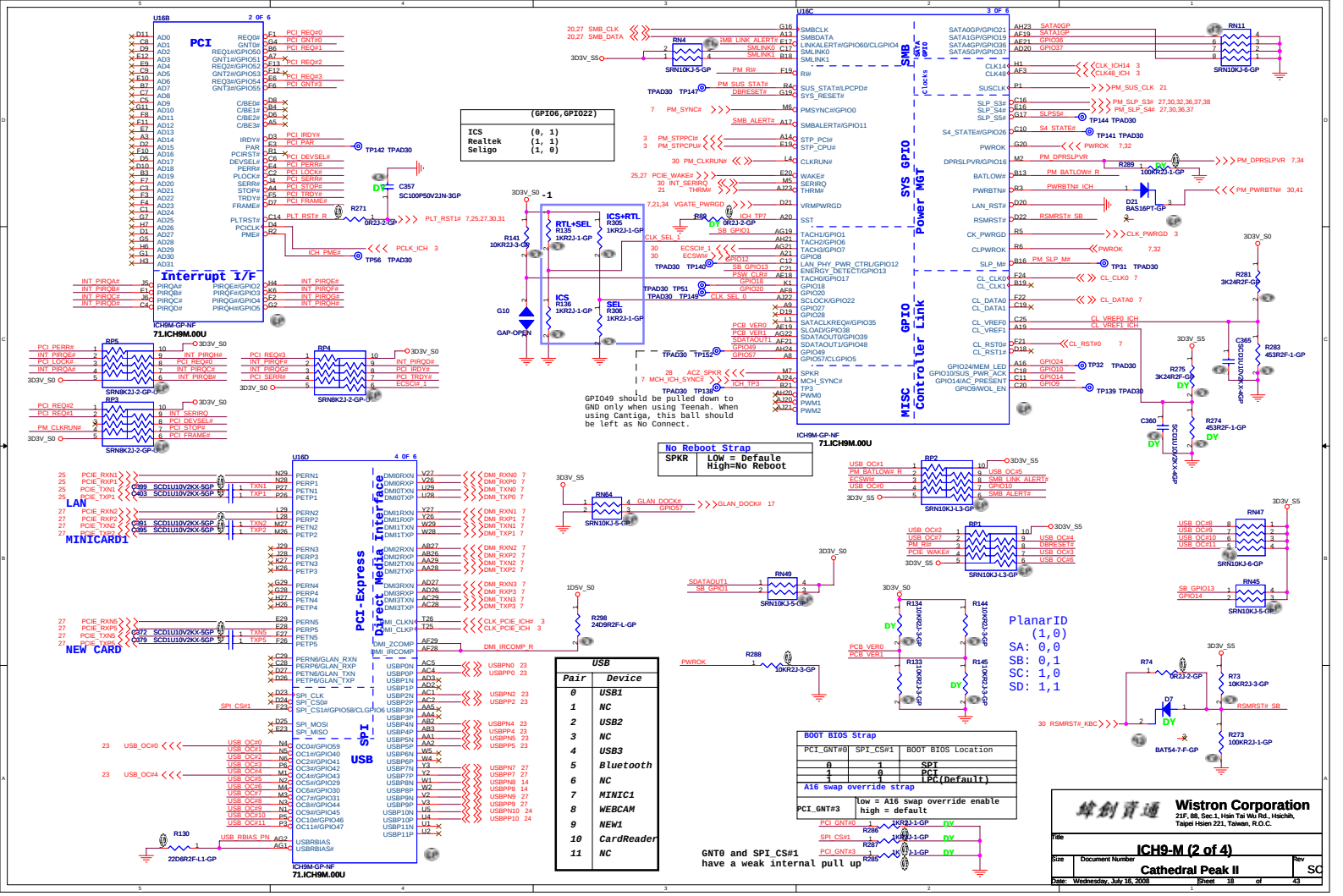


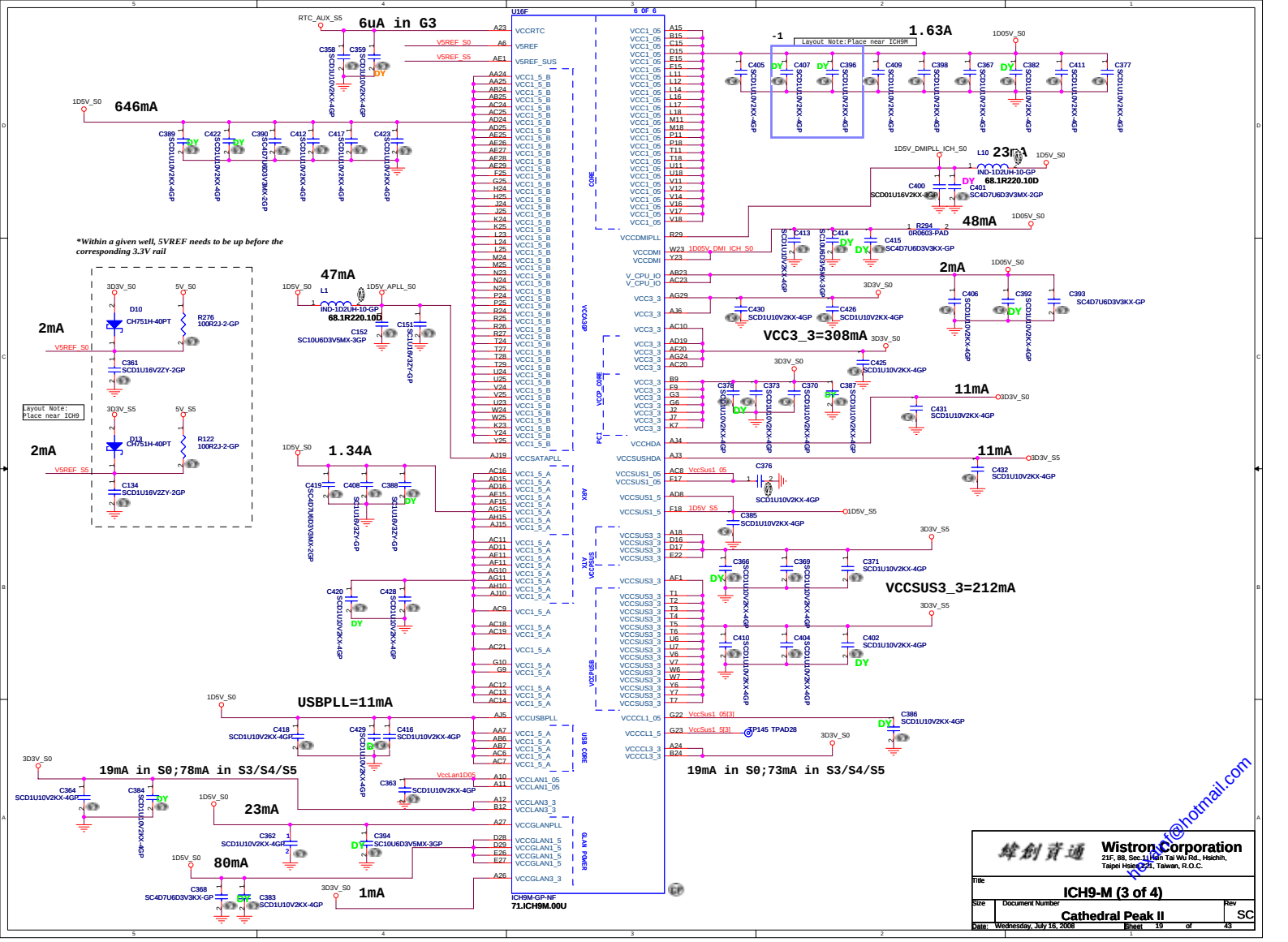


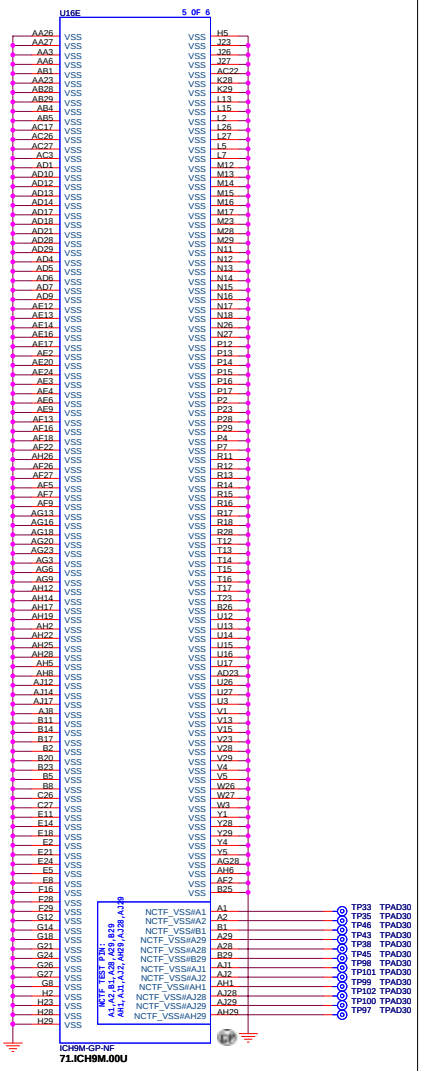


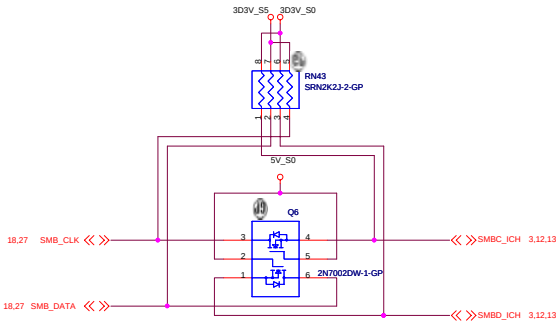
蜂創資通	Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	POWER /LAUNCH/LED BOARD	
Size	Document Number: Cathedral Peak II	Rev: SC
Date: Wednesday, July 16, 2008	Sheet 16 of 43	


GLAN_COMP place within 500 mil of ICH9M
HDD
ODD
EMI
U16A
ICH9M-GP-NF
71.ICH9M.00U
Place within 500 mils of ICH9 ball
Layout note: R373 needs to placed within 2" of ICH9, R379 must be placed within 2" of R373 w/o stub
integrated VccSus1_05,VccSus1_5,VccCL1_5
INTVRMEN High=Enable Low=Disable
integrated VccLan1_05VccCL1_05
LAN100_SLP High=Enable Low=Disable
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
ICH9-M (1 of 4)
Size
Document Number
Cathedral Peak-II
Rev
SC
Date: Wednesday, July 16, 2008
Sheet 17 of 43


U16B
2 OF 6
PCI
Interrupt I/F
ICH9M-GP-NF
71.ICH9M.00U
(GPIO6,GPIO22)
ICS (0, 1)
Realtek (1, 1)
Seligo (1, 0)
U16C
3 OF 6
SMB
SYS GPIO
Power MGT
GPIO
Controller Link
MISC
GAP-OPEN
RTL+SEL
SEL
ICS+RTL
ICS
GPIO49 should be pulled down to GND only when using Teenah. When using Cantiga, this ball should be left as No Connect.
No Reboot Strap
SPKR LOW = Defaule
High=No Reboot
U16D
4 OF 6
PCI-Express
Direct Media Interface
LAN
MINICARD1
NEW CARD
SPI
USB
USB
Pair Device
0 USB1
1 NC
2 USB2
3 NC
4 USB3
5 Bluetooth
6 NC
7 MINIC1
8 WEBCAM
9 NEW1
10 CardReader
11 NC
BOOT BIOS Strap
PCI_GNT#0 SPI_CS#1 BOOT BIOS Location
0 1 SPI
1 0 PCI
1 1 LPC(Default)
A16 swap override strap
PCI_GNT#3 low = A16 swap override enable
high = default
GNT0 and SPI_CS#1
have a weak internal pull up
PlanarID
(1,0)
SA: 0,0
SB: 0,1
SC: 1,0
SD: 1,1
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
ICH9-M (2 of 4)
Size
Document Number
Cathedral Peak II
Rev
SC
Date: Wednesday, July 16, 2008
Sheet 18 of 43

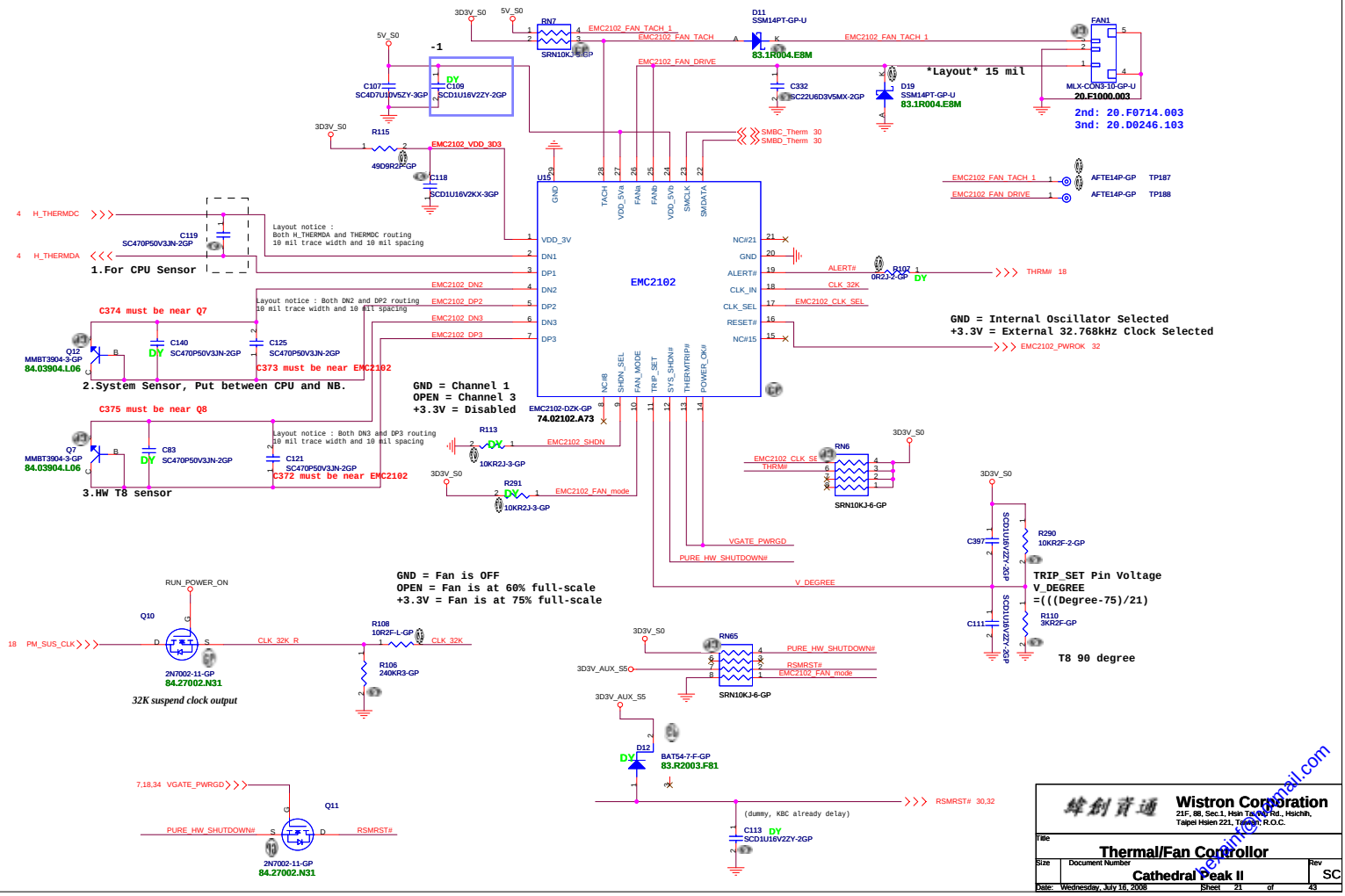

U16F
6 OF 6
ICH9M-GP-NF
71.ICH9M.00U
6uA in G3
646mA
1.63A
23mA
48mA
2mA
47mA
1.34A
11mA
11mA
2mA
VCC3_3=308mA
VCCSUS3_3=212mA
USBPLL=11mA
19mA in S0;78mA in S3/S4/S5
23mA
80mA
1mA
19mA in S0;73mA in S3/S4/S5
*Within a given well, 5VREF needs to be up before the corresponding 3.3V rail
Layout Note:Place near ICH9M
Layout Note: Place near ICH9
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
Title
ICH9-M (3 of 4)
Cathedral Peak II
Size
Document Number
Rev
SC
Date: Wednesday, July 16, 2008
Sheet 19 of 43





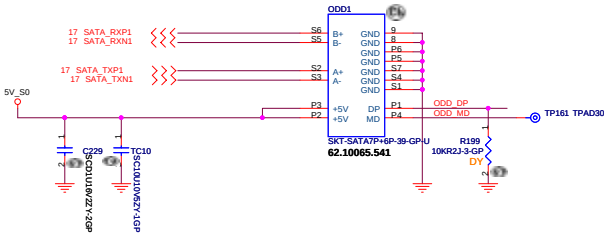
SMBUS

蜂創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title	**ICH9-M (4 of 4)**		
Size	Document Number **Cathedral Peak II**		Rev SC
Date: Wednesday, July 16, 2008		Sheet 20 of 43	

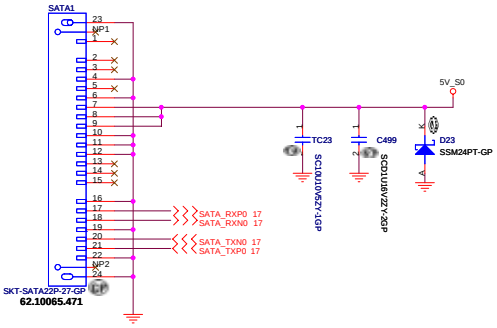


Wistron Corporation		
Title	Thermal/Fan Controllor	
Size	Document Number	Rev
	Cathedral Peak II	SC
Date: Wednesday, July 16, 2008	Sheet 21 of 43	

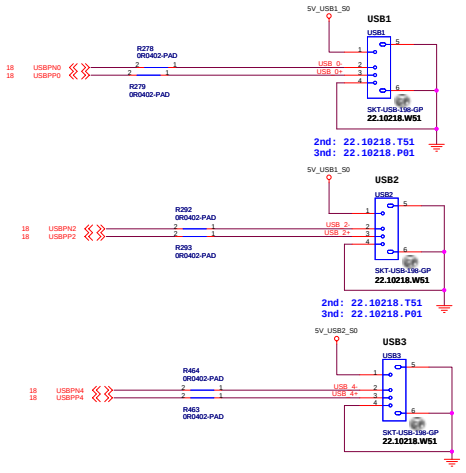
SATA ODD Connector

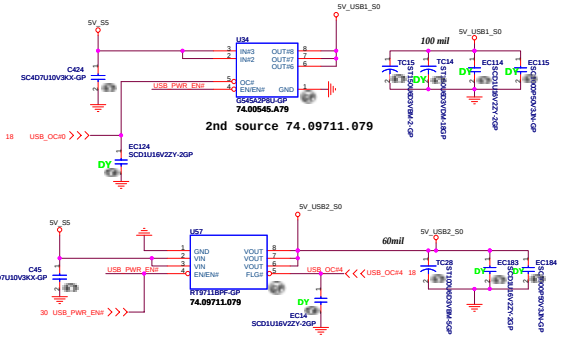


SATA Connector



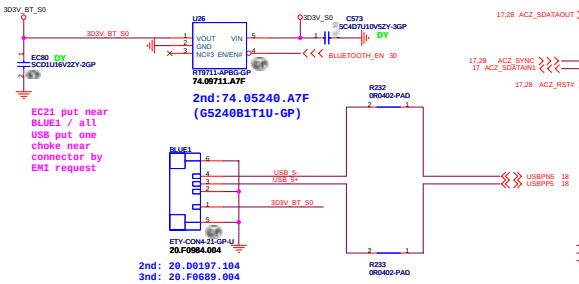
鋒創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	**HDD & CDROM**	
Size	Document Number: **Cathedral Peak II**	Rev: SC
Date: Wednesday, July 16, 2008	Sheet 22 of 43	



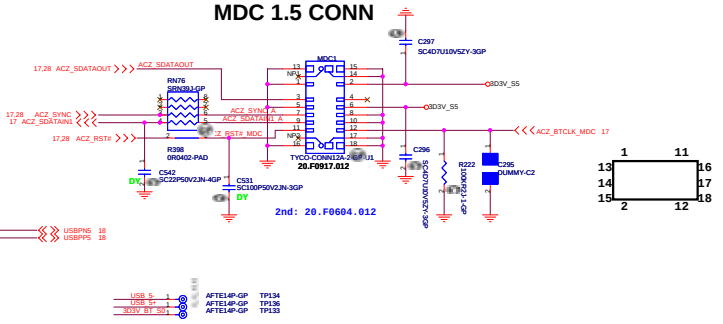


BLUETOOTH MODULE

1.5A / High Active Voltage 2V



MDC 1.5 CONN

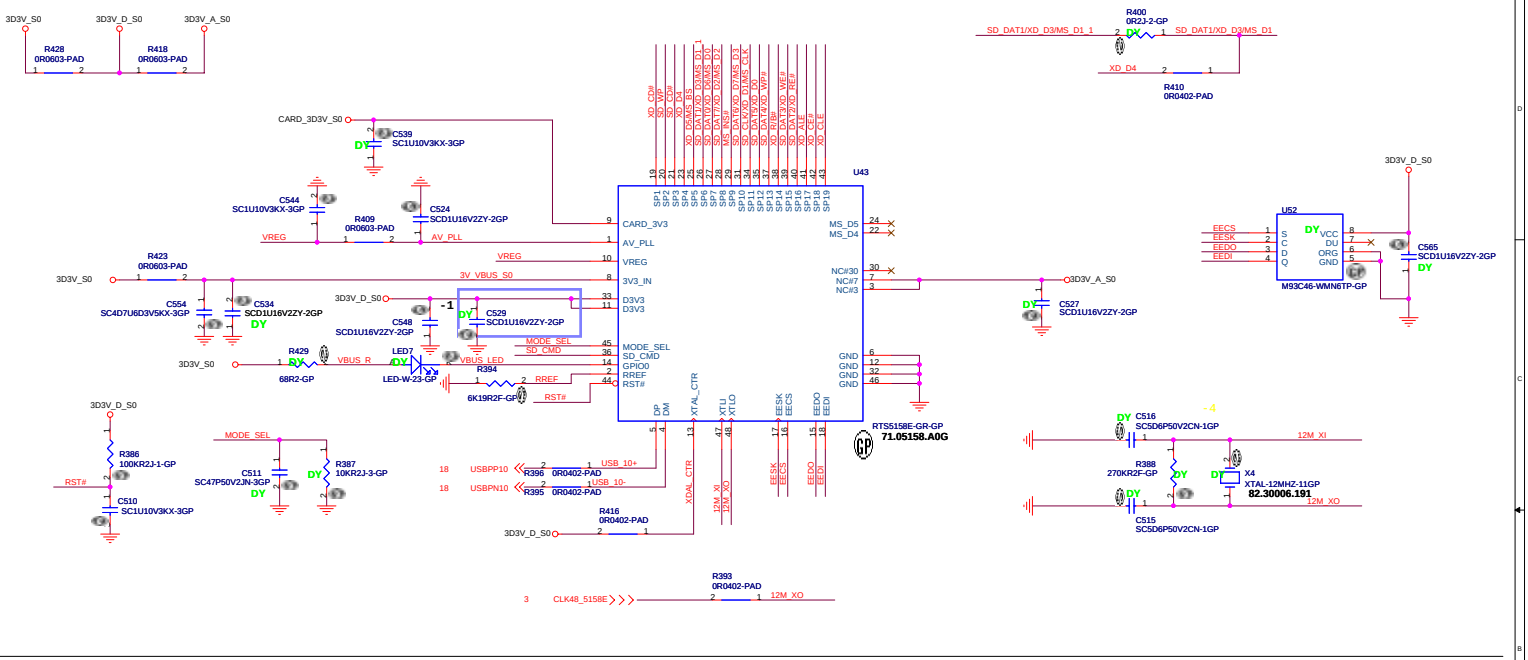


Wistron Corporation
21F, 88, Sec 1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

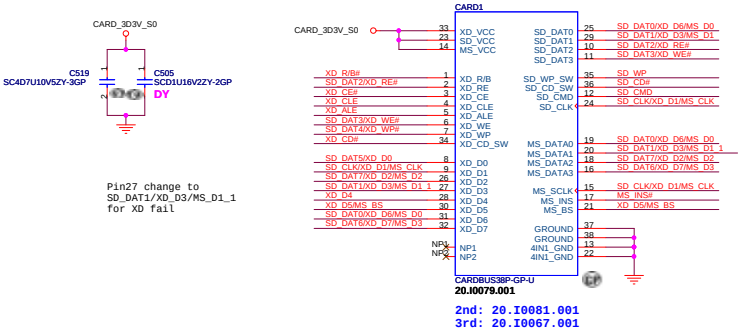
Title: USB/BLUETOOTH/MDC

Size: | Document Number: Cathedral Peak II | Rev: SC

Date: Wednesday, July 16, 2008 | Sheet 23 of 43

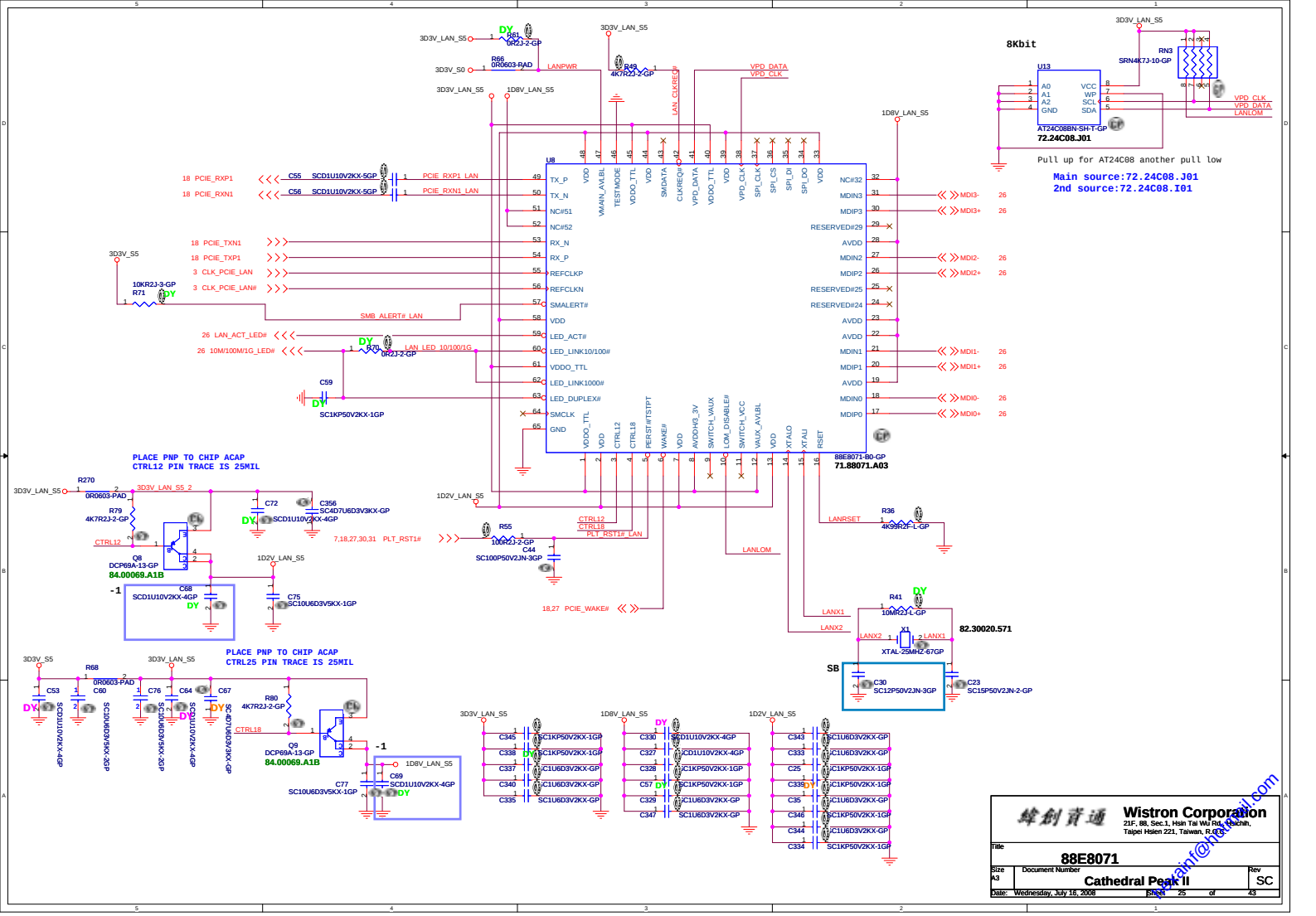


5 IN1 CARD-READER (SD/MMC/MS/MS PRO/XD)



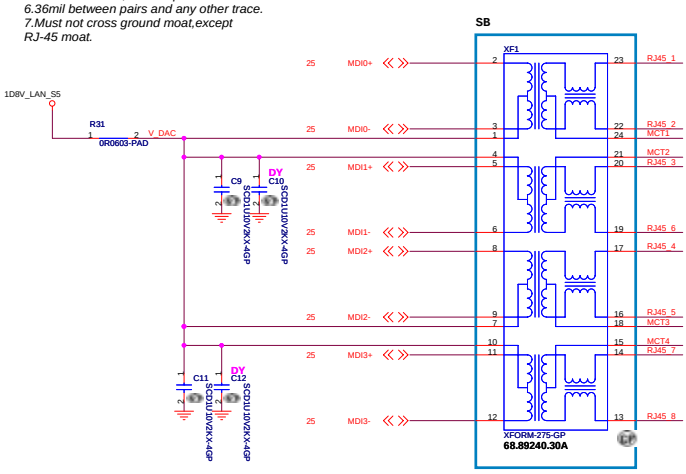
2nd: 20.I0081.001
3rd: 20.I0067.001

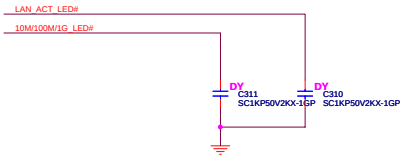
蜂創資通	Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	CARDREADER- RTS5158E	
Size	Document Number	Rev
	Cathedral Peak II	SC
Date: Wednesday, July 16, 2008	Sheet 24 of 43	


8Kbit
U13
AT24C08BN-SH-T-GP
72.24C08.J01
Pull up for AT24C08 another pull low
Main source:72.24C08.J01
2nd source:72.24C08.I01
U8
88E8071-B0-GP
71.88071.A03
PLACE PNP TO CHIP ACAP
CTRL12 PIN TRACE IS 25MIL
PLACE PNP TO CHIP ACAP
CTRL25 PIN TRACE IS 25MIL
82.30020.571
Wistron Corporation
21F., 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
88E8071
Cathedral Peak II
Wednesday, July 16, 2008

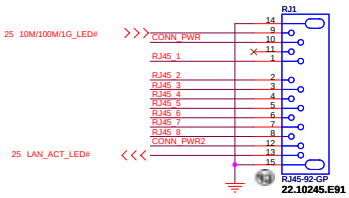
LAN Connector

1.route on bottom as differential pairs.
2.Tx+/Tx- are pairs. Rx+/Rx- are pairs.
3.No vias, No 90 degree bends.
4.pairs must be equal lengths.
5.6mil trace width,12mil separation.
6.36mil between pairs and any other trace.
7.Must not cross ground moat,except RJ-45 moat.





LAN Connector

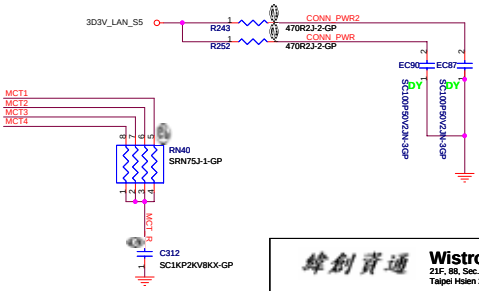


9:GREEN
13:Orange

LAN Link: Green(9), behavior is the same for 10/100/1000 bits

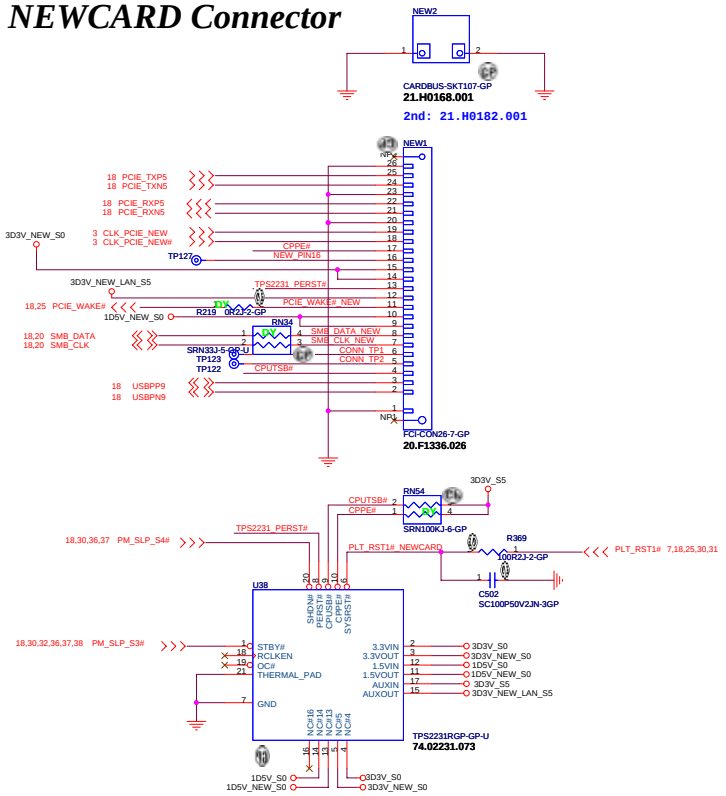
LAN Data: Yellow(13), when LAN is transfering data.

DOC_TIP,DOC_RING,TIP,RING:
W/S : 10/100 @ Surface layers
10/20 @ Inner layers

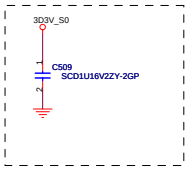


蜂創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	**LAN CONN**	
Size A3	Document Number **Cathedral Peak II**	Rev SC
Date: Wednesday, July 16, 2008	Sheet 26 of 43	

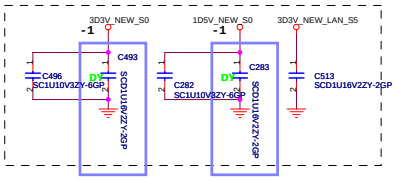
NEWCARD Connector



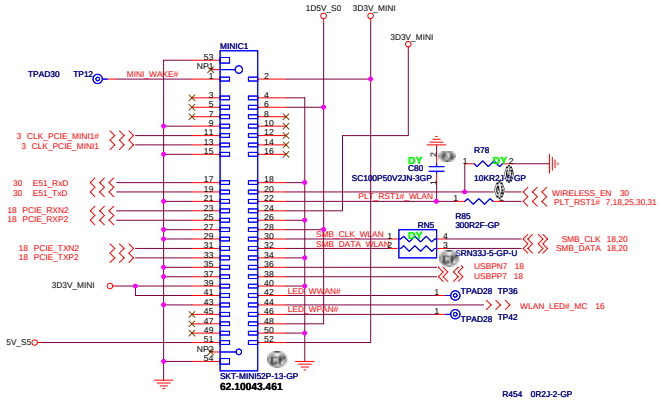
Place them Near to Chip



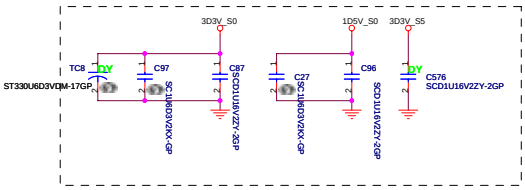
Place them Near to Connector



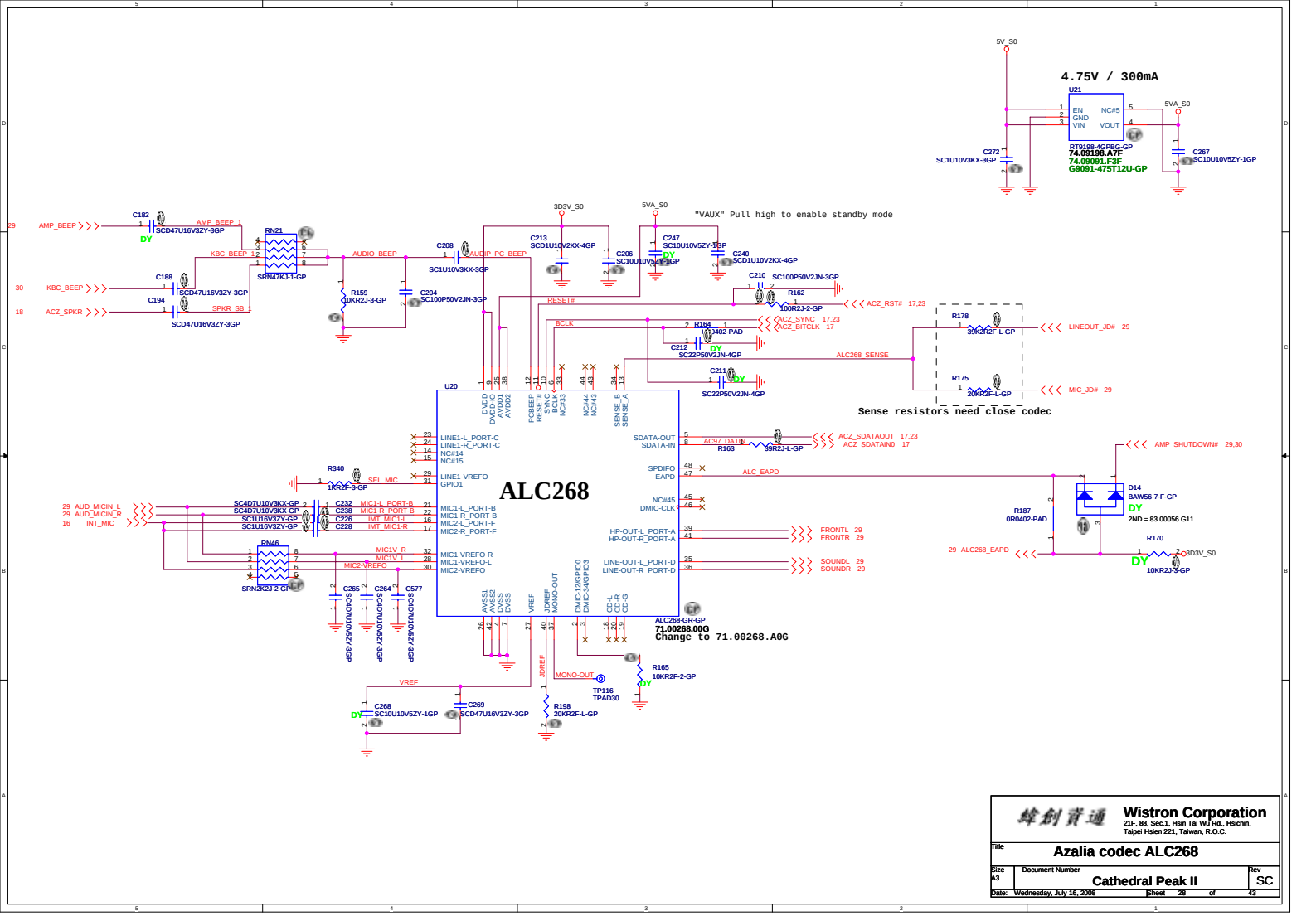
Mini Card Connector(WLAN)



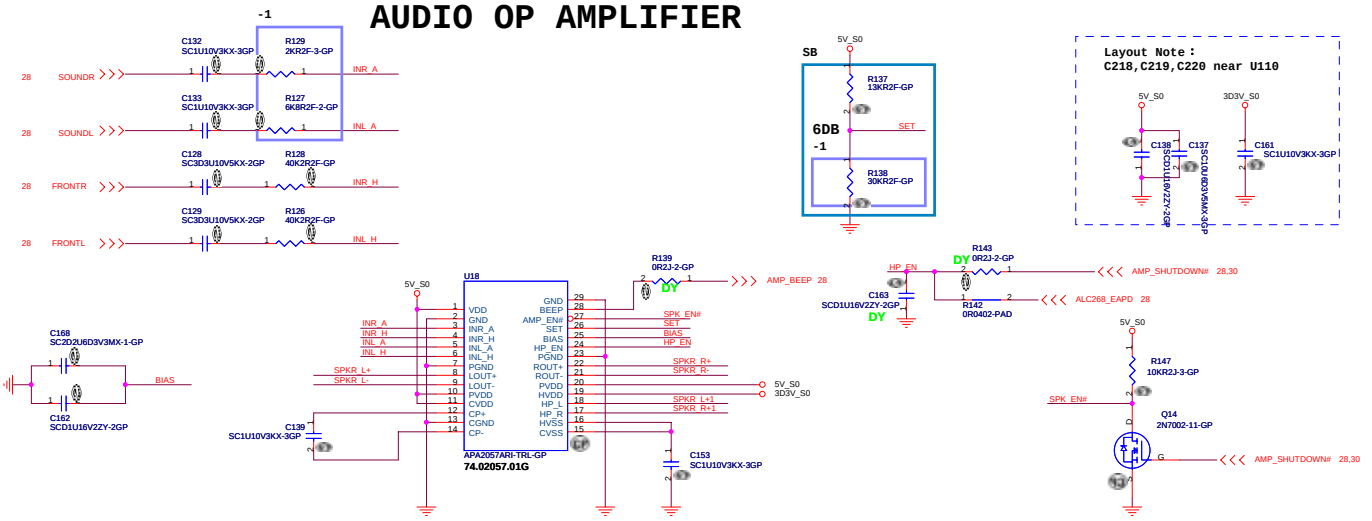
Place near MINIC1



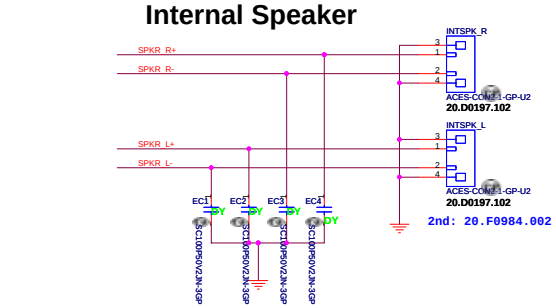
華創資通	Wistron Corporation 21F, 88, Sec 1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	NEW CARD/MINI CARD	
Size	Document Number: Cathedral Peak II	Rev: SC
Date: Wednesday, July 16, 2008	Sheet 27 of 43	

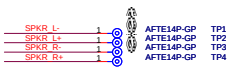

4.75V / 300mA
U21
RT9198-4GPBG-GP
74.09198.A7F
74.09091.F3F
G9091-475T12U-GP
"VAUX" Pull high to enable standby mode
ALC268
U20
ALC268-GR-GP
71.00268.00G
Change to 71.00268.A0G
Sense resistors need close codec
AMP_BEEP
KBC_BEEP
ACZ_SPKR
AUDIO_BEEP
AUDIO_PC_BEEP
RESET#
BCLK
ALC268_SENSE
SEL_MIC
AUD_MICIN_L
AUD_MICIN_R
INT_MIC
ACZ_RST# 17,23
ACZ_SYNC 17,23
ACZ_BITCLK 17
ACZ_SDATAOUT 17,23
ACZ_SDATAIN0 17
LINEOUT_JD# 29
MIC_JD# 29
AMP_SHUTDOWN# 29,30
FRONTL 29
FRONTR 29
SOUNDL 29
SOUNDR 29
ALC_EAPD
MONO-OUT
TP116
TPAD30
Wistron Corporation
21F, 88, Sec 1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Azalia codec ALC268
Cathedral Peak II
Wednesday, July 16, 2008

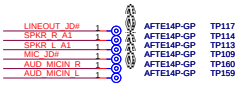
AUDIO OP AMPLIFIER



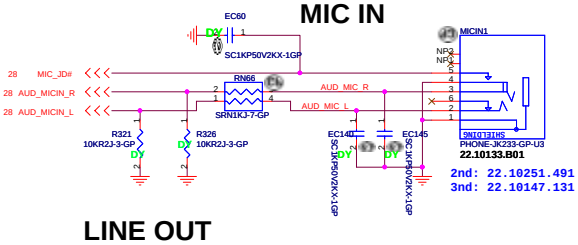
Internal Speaker



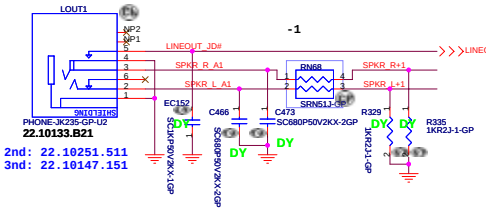




MIC IN



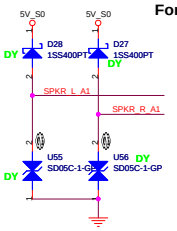
LINE OUT



Analog Int. Mic

remove to LED Board

For ESD



Title: AUDIO AMP AND JACK

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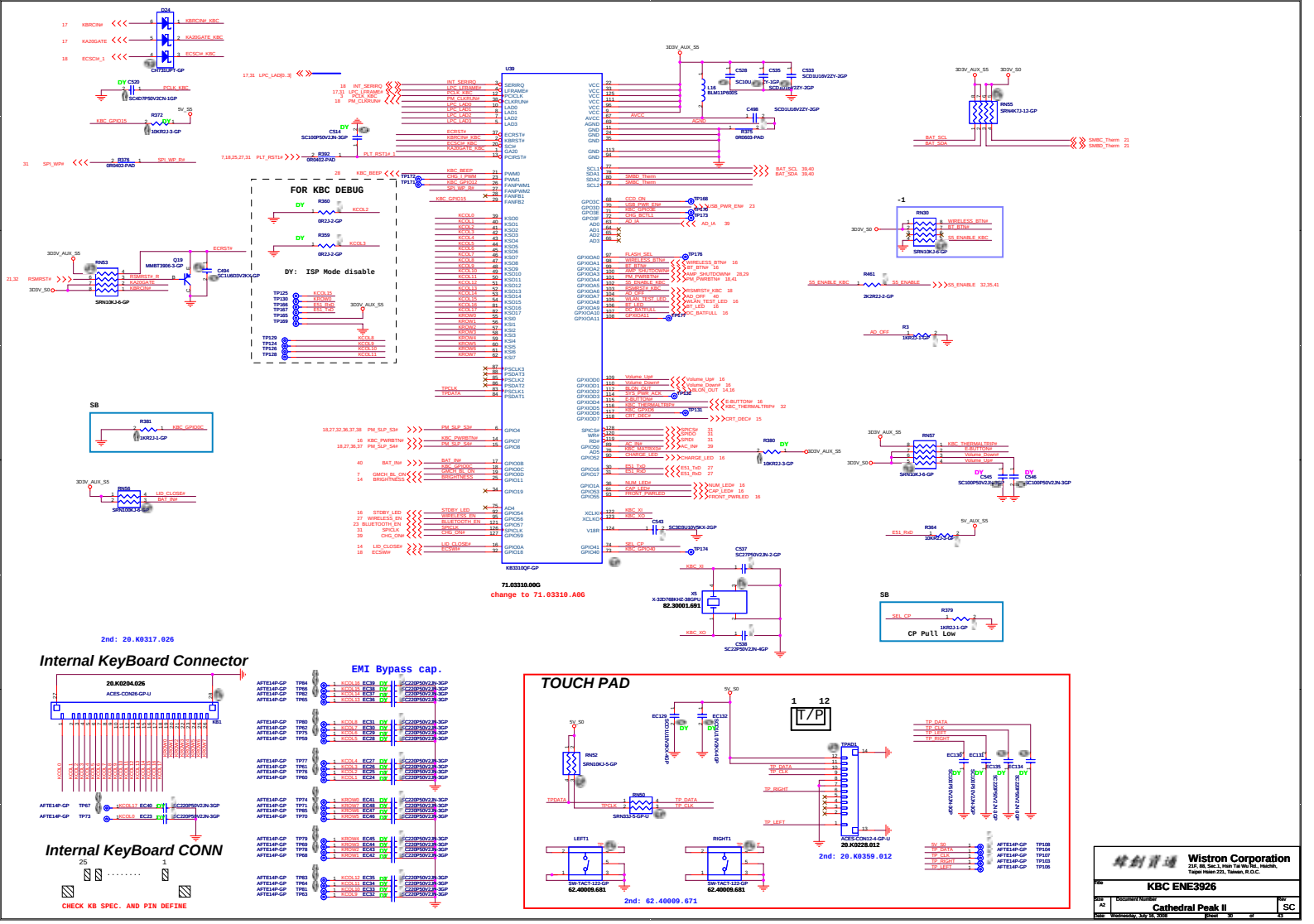

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Title	KBC ENE3926		
Size	Document Number		Rev
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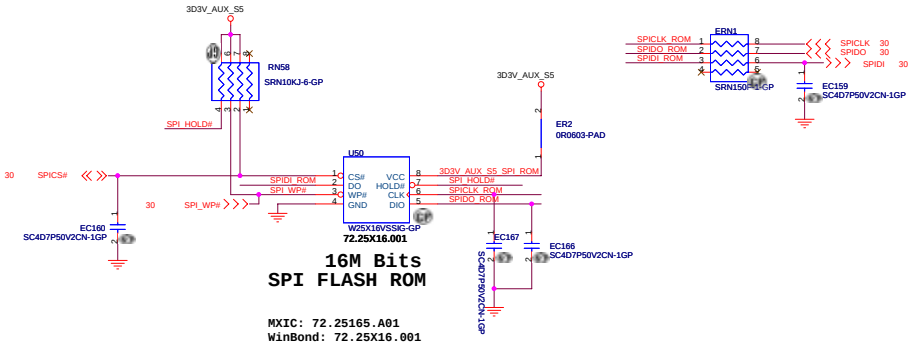


16M Bits
SPI FLASH ROM

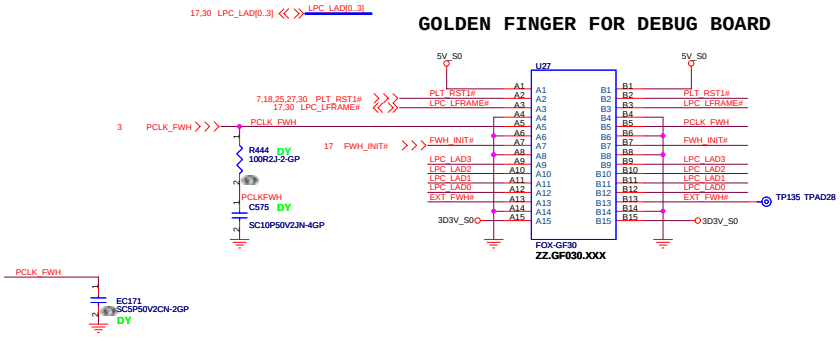
MXIC: 72.25165.A01
WinBond: 72.25X16.001

TOP VIEW

A15	(B1)
A14	(B2)
⋮	⋮
A2	(B14)
A1	(B15)

(BOTTOM VIEW)

GOLDEN FINGER FOR DEBUG BOARD



Title	BIOS/GOLDEN FINGER	
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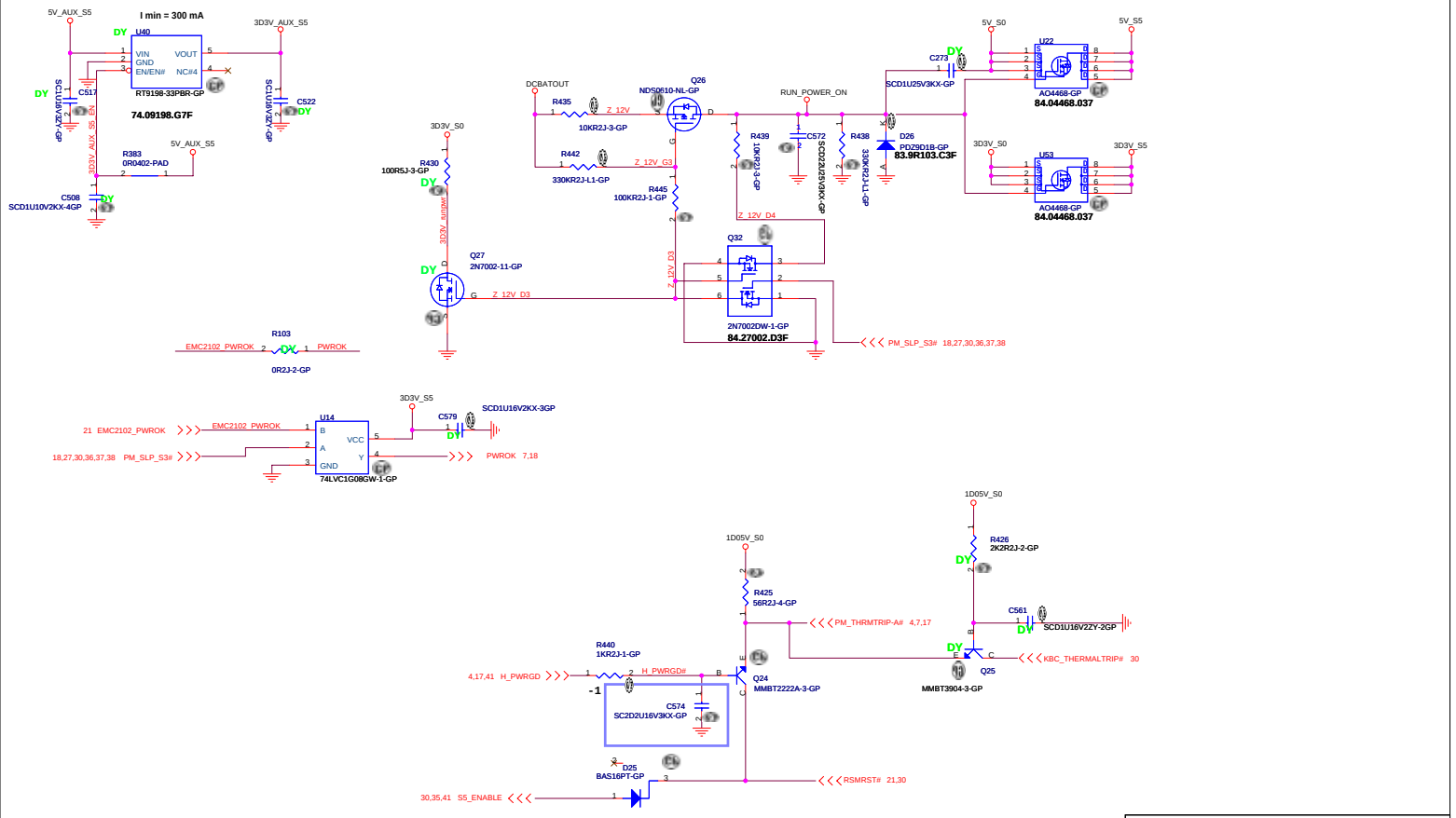
Aux Power 3D3V_AUX_S5

Run Power



緯創資通	Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	RUN POWER and 3D3V_AUX_S5	
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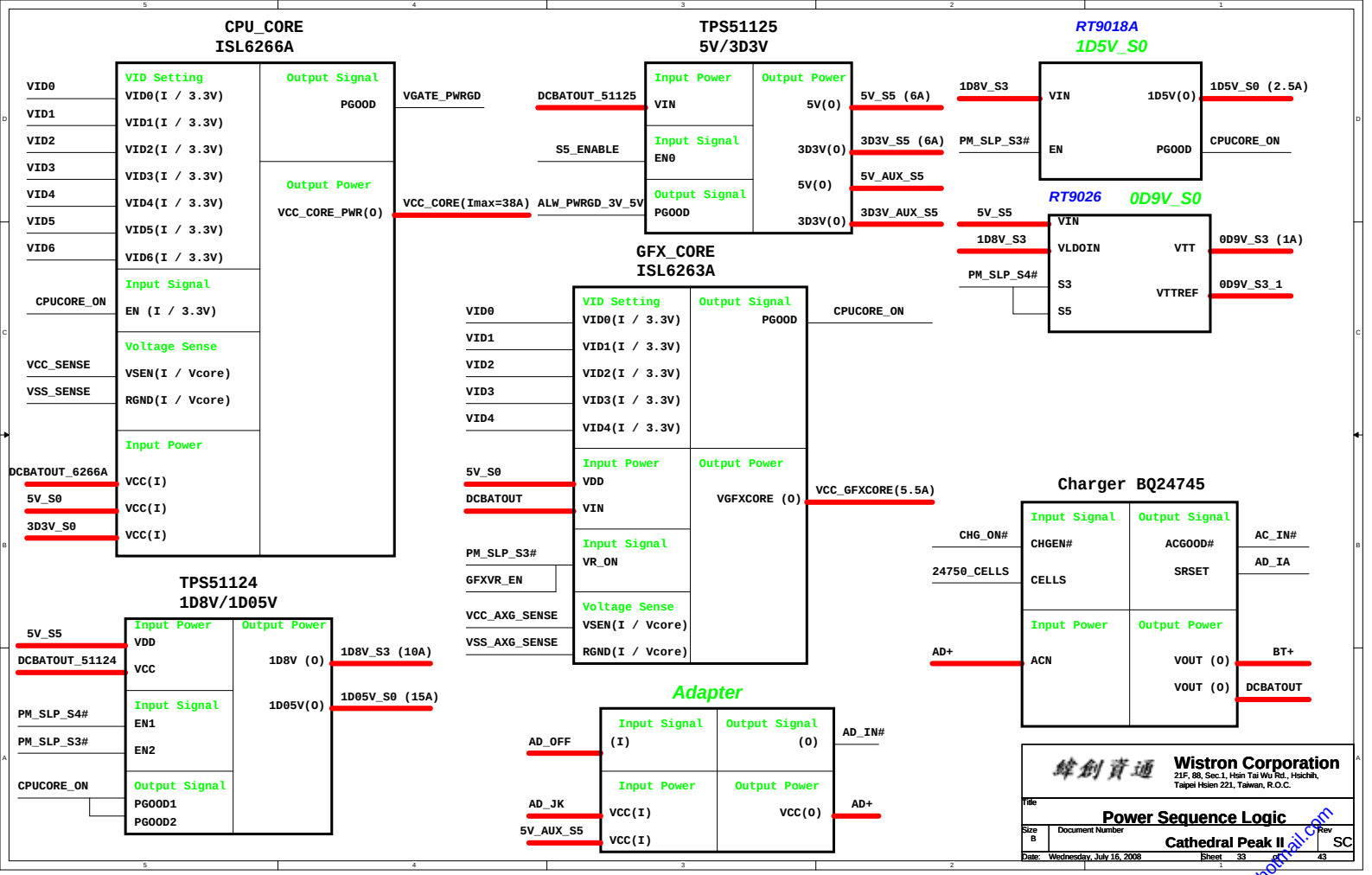

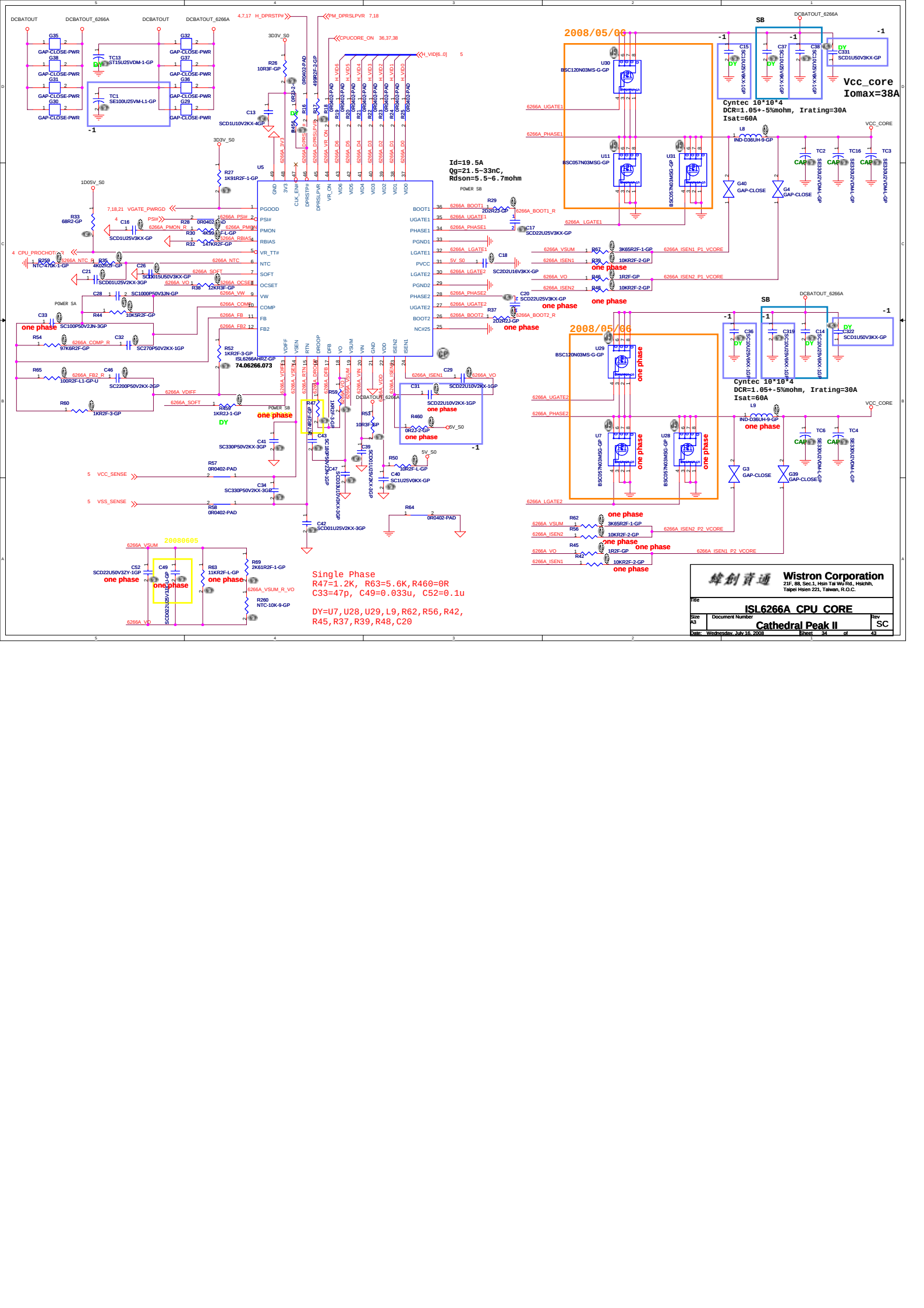
2008/05/06
Vcc_core
Iomax=38A
Cyntec 10*10*4
DCR=1.05+-5%mohm, Irating=30A
Isat=60A
Id=19.5A
Qg=21.5~33nC,
Rdson=5.5~6.7mohm
Single Phase
R47=1.2K, R63=5.6K,R460=0R
C33=47p, C49=0.033u, C52=0.1u
DY=U7,U28,U29,L9,R62,R56,R42,
R45,R37,R39,R48,C20
Wistron Corporation
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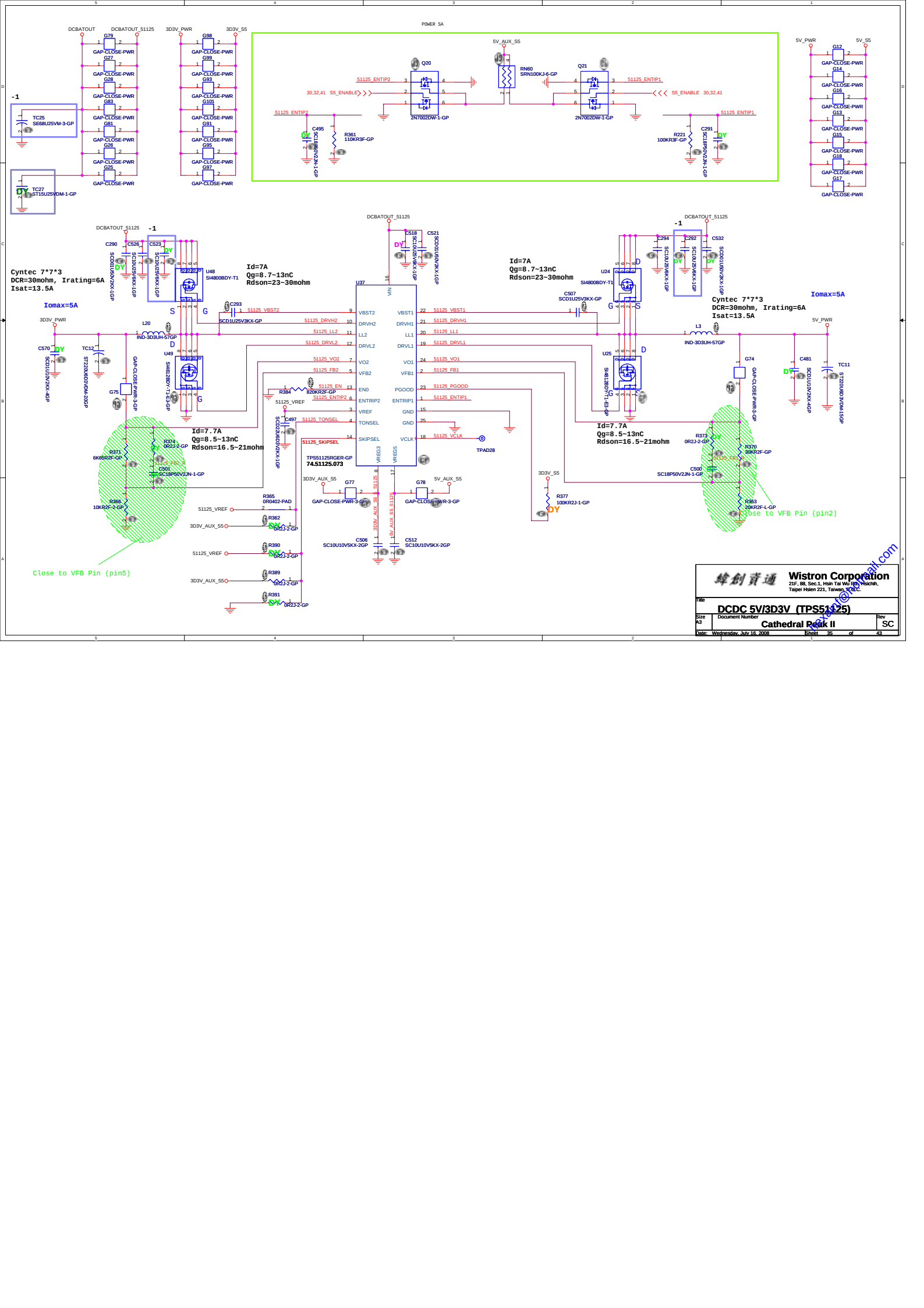
Taipei Hsien 221, Taiwan, R.O.C.
ISL6266A_CPU_CORE
Cathedral Peak II
Wednesday, July 16, 2008


POWER SA
DCBATOUT
DCBATOUT_51125
3D3V_PWR
3D3V_S5
5V_AUX_S5
5V_PWR
5V_S5
Q20
Q21
2N7002DW-1-GP
RN60
SRN100KJ-6-GP
51125_ENTIP2
51125_ENTIP1
30,32,41 S5_ENABLE
S5_ENABLE 30,32,41
C495
R361
110KR3F-GP
R221
100KR3F-GP
C291
TC25
SE68U25VM-3-GP
TC27
ST15U25VDM-1-GP
GAP-CLOSE-PWR
Cyntec 7*7*3
DCR=30mohm, Irating=6A
Isat=13.5A
Iomax=5A
Id=7A
Qg=8.7~13nC
Rdson=23~30mohm
U48
SI4800BDY-T1
U49
SI4812BDY-T1-E3-GP
U24
U25
C293
SCD1U25V3KX-GP
C507
SCD1U25V3KX-GP
L20
IND-3D3UH-57GP
L3
C570
C12
C481
TC11
ST220UBD3VDM-15GP
G74
G75
U37
TPS51125RGER-GP
74.51125.073
VBST2
DRVH2
LL2
DRVL2
VO2
VFB2
EN0
ENTRIP2
VREF
TONSEL
SKIPSEL
VIN
VBST1
DRVH1
LL1
DRVL1
VO1
VFB1
PGOOD
ENTRIP1
GND
VCLK
VREG3
VREG5
51125_VBST2
51125_DRVH2
51125_LL2
51125_DRVL2
51125_VO2
51125_FB2
51125_EN
51125_ENTIP2
51125_TONSEL
51125_SKIPSEL
51125_VBST1
51125_DRVH1
51125_LL1
51125_DRVL1
51125_VO1
51125_FB1
51125_PGOOD
51125_ENTIP1
51125_VCLK
TPAD28
R384
820KR2F-GP
51125_VREF
C497
SCD22U10V2KX-1GP
R371
6K65R2F-GP
R374
0R2J-2-GP
C501
SC18P50V2JN-1-GP
R386
10KR2F-2-GP
Id=7.7A
Qg=8.5~13nC
Rdson=16.5~21mohm
Close to VFB Pin (pin5)
R373
0R2J-2-GP
R370
30KR2F-GP
C500
SC18P50V2JN-1-GP
R363
20KR2F-L-GP
Close to VFB Pin (pin2)
R365
0R0402-PAD
R362
R390
R389
R391
3D3V_AUX_S5
G77
G78
GAP-CLOSE-PWR-3-GP
C506
SC10U10V5KX-2GP
C512
SC10U10V5KX-2GP
R377
100KR2J-1-GP
C518
C521
C294
C292
C532
SCD1U25V6KX-1GP
SCD1U06V2KX-1GP
SCD1U10V2KX-4GP
Wistron Corporation
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DCDC 5V/3D3V (TPS51125)
Cathedral Peak II
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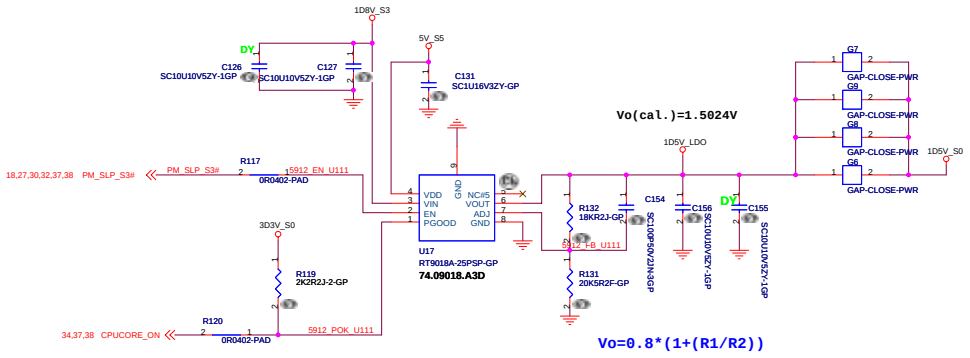
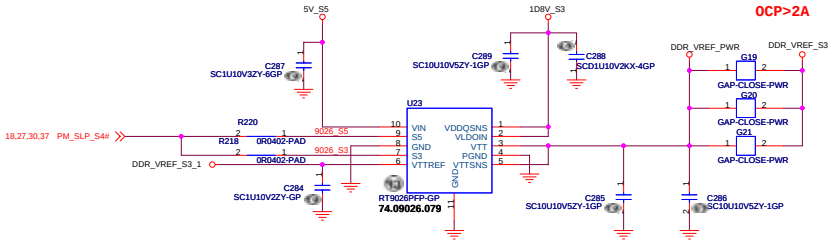
1D5V_S0
Iomax=2.5A



Iomax=1A
OCP>2A



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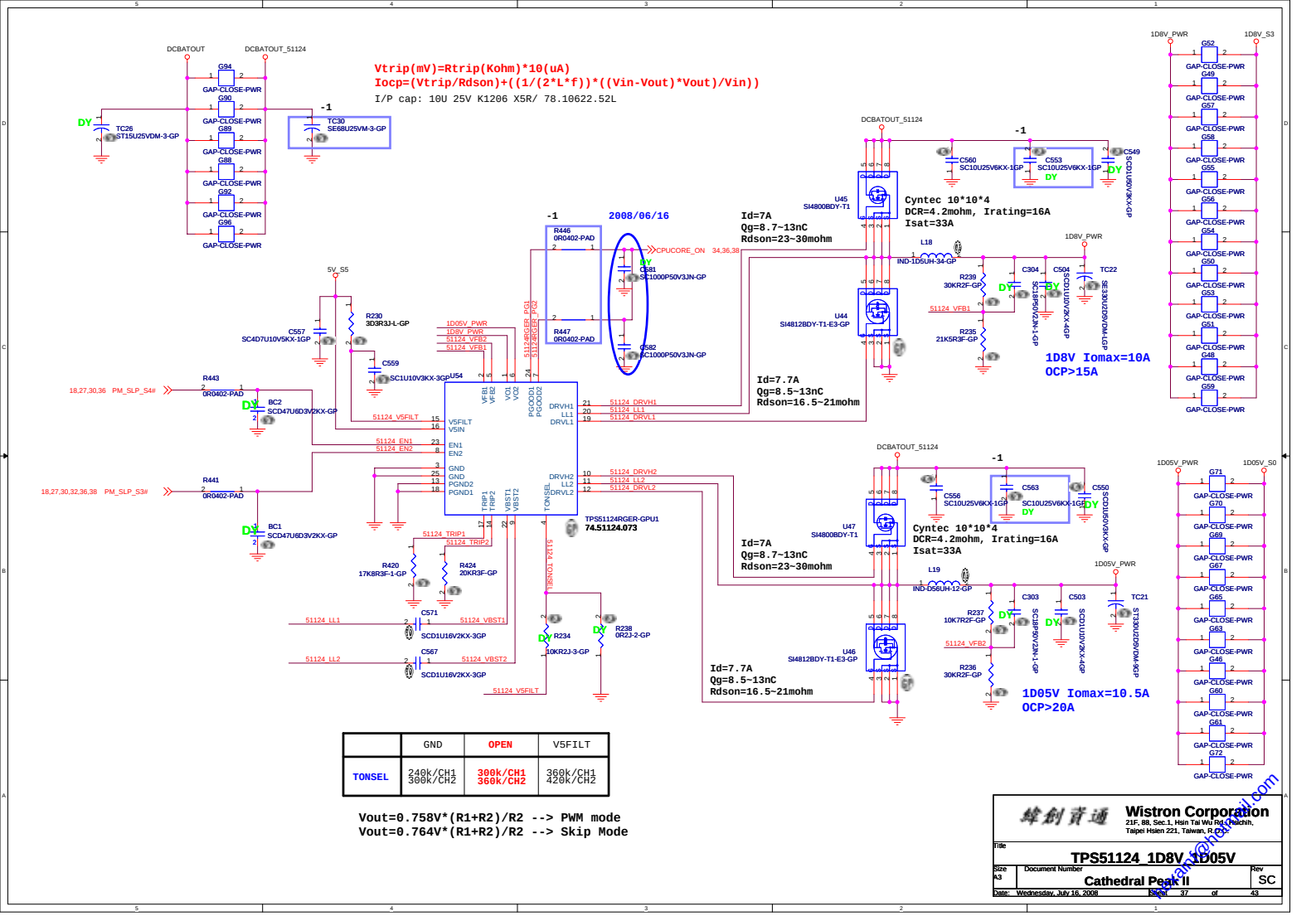
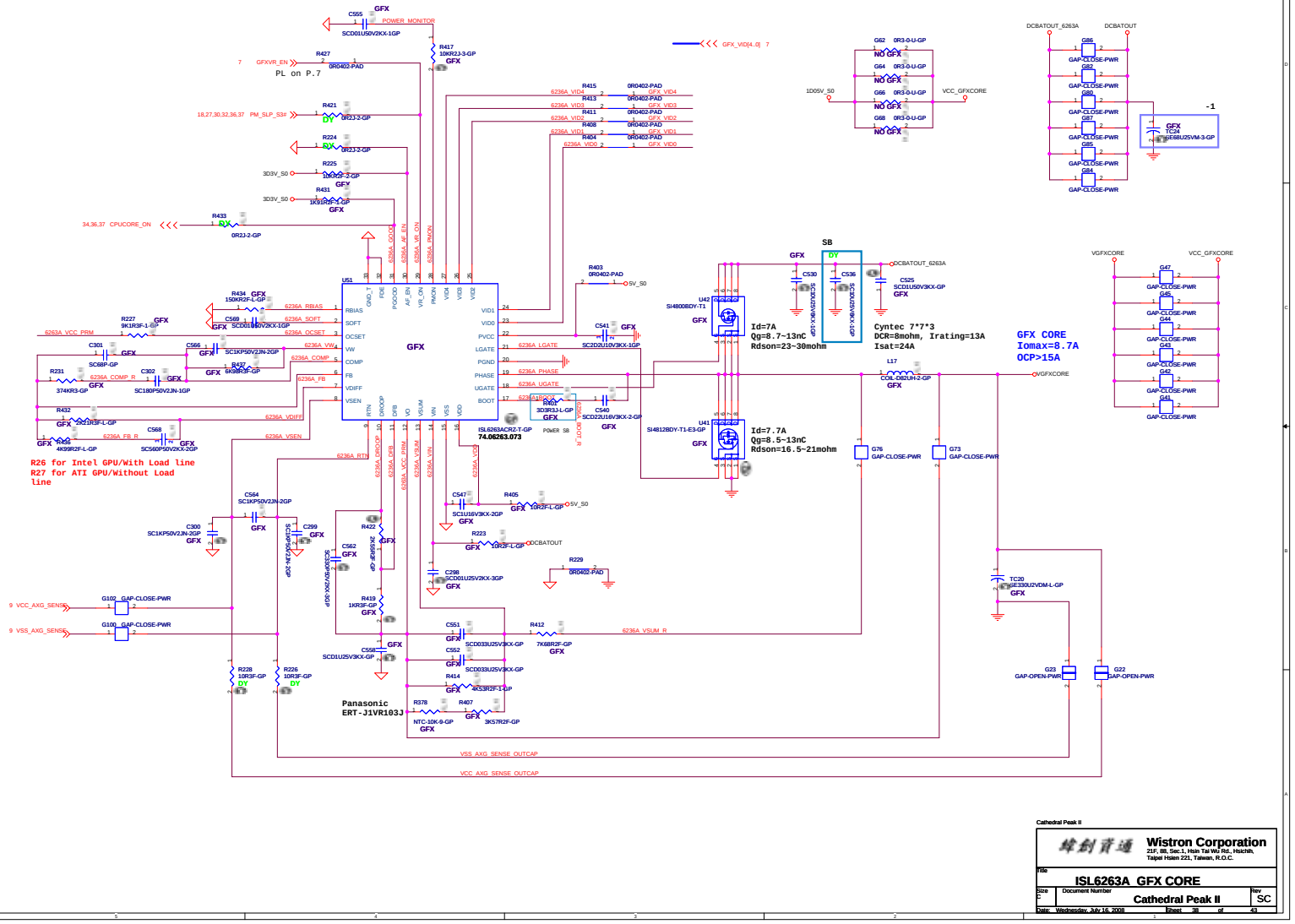
Title: 1D5V & 0D9V

Size: A3 | Document Number: Cathedral Peak II | Rev: SC

Date: Wednesday, July 16, 2008 | Sheet 36 of 43



	GND	OPEN	V5FILT
TONSEL	240k/CH1 300k/CH2	300k/CH1 360k/CH2	360k/CH1 420k/CH2



Cathedral Peak II

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

Title: **ISL6263A GFX CORE**

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C	Cathedral Peak II	SC

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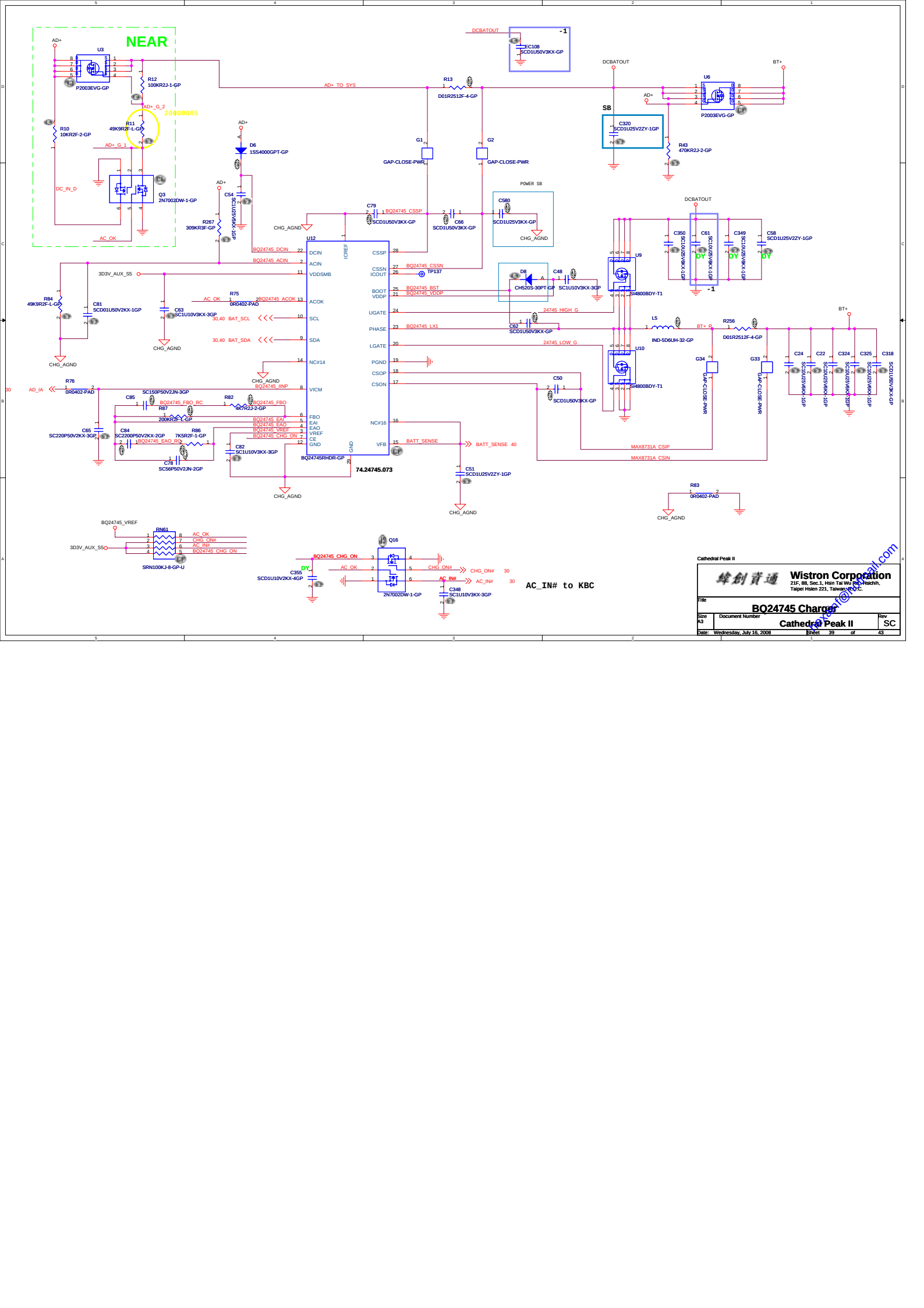

Cathedral Peak II

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

Title: **BQ24745 Charger**

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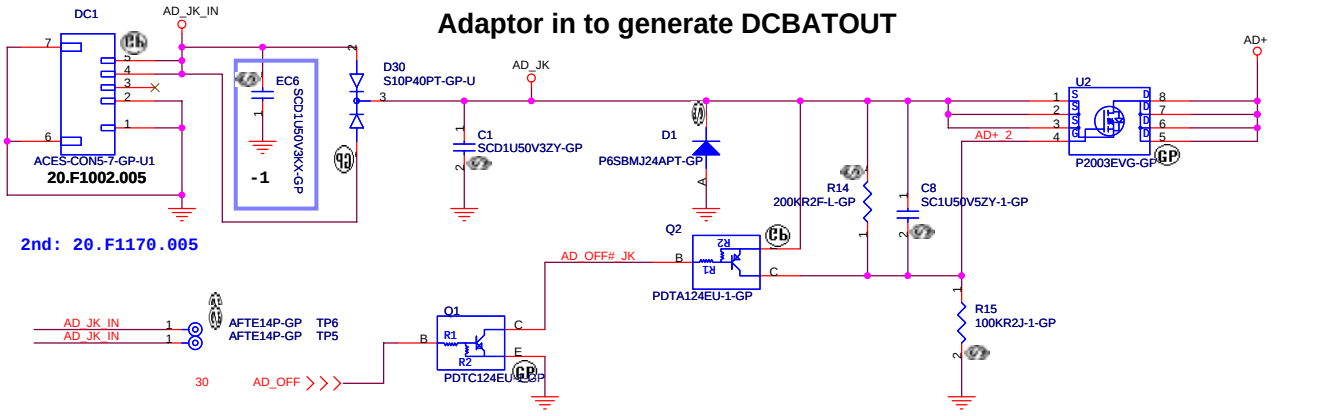

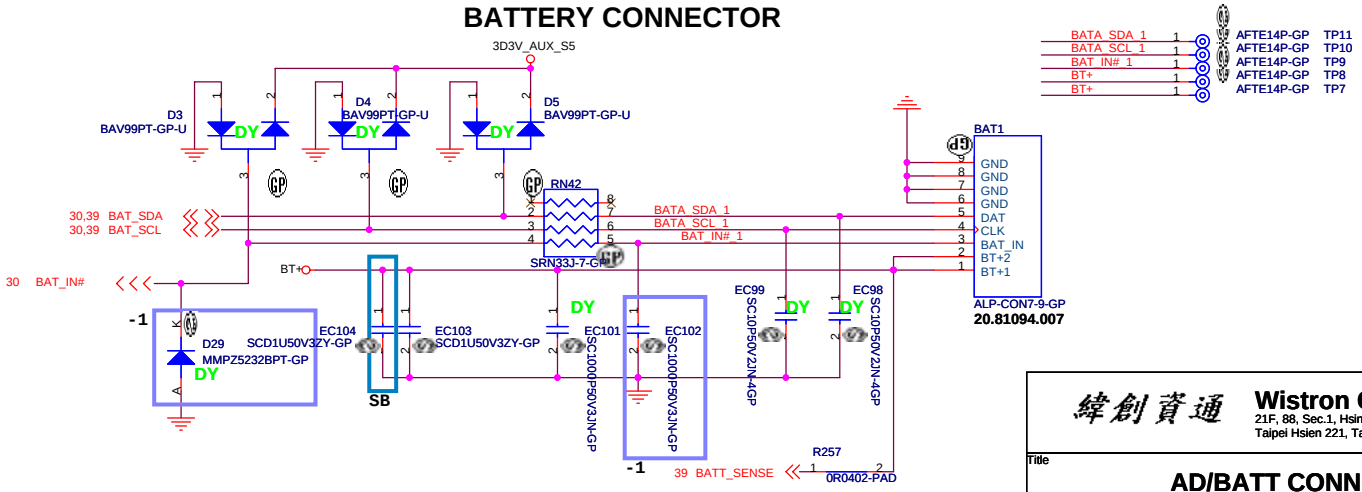

緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	**AD/BATT CONN**	
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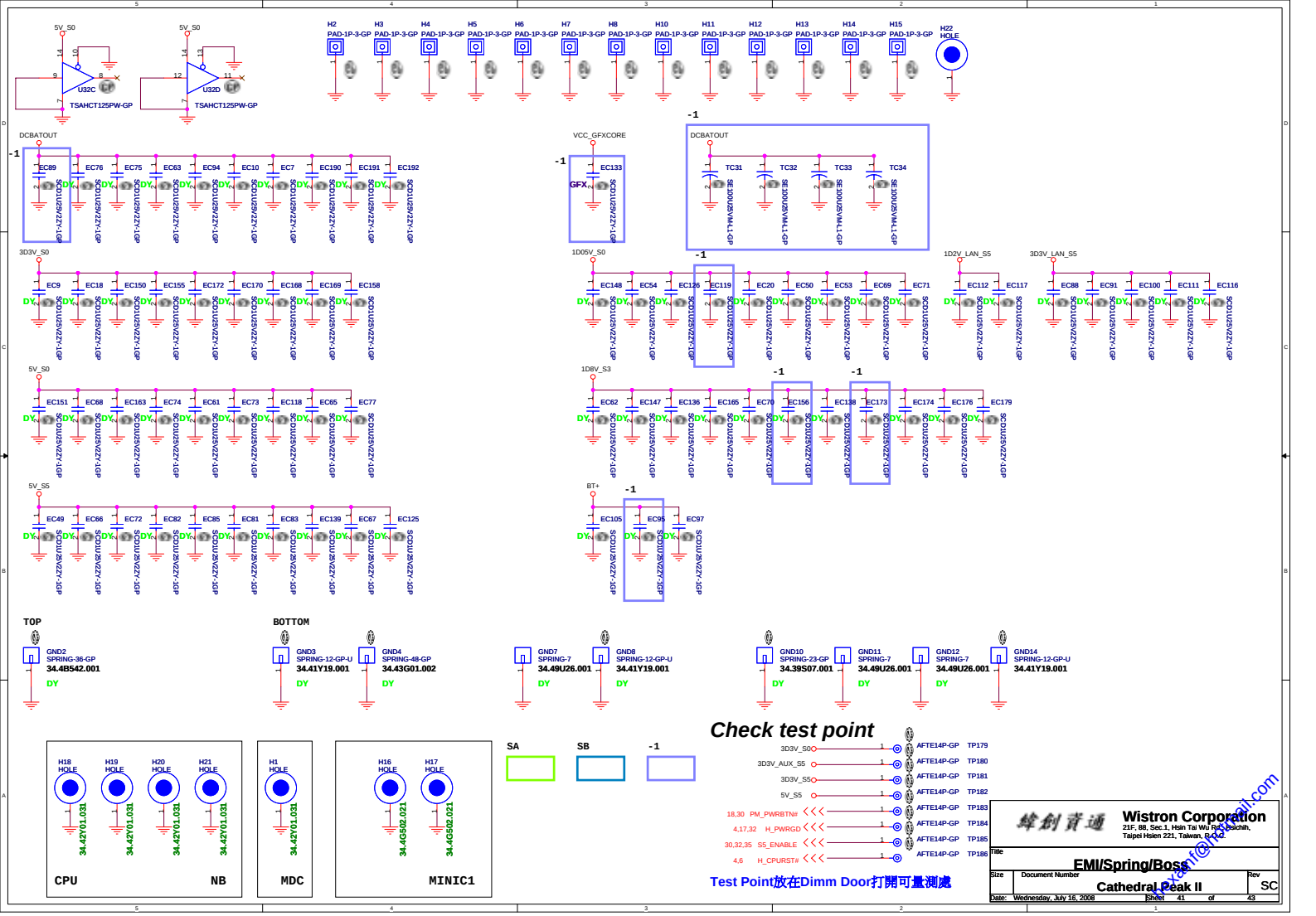
5V_S0
U32C
TSAHCT125PW-GP
U32D
H2 PAD-1P-3-GP
H3 PAD-1P-3-GP
H4 PAD-1P-3-GP
H5 PAD-1P-3-GP
H6 PAD-1P-3-GP
H7 PAD-1P-3-GP
H8 PAD-1P-3-GP
H10 PAD-1P-3-GP
H11 PAD-1P-3-GP
H12 PAD-1P-3-GP
H13 PAD-1P-3-GP
H14 PAD-1P-3-GP
H15 PAD-1P-3-GP
H22 HOLE
DCBATOUT
VCC_GFXCORE
GFX
3D3V_S0
1D05V_S0
1D2V_LAN_S5
3D3V_LAN_S5
1D8V_S3
BT+
TOP
BOTTOM
GND2 SPRING-36-GP 34.4B542.001
GND3 SPRING-12-GP-U 34.41Y19.001
GND4 SPRING-48-GP 34.43G01.002
GND7 SPRING-7 34.49U26.001
GND8 SPRING-12-GP-U 34.41Y19.001
GND10 SPRING-23-GP 34.39S07.001
GND11 SPRING-7 34.49U26.001
GND12 SPRING-7 34.49U26.001
GND14 SPRING-12-GP-U 34.41Y19.001
H18 HOLE
H19 HOLE
H20 HOLE
H21 HOLE
34.42Y01.031
CPU
NB
H1 HOLE
MDC
H16 HOLE
H17 HOLE
34.4GS02.021
MINIC1
SA
SB
Check test point
3D3V_S0
3D3V_AUX_S5
3D3V_S5
5V_S5
18,30 PM_PWRBTN#
4,17,32 H_PWRGD
30,32,35 S5_ENABLE
4,6 H_CPURST#
AFTE14P-GP TP179
AFTE14P-GP TP180
AFTE14P-GP TP181
AFTE14P-GP TP182
AFTE14P-GP TP183
AFTE14P-GP TP184
AFTE14P-GP TP185
AFTE14P-GP TP186
Test Point放在Dimm Door打開可量測處
Wistron Corporation
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EMI/Spring/Boss
Cathedral Peak II
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43

SA to SB
1.No Power.
change KBC to BO (71.03310.A0G)
2.XD Card function fail
Cut CARD1 pin27. connect to R400 pin2
3.leakage
GFX power VDD connect to S0
4.Gain=8db.1.83W R137=16K.R138=30K
5.Int_MIC voice to small
add VREF C577=4.7U
6.Realtek Audio report
change R327=68 ohm.R333=68 ohm.merge to RN68
7.SIV reset
R140=300,R55=100.C44=100p,R398=0,R369=100.C502=100p,R85=300,R162=100.C210=100p,R392=0,
8.SIV Azalia
DY C542
BITCLK rise and fall time fail RN10 change to R453=22ohm(MDC).R452=0ohm(codec)
9.add MINICard power option for customer ask
R454.R455
10.interfere HDD
C390.C401.C419. change 0603 4.7U
11.power team
R38=12K.R47=2.74K .R361=110K.R221=100K.R237=10.7K .R424=20K.R420=17.8K .R227=10.5K
R48=10K.R29=2.2 .R37=2.2 .R401=3.3 .C49=0.1u.add R456.add C580.D8=83.R0203.08F .
TC11 change to 77.C2271.00L
TC9 change to 77.E9071.001 (power ripple)
add R458=1K.R459=1k.R460
12.Oscillation
C30=15p.C23=15P.C537=27p.C538=22p
13.audio S3.S4 resume bobo sound
R143 DY. R187 0ohm pad
14.AC mode have hight frequency noise
R390 DY.R389 0ohm pad
15.ESD issue
BAT_IN# series 33 ohm
RN42 change to 8p4r
add R457.D27.D28.D29.U55.U56.C578.R457.
16.noise
DY C523.TC25 change to 77.C1561.01L
20.LED brightness
R2.R1.R4.R5.R451.R450.R449.R448=56

EMI
1.EC23 ~~EC48.EC134.EC135.EC167.EC121.EC122.EC123.
2.EC89.EC12.EC8.EC119.EC156.EC173.
3.EC174~~~EC179.
4.GND13.GND14.

Merge
1.R313.R314.R315.R319.R320.R149. change to RN59
2.RN6.RN46. change to RN6
3.R341.R343.R344 change to RN46
4.R385 change to 100K merge R382 to RN56
5.RN53.RN56. change to RN53
6.Q20.Q21 change to Q21. Q21.Q23 change to Q21.
7.R367.R368 change to RN60
8.Q16.Q17 change to Q16
9.R262.R264.R268.R277 change to RN61
10.R205.R204.R206 change to RN62
11.RN33.R215 change to RN33
12.R209.R210.R348 change to RN63
13.R280=10K.merge R269 to RN64
14.R109.R112.R111.R290 change to RN65
15.R325.R323 change to RN66
16.R304.R307 change to RN67
17.U14 change to 73.01G08.L04 .add C579
18.R51.R399 vhange to RN69.

0 Ohm change to PAD
R427.R403.R415.R413.R411.R408.R404.R146.R197.R157.R153.R353.R352.R358.R357.R310.R196.R346.R342.R351.
R191.R203.L14.R212.R350.R179.R217.R6.R7.R242.R294.R278.R279.R292.R293.R232.R233.R410.R393.
R416.R250.R251.R248.R249.R246.R247.R244.R245.R129.R127.R376.ER2.R383.R28.R16.R19.R20.R21.
R22.R23.R24.R25.R57.R58.R365.R164.

05/05
Page16: merge LAUNCHCN1 LEDCN1 to LAUNCHCN1 15pins

Page15: change CRT1 from 20.20717.015 to 20.20378.015

Page26: change RJ1 from 22.10277.011 to 22.10245.E91

Page23: change BLUE1 from 20.D0197.004 to 20.F0984.004

Page24: change CARD1 from 20.I0081.001 to 20.I0067.001

Page21: change FAN1 from 20.F0714.003 to 20.F1000.003

Page27: change MINIC1 from 20.F1049.052 to 62.10043.331

Page30: change TPAD1 from 20.K0286.012 to 20.K0174.012

Page34: change U29 U30 from 84.07686.037 to 84.12003.A37 and change U7 U11 U28 U31 from 84.04634.037 to 84.57N03.A37

Page16: delete LED1 LED2 R1 R2 R4 R5

05/07
Page17: change RTC1 from 62.70001.011 to 20.F0700.003

Page41: delete EC51

Page10: delete C159

Page25: change U13 from 72.24256.R01 to 72.24C08.J01

05/08
Page30: change KB1 from 20.K0127.026 to 20.K0204.026

Page26: delete RN36 RN37 RN38 RN39

Page23: change TC28 from 80.15715.34L to 77.C1071.081

Page26: change TC15 from 80.15715.34L to 80.15715.12L

Page23: delete R244 R245 R246 R247 R248 R249 R250 R251

Page24: change CARD1 from 20.0067.001 to 20.I0079.001

05/09
Page41: delete GND13

05/12
Page24: add EC127 EC128 EC185 EC186

Page35: change TC27 from 77.C1561.01L to 77.C1561.03L

Page40: change BAT1 from 20.80697.007 to 20.80906.007

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

Title: **Change List**

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05/13
Page16: change pin1 pin2 of LED6 from 3D3V_S5 to 3D3V_AUX_S5

05/14
Page17: add EC187 EC188

Page16: add EC189 TP189~TP195

Page30: change TPAD1 from 20.K0174.012 to 20.K0228.012

Page41: add EC190~EC195

05/15
Page17: change U15 pin13 pin14 from pull high 3D3V_S0 to VGATE_PWRGD

Page17: change Q11 G from 3D3V_S0 to VGATE_PWRGD

Page40: change D1 from 83.P4SSM.BAM to 83.P6SBM.AAG

SB
05/15
Page30: change KBC_GPIO0C from pull-high 3D3V_AUX_S5 with 10K to pull-low GND with 1K

06/06
Page3: change C176 C177 from 78.27034.1FL (27p) to 78.33034.1FL (33p)

Page22: delete D15

Page29: change R127 R129 from 0ohm pad to 12K 1K5 and change R137 R138 from 16K 30K to 13K 20K

Page34: change TC1 from 77.C1561.01L (15u) to 79.10712.L02 (100u) and C14 C37 C38 C319 dummy

Page35: change TC25 from 77.C1561.01L (15u) to 79.68612.30L (68u) and change C292 to dummy

Page37: add TC30 79.68612.30L (68u) and change C553 C563 to dummy

Page38: change C536 to dummy and change TC24 from 77.C1561.01L (15u) to 79.68612.30L (68u)

Page39: change C61 to dummy

Page41: add TC31 TC32 TC33 TC34 and delete GND9

06/09
Page16: add LED3 R458 R465

06/11
Page30: change R379 from 10K to 1K

06/13
Page3: add EC59 DY

06/13
Page37: change R446 R447 from 0ohm pad to 0ohm resistor

Page26: change XF1 from 68.69241.301 to 68.89240.30A

06/17
Page39: C320 mount

Page40: EC104 mount

Page41: EC95 mount

Page39: change R11 from 10K to 49K9

Page34: change C49 from 47nF to 22nF and change R47 from 2.74K to 1.74K

Page37: add C581 C582

Page41: delete GND6

06/20
Page25: change C30 from 15p to 12p

SC
06/30
Page37: change R446 R447 from 0ohm resistor to 0ohm pad

07/07
Page3: change C462 to DY

Page16: change EC22 to DY

Page21: change C109 to DY

Page40: change D29 to DY

Page10: change C187 C175 C263 to DY

Page12: change C166 to DY

Page19: change C396 C407 to DY

Page25: change C68 C69 to DY

Page40: change EC102 to DY

Page41: change EC89 EC119 EC156 EC173 to DY

Page24: change C529 to DY

Page27: change C283 C493 to DY

Page30: delete R397, S5_ENABLE_KBC connect to RN30 PIN5, RN30 PIN4 connect to GND

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07/07
Page14: add F3, DY F4

Page34: DY C15 C36, add C319 C38

Page39: change C61 to DY

Page35: change C292 C523 to DY

Page37: change C553 C563 to DY

Page34: change TC1 to mount

Page38: change TC24 to GFX

Page35: change TC25 to mount

Page37: change TC30 to mount

Page41: change TC31 TC32 TC33 TC34 to mount

07/09
Page34: change C322 C331 from DY to mount

Page39: change EC108 from DY to mount

Page40: change EC6 from DY to mount

07/10
Page18: DY R136 R305 for ICS, DY R135 R305 for RTL

Page16: change LAUNCHCN1 to 2nd source

Page3: change EC59 from 5p DY to 22p mount

07/10
Page17: change RTC1 from 20.F0700.003 to 62.70001.011

Page32: change C574 from 1u to 2.2u

07/16
Page41: change EC95 to DY

Page34: change C331 C322 to DY

Page40: change EC102 to mount

Page41: change EC89 EC119 EC173 to mount

Page41: change EC133 to mount on GM45

Page29: change R127 from 12K to 6.8K, change R129 from 1.5K to 2K,
change R138 from 20K to 30K

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