Thurman Discrete VGA nVidia G86 Schematics Document

uFCPGA Mobile Merom

Intel Crestline-PM + ICH8M

2007-11-06

REV : -1(DELL:A00)

<Variant Name>

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

Title	Thurman Discrete	
Size: A3	Document Number: COVER PAGE	Rev: -1
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Thurman Discrete Block Diagram

Project code:91.4C301.001
PCB P/N :06247
REVISION :-1

Thermal Sensor EMC4001 28 — SMBus

Clock Generator CY28547LFXC 6

Intel Mobile CPU
Merom 4M
FSB:667/ 800 Mhz
7,8

HOST BUS — FSB 667/800MHz

VRAM 16MX32 21
VRAM 16MX32 21

CRT 22 — RGB
LCD 23 — LVDS
HDMI 22 — HDMI

DDRIII 700MHz
DDRIII 700MHz

nVidia nB8M
17,18,19

PCI-e x16

Crestline-PM
AGTL+ CPU I/F
DDR Memory I/F
EXTERNAL GRAHPICS
9,10,11,12,13,14

DDRII 533/667MHz
DDRII 533/667MHz

200-PIN DDR2 SODIMM

UNBUFFERED DDR2 SODIMM Socket 15

UNBUFFERED DDR2 SODIMM Socket 16

SPDIF

DMI x4 — C-LINK0 PCI BUS

PCI Express (4)

Intel ICH8-M Enhanced
USB 2.0/1.1 ports (10)
PCI Express ports (6)
High Definition Audio
ATA 66/ 100
SATA (3)
LPC I/F
SPI
ACPI 1.1
PCI/PCI BRIDGE
24,25,26,27

SATA HDD 30 — SATA
ODD Bay 30 — PATA IDE

USB2.0 (7)

AZALIA

SPI
LPC

BIOS SPI FLASH 16Mb 37 — SPI

EC SMSC MEC5025 36

BC — SIO Expander SMSC ECE5021 37

BC — PS/2

CIR 42

KBC SMSC ECE1077 38

Int. KB 38

Touch Pad 38

Biometric 38

Touch Pad Module

LINE OUT / HP
Headphone AMP. MAX4401A 35

Digital MIC 23
MIC IN
Azalia CODEC STAC 9228 34

LINE OUT / HP
INT. SPKR *2 35
Headphone AMP. MAX9789A 35

LCD 23
Digital MIC 23
Camera 38
LCD Module 23

Ricoh R5C833
8 in 1 card reader
1394
32

1394 — 1394 CONN 33
7 in1 — 8 in1 CONN 33

Power Switch 30

Express Card Slot 54mm 30
PCIE#4
USB#6

USB#7 — Buletooth 2.1 33

USB#0 — USB*1 left side 42

USB#1 — USB*1 Right side 42

PCIE#1 — Mini-Card WWAN 31 — SIM CONN 31

USB#9
PCIE#2 — Mini-Card 802.11a/g/n 31

PCIE#6 — LAN BCM5906 10/100 NIC 29 — RJ45 CONN 29

USB#5 — Camera 23

USB#4

LDO SC339SKTRT 48

+PWR_SRC	+1.25V_RUN

System DC/DC TPS51120 45

INPUTS	OUTPUTS
+PWR_SRC	+5V_ALW +5V_SUS +3.3V_SUS +3.3V_RTC_LDO

System DC/DC TPS51124 46

+PWR_SRC	+1.05V_VCCP +1.5V_RUN

DDR2 DC/DC TPS51117 47

+PWR_SRC	+1.8V_SUS

LDO TPS51100 47

+1.8V_SUS	+0.9V_DDR_VTT V_DDR_MCH_REF

VGA DC/DC TPS51117 48

+PWR_SRC	VGA_CORE

Battery Charger MAX8731 42

INPUTS	OUTPUTS
+PWR_SRC	+VCHGR

CPU DC/DC ISL6260C 43,44

INPUTS	OUTPUTS
+PWR_SRC	+VCC_CORE

PCB LAYER

L1:TOP
L2:GND
L3:Signal
L4:Signal
L5:VCC
L6:Signal
L7:GND
L8:BOT

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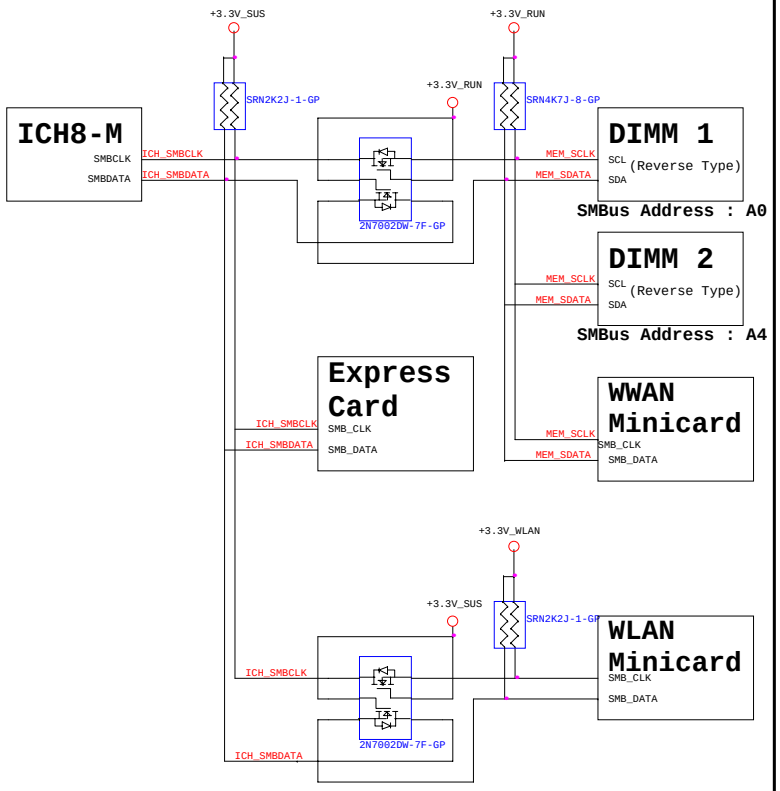
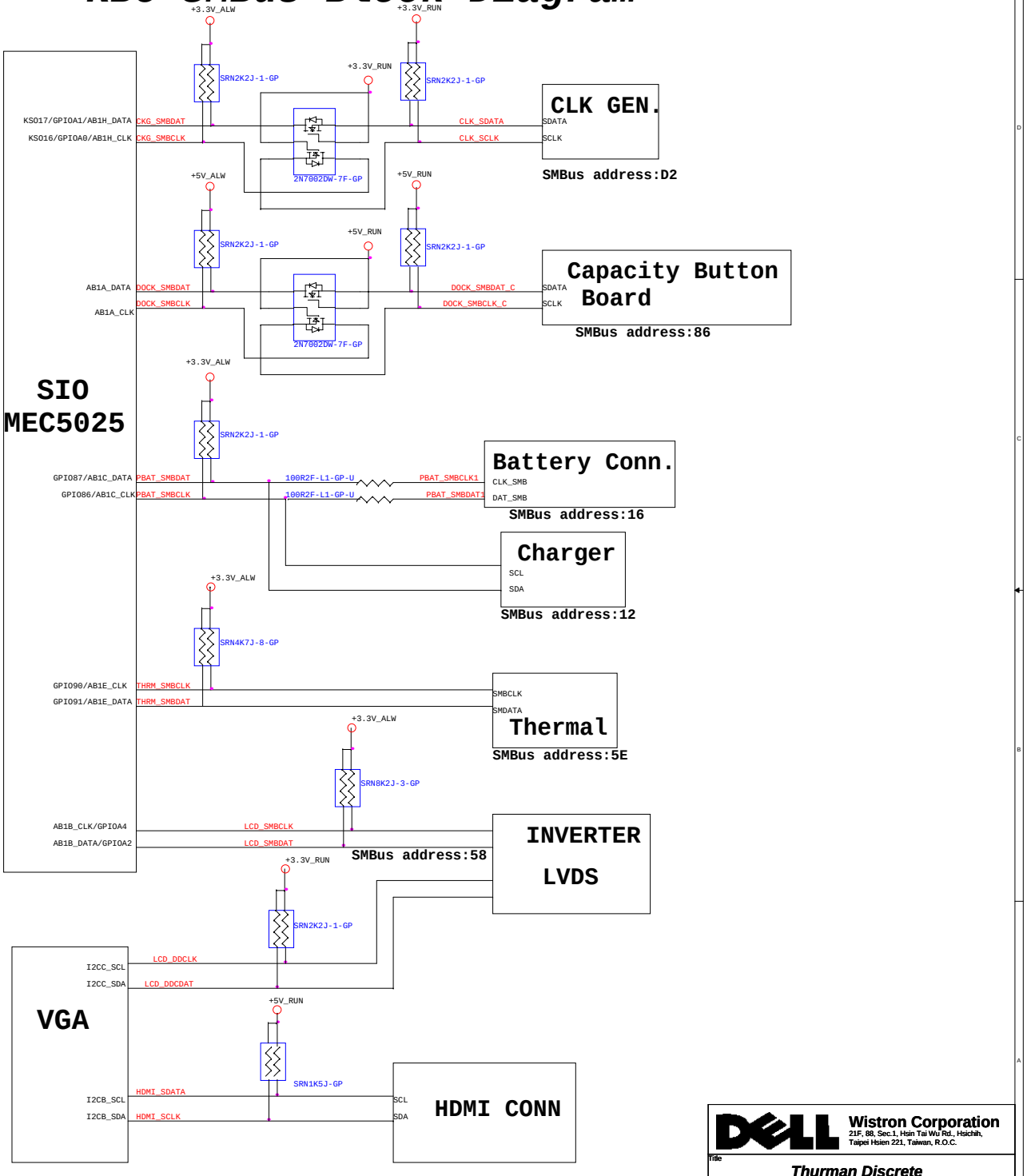
ICH8 SMBus Block Diagram



KBC SMBus Block Diagram



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Size	Document Number	Rev
C	SMBus Block Diagram	-1

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CLOCK GEN CY28547

27M_SS/LCD96_100M SELECTION TABLE

BYTE 10

Bit5 S1	Bit4 S0	Spread Spectrum S[1:0]
0	0	-0.5%(Default)
0	1	-1.0%
1	0	-1.5%
1	1	-2.0%

BYTE 15 IO_VOUT[2,1,0]

Bit2 IO_VOUT2	Bit1 IO_VOUT1	Bit0 IO_VOUT0	IO_VOUT[2,1,0]
0	0	0	0.3V
0	0	1	0.4V
0	1	0	0.5V
0	1	1	0.6V
1	0	0	0.7V
1	0	1	0.8V(Default)
1	1	0	0.9V
1	1	1	1.0V

PIN34 FCTSEL1	0 UMA	1 DISC.
PIN43	DOT96T	27M_NonSpread
PIN44	DOT96C	27M_Spread
PIN47	LCD100/96T	SRCT_0
PIN48	LCD100/96C	SRCC_0

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

INTEL CRESTLINE STRAP PIN

* is Default setting

CFG Strap	Low	High
CFG 5	DMI X 2	DMI X 4 *
CFG 6	Moby Dick	Calistoga *
CFG 7	DT/Transportable CPU	Mobile CPU *
CFG 9	Reserved Lane	Normal Operation *
CFG 10	Reserved	Mobility *
CFG 11	Calistoga *	Reserved
CFG 16 FSB Dynamic ODT	Disabled	Enabled *
CFG 18 VCC Select	1.05V *	1.5V
CFG 19 DMI Lane Reserved	Normal Operation *	Reserved Lane
CFG 20 PCIE/SDVO Select	Only PCIE or SDVO is operation *	PCIE and SDVO are operation simu
SDVO_CTRLDATA	No SDVO Device present *	SDVO Device present

	CFG[13:12]
LL	Reserved
LH	XOR Mode Enabled
HL	All Z Mode Enabled
HH	Normal Operation *

PCIE Routing

LANE1	MiniCard WWAN
LANE2	MiniCard WLAN
LANE3	No use
LANE4	Express Card
LANE5	No use
LANE6	10/100 LOM

PCI ROUTING

	IDSEL	INT	REQ	GNT
1394/ MediaCard	AD17	C D	1	1

ICH USB TABLE

USB0	USB1
USB1	USB2
USB2	
USB3	
USB4	Biometric
USB5	Camera
USB6	Express Card
USB7	BT
USB8	
USB9	MINI Card WWAN

INTEL ICH8-M STRAP PIN

Signal	Usage/When Sampled	Comment
HDA_SDOUT	XOR Chain Entrance/ PCIE Port Config 1 bit1, Rising Edge of PWROK	Allows entrance to XOR Chain testing when TP3 pulled low at rising edge of PWROK.When TP3 not pulled low at rising edge of PWROK,sets bit1 of RPC.PC(Config Registers:offset 224h)
HDA_SYNC	PCIE Port Config 1 bit0, Rising Edge of PWROK.	Sets bit0 of RPC.PC(Config Registers:Offset 224h)
GNT2#	PCIE Port Config 2 bit0, Rising Edge of PWROK.	Sets bit2 of RPC.PC(Config Registers:Offset 224h)
GPIO20	Reserved	Weak Internal PULL-DOWN.NOTE:This signal should not be pull HIGH.
GNT3#	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#	Boot BIOS Destination Selection. 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.
INTVRMEN	Integrated VccSus1_05 VccSus1_5 and VccCL1_5 VRM Enable/Disable.Always sampled.	Enables integrated VccSus1_05,VccSus1_5 and VccCL1_5 VRM when sampled high
LAN100_SLP	Integrated VccLAN1_05 VccCL1_05 VRM enable /Disable. Always sampled.	Enables integrated VccLAN1_05,VccCL1_05 VRM when sampled high
SATALED#	PCIE LAN REVERSAL.Rising Edge of PWROK.	This signal has weak internal pull-up. set bit27 of MPC.LR(Device28:Function0:Offset D8)
SPKR	No Reboot. Rising Edge of PWROK.	If sampled high, the system is strapped to the "No Reboot" mode(ICH8M will disable the TCO Timer system reboot feature). The status is readable via the NO REBOOT bit.(Offset:3410h:bit5)
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.	Internal Pull-Up.If sampled low,the Flash Descriptor Security will be overidden.if high,the Security measures defined in the Flash Descriptor will be in effect. This should only be used in manufacturing environments

XOR Chain Entrance Strap

ICH_RSVD_tp3	AZ_DOUT_ICH	Description
0	0	RSVD
0	1	Enter XOR Chain
1	0	Normal Operation(default)
1	1	Set PCIE port cofig bit1

A16 swap override strap

PCI_GNT#3	low = A16 swap override enable high = default

BOOT BIOS Strap

PCI_GNT#0	SPI_CS#1	BOOT BIOS Location
0	1	SPI
1	0	PCI
1	1	LPC(Default)

integrated VccSus1_05,VccSus1_5,VccCL1_5

SM_INTVRMEN	High=Enable	Low=Disable

integrated VccLan1_05VccCL1_05

LAN100_SLP	High=Enable	Low=Disable

DEFAULE HIGH

No Reboot Strap

SPKR	LOW = Defaule High=No Reboot

8.2K PULL HIGH

INTEL ICH8-M INTEGRATED PULL-UPS and PULL-DOWNS

SIGNAL	Resistor Type/Value
HDA_BIT_CLK	PULL-DOWN 20K
HDA_RST#	NONE
HDA_SDIN[3:0]	PULL-DOWN 20K
HDA_SDOUT	PULL-DOWN 20K
HDA_SYNC	PULL-DOWN 20K
GNT[3:0]	PULL-UP 20K
GPIO[20]	PULL-DOWN 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 20K
SPI_CS1#	PULL-UP 20K
SPI_CLK	PULL-UP 20K
SPI_MOSI	PULL-UP 20K
SPI_MISO	PULL-UP 20K
TACH_[3:0]	PULL-UP 20K
SPKR	PULL-DOWN 20K
TP[3]	PULL-UP 20K
USB[9:0][P,N]	PULL-DOWN 15K
CL_RST#	TBD

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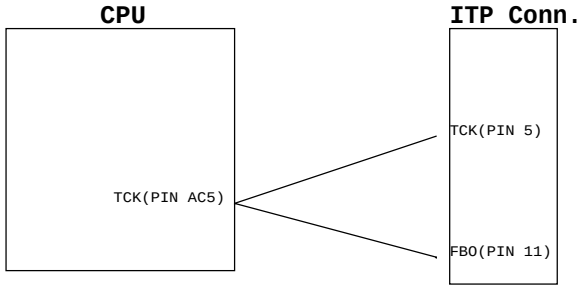

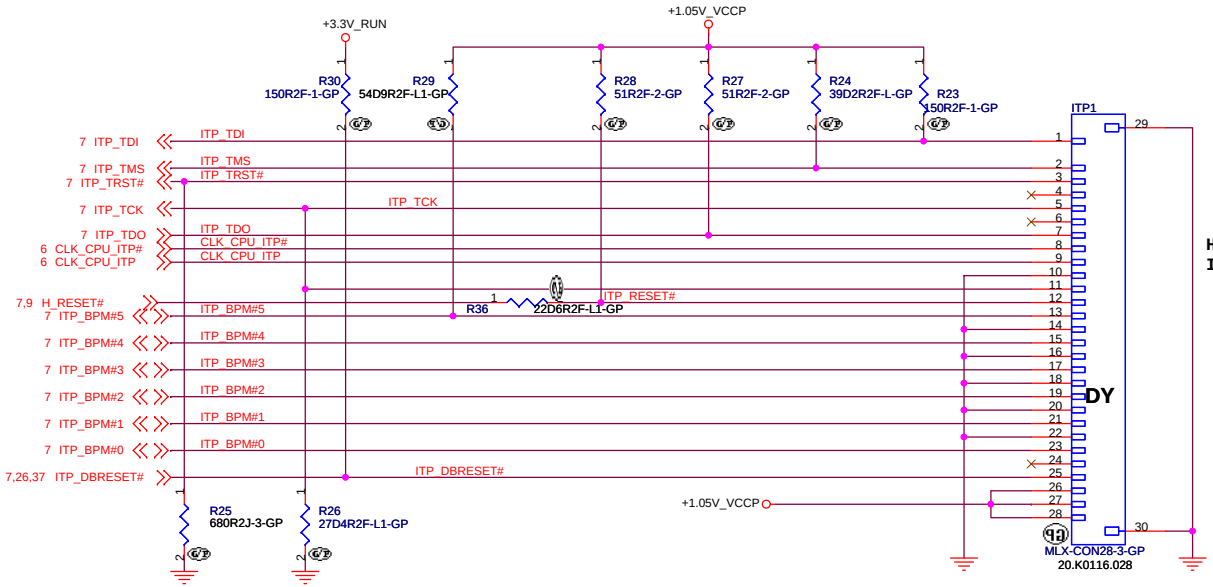

H_CPURST# use pull-up Resistor close
ITP connector 500 mil (max)

+1.05VRUN use Decoupling Capacitor close
ITP connector 100 mil (max)

ITP Debug Conn.

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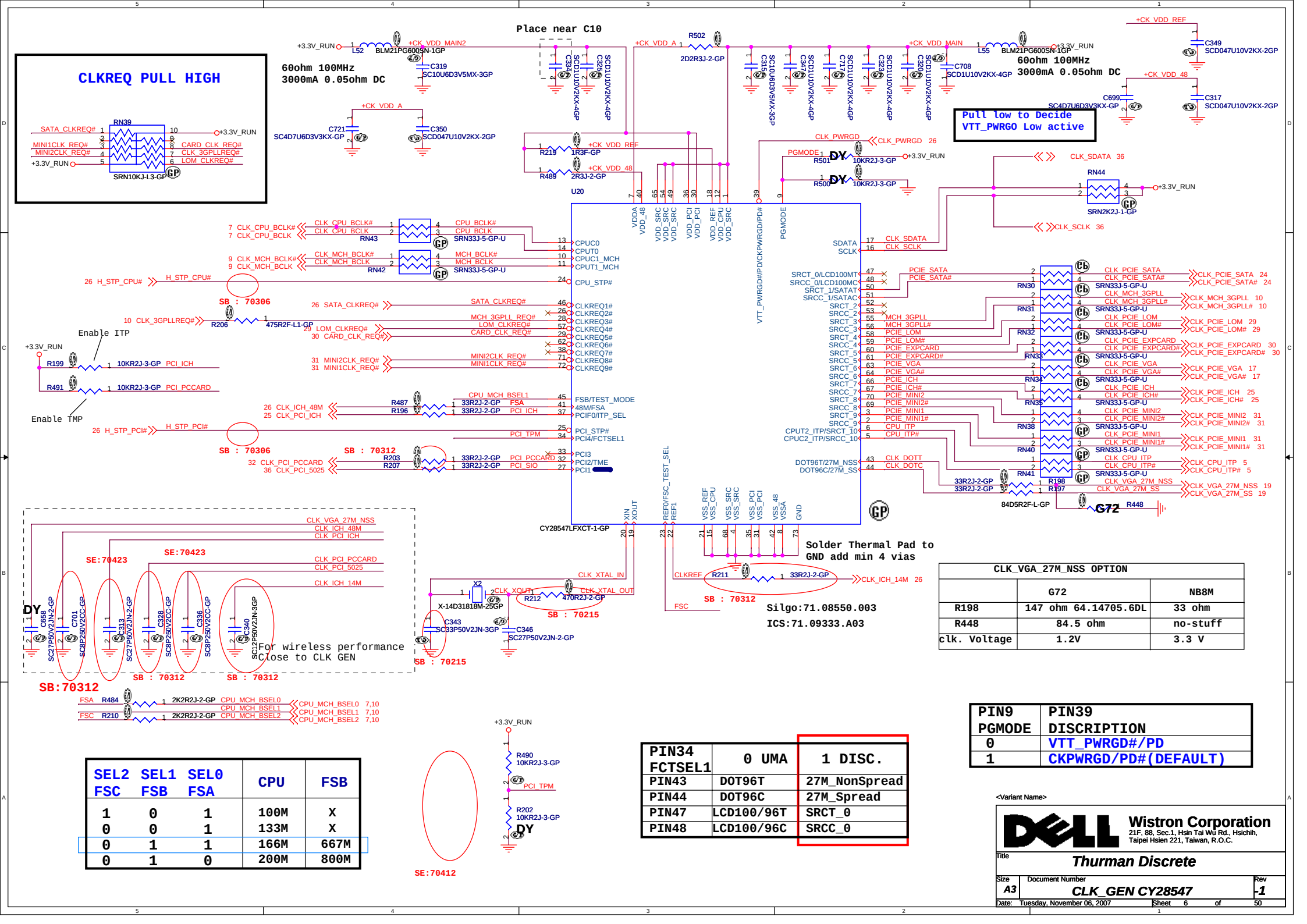
CLKREQ PULL HIGH
RN39
SATA_CLKREQ#
MINI1CLK_REQ#
MINI2CLK_REQ#
+3.3V_RUN
CARD_CLK_REQ#
CLK_3GPLLREQ#
LOM_CLKREQ#
SRN10KJ-L3-GP
Place near C10
60ohm 100MHz
3000mA 0.05ohm DC
L52
BLM21PG600SN-1GP
+CK_VDD_MAIN2
C319
SC10U6D3V5MX-3GP
+CK_VDD_A
R502
2D2R3J-2-GP
+CK_VDD_MAIN
L55
C708
SCD1U10V2KX-4GP
C721
C350
SCD047U10V2KX-2GP
+CK_VDD_REF
+CK_VDD_48
C349
C317
C699
Pull low to Decide
VTT_PWRGO Low active
R219
1R3F-GP
R489
2R3J-2-GP
CLK_PWRGD
PGMODE
R501
R500
10KR2J-3-GP
DY
U20
CY28547LFXCT-1-GP
CLK_SDATA
CLK_SCLK
RN44
SRN2K2J-1-GP
CPU_BCLK#
CPU_BCLK
MCH_BCLK#
MCH_BCLK
SRN33J-5-GP-U
RN43
RN42
H_STP_CPU#
H_STP_PCI#
SB : 70306
SB : 70312
SATA_CLKREQ#
MCH_3GPLL_REQ#
LOM_CLKREQ#
CARD_CLK_REQ#
MINI2CLK_REQ#
MINI1CLK_REQ#
R206
475R2F-L1-GP
Enable ITP
Enable TMP
R199
R491
10KR2J-3-GP
PCI_ICH
PCI_PCCARD
CPU_MCH_BSEL1
R487
R196
33R2J-2-GP
FSA
PCI_ICH
PCI_TPM
PCI_STP#
R203
R207
PCI_SIO
FSB/TEST_MODE
48M/FSA
PCIF0/ITP_SEL
PCI4/FCTSEL1
PCI2/TME
PCI1
SRCT_0/LCD100MT
SRCC_0/LCD100MC
SRCT_1/SATAT
SRCC_1/SATAC
PCIE_SATA
PCIE_SATA#
RN30
RN31
RN32
RN33
RN34
RN35
RN38
RN40
RN41
CLK_PCIE_SATA
CLK_MCH_3GPLL
CLK_PCIE_LOM
CLK_PCIE_EXPCARD
CLK_PCIE_VGA
CLK_PCIE_ICH
CLK_PCIE_MINI2
CLK_PCIE_MINI1
CLK_CPU_ITP
CLK_VGA_27M_NSS
CLK_VGA_27M_SS
84D5R2F-L-GP
G72
R448
DOT96T/27M_NSS
DOT96C/27M_SS
CLK_DOTT
CLK_DOTC
CPUT2_ITP/SRCT_10
CPUC2_ITP/SRCC_10
CPU_ITP
CPU_ITP#
VTT_PWRGD#/PD/CKPWRGD/PD#
Solder Thermal Pad to
GND add min 4 vias
CLK_VGA_27M_NSS
CLK_ICH_48M
CLK_PCI_ICH
CLK_PCI_PCCARD
CLK_PCI_5025
CLK_ICH_14M
SE:70423
SE:70423
DY
C658
C701
C313
C328
C336
C340
SC27P50V2JN-2-GP
SC8P250V2CC-GP
SC12P50V2JN-3GP
For wireless performance
Close to CLK GEN
SB:70312
SB : 70312
SB : 70312
SB : 70215
SB : 70215
X2
X-14D31818M-25GP
CLK_XOUT
CLK_XTAL_IN
CLK_XTAL_OUT
R212
470R2F-2-GP
C343
SC33P50V2JN-3GP
C346
SC27P50V2JN-2-GP
CLKREF
R211
CLK_ICH_14M
FSC
Silgo:71.08550.003
ICS:71.09333.A03
FSA
R484
FSC
R210
2K2R2J-2-GP
CPU_MCH_BSEL0
CPU_MCH_BSEL1
CPU_MCH_BSEL2
SE:70412
R490
10KR2J-3-GP
R202
10KR2J-3-GP
CLK_VGA_27M_NSS OPTION
G72
NB8M
R198
147 ohm 64.14705.6DL
33 ohm
R448
84.5 ohm
no-stuff
clk. Voltage
1.2V
3.3 V
SEL2 FSC
SEL1 FSB
SEL0 FSA
CPU
FSB
1 0 1 100M X
0 0 1 133M X
0 1 1 166M 667M
0 1 0 200M 800M
PIN34 FCTSEL1
0 UMA
1 DISC.
PIN43 DOT96T 27M_NonSpread
PIN44 DOT96C 27M_Spread
PIN47 LCD100/96T SRCT_0
PIN48 LCD100/96C SRCC_0
PIN9 PGMODE
PIN39 DISCRIPTION
0 VTT_PWRGD#/PD
1 CKPWRGD/PD#(DEFAULT)
<Variant Name>
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Title
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Size A3
Document Number
CLK_GEN CY28547
Rev -1
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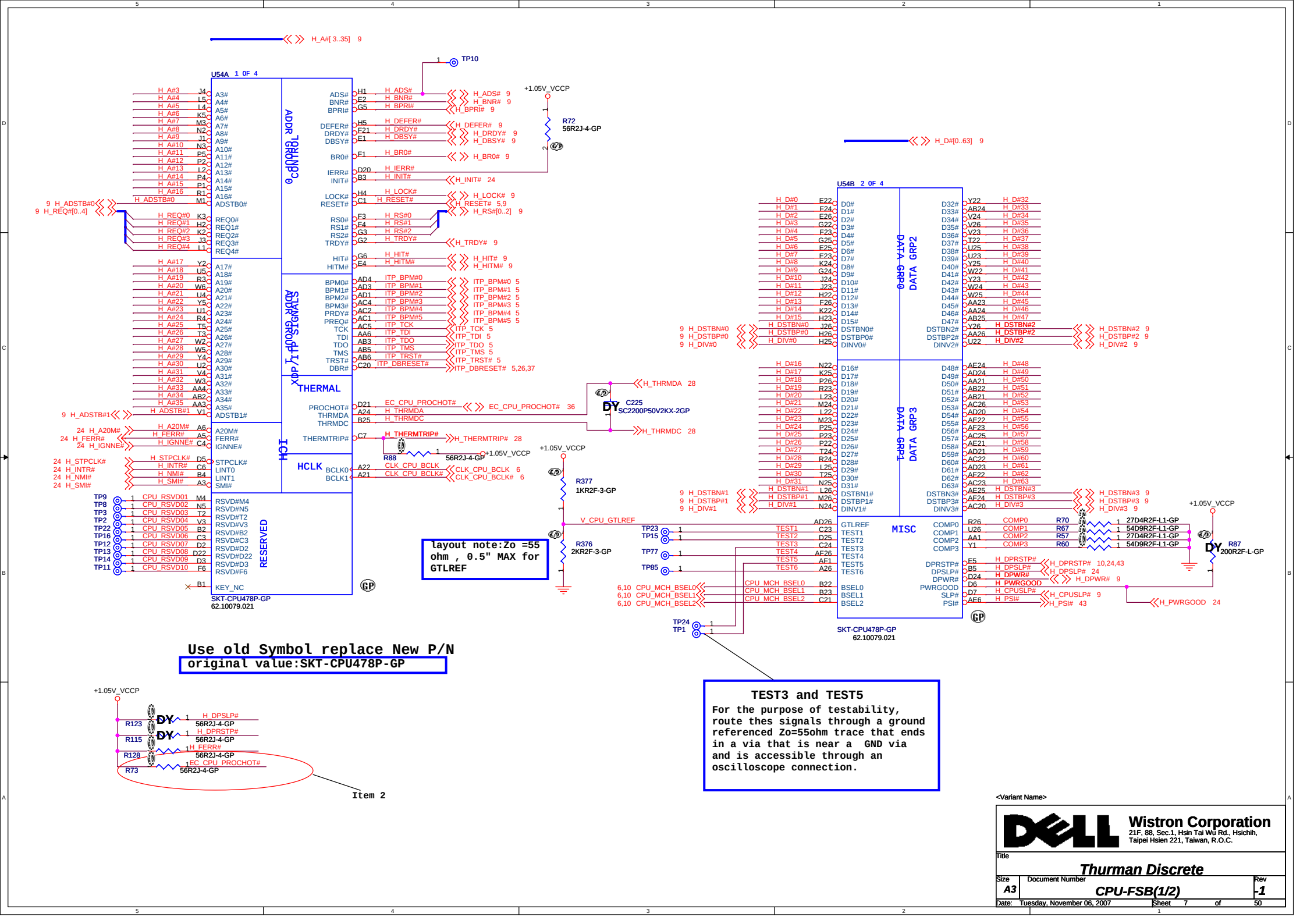

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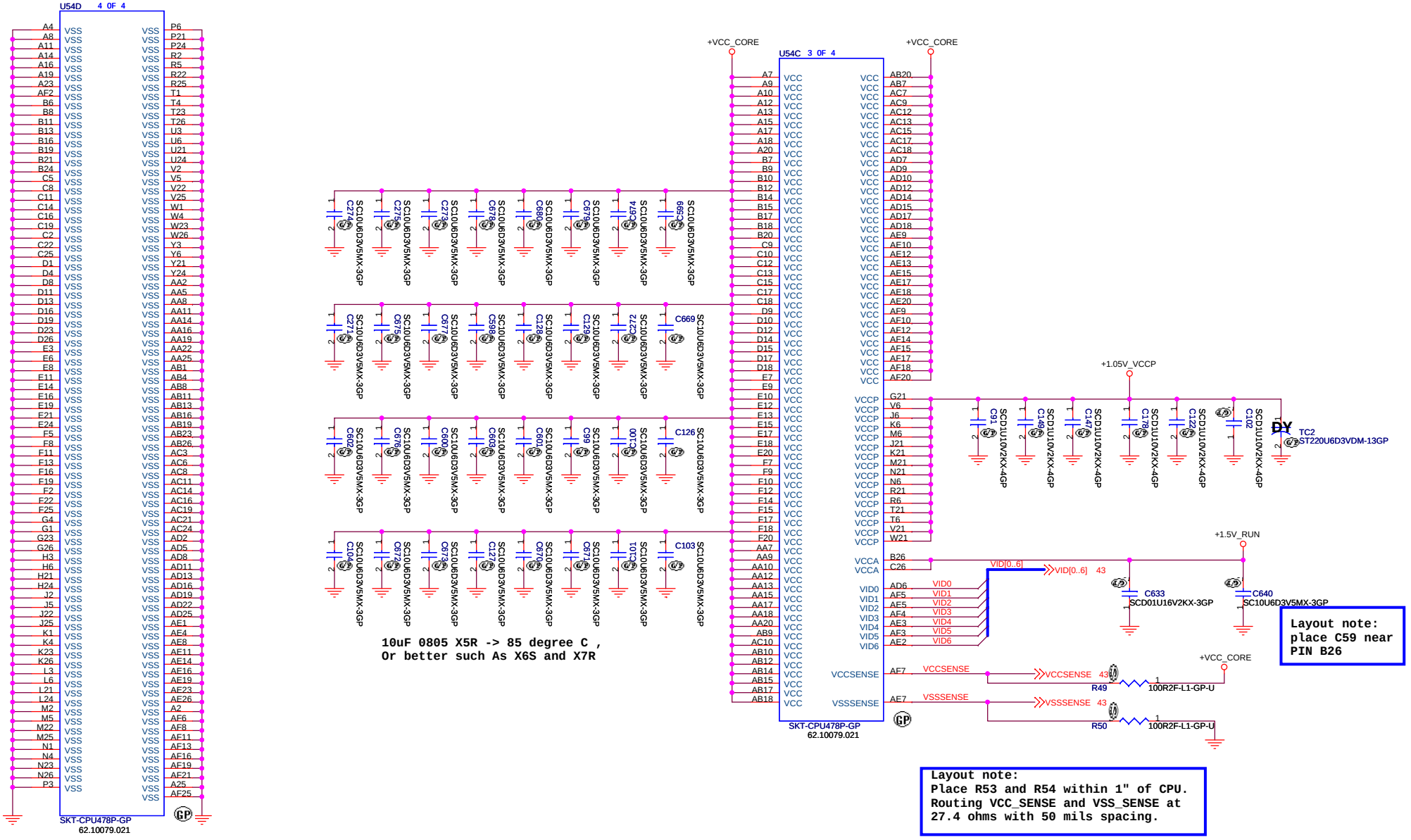

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Size	Document Number	Rev
A3	06.CPU-POWER (2/2)	-1

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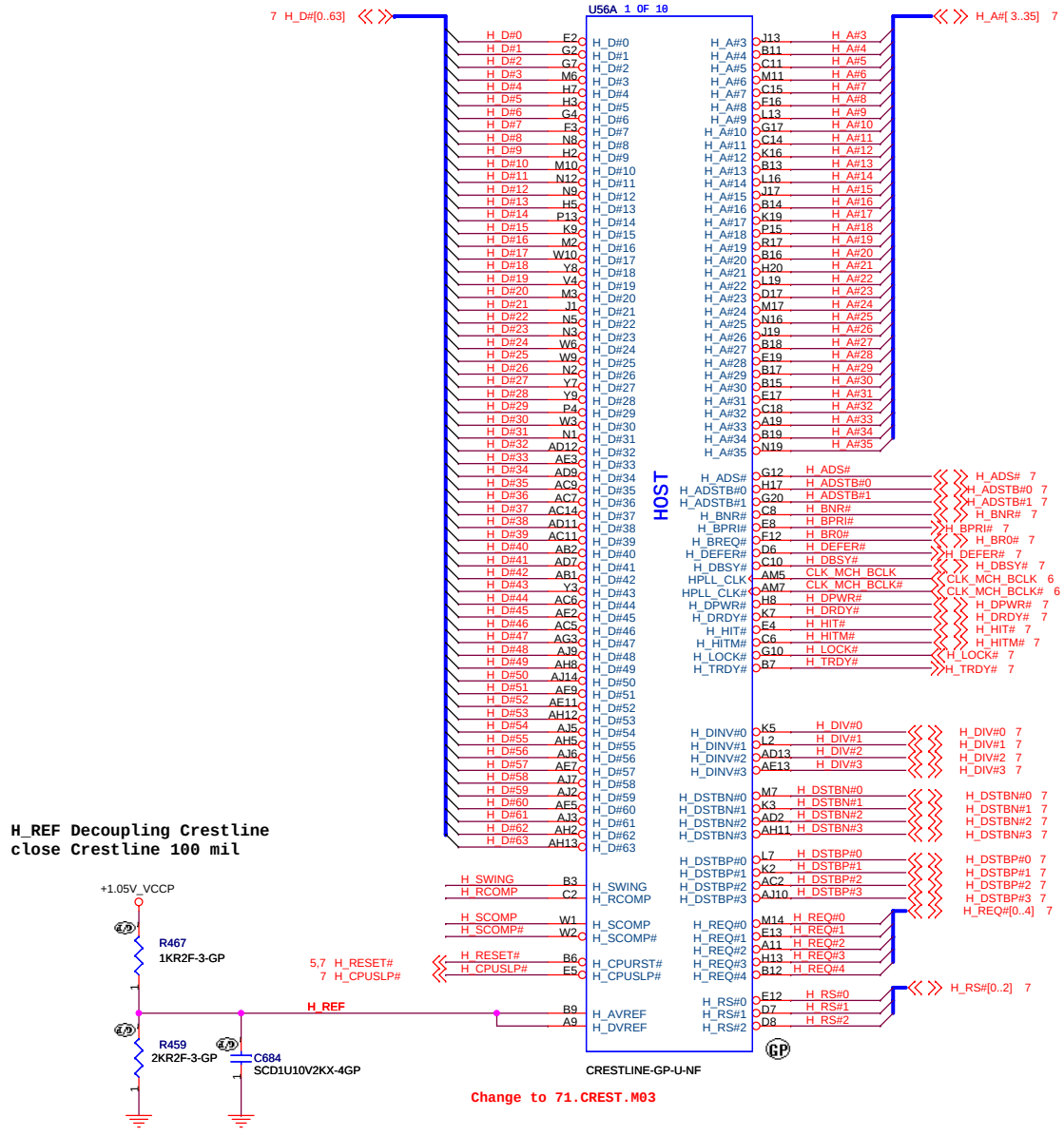
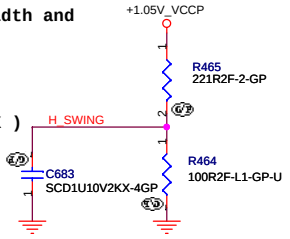


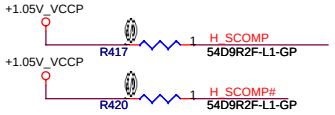
H_SWING routing Trace width and Spacing use 10 / 20 mil

H_SWING Resistors and Capacitors close Caliistoga 500 mil (MAX)

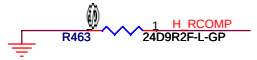
From Schematic Design Checklit v.1201
221 1% pull high 100
1% pull low



H_SCOMP and H_SCOMP# Resistors and Capacitors close Caliistoga 500 mil (MAX) Zo=55ohms



H_RCOMP routing Trace width and Spacing use 10 / 20 mil



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Title	Thurman Discrete	
Size A3	Document Number GMCH-FSB LIBC (1/6)	Rev -1
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* is Default setting

CFG Strap	Low	High
CFG 5	DMI X 2	DMI X 4 *
CFG 6	Moby Dick	Calistoga *
CFG 7	DT/Transportable CPU	Mobile CPU *
CFG 9	Reserved Lane	Normal Operation *
CFG 10	Reserved	Mobility *
CFG 11	Calistoga *	Reserved
CFG 16 FSB Dynamic ODT	Disabled	Enabled *
CFG 18 VCC Select	1.05V *	1.5V
CFG 19 DMI Lane Reserved	Normal Operation *	Reserved Lane
CFG 20 PCIE/SDVO Select	Only PCIE or SDVO is operation *	PCIE and SDVO are operation simu
SDVO_CTRLDATA	No SDVO Device present *	SDVO Device present

	CFG[13:12]
LL	Reserved
LH	XOR Mode Enabled
HL	All Z Mode Enabled
HH	Normal Operation *
	CFG[2..0] FSB Select
LHL	FSB 800
LHH	FSB 667
Other	Reserved

Layout Note:
Location of all MCH_CFG strap resistors needs to be close to minmize stub.

Layout Note:
MCH_CLVREF ~= 0.350V
Width/Spacing = 12/12

CRESTLINE-GP-U-NF

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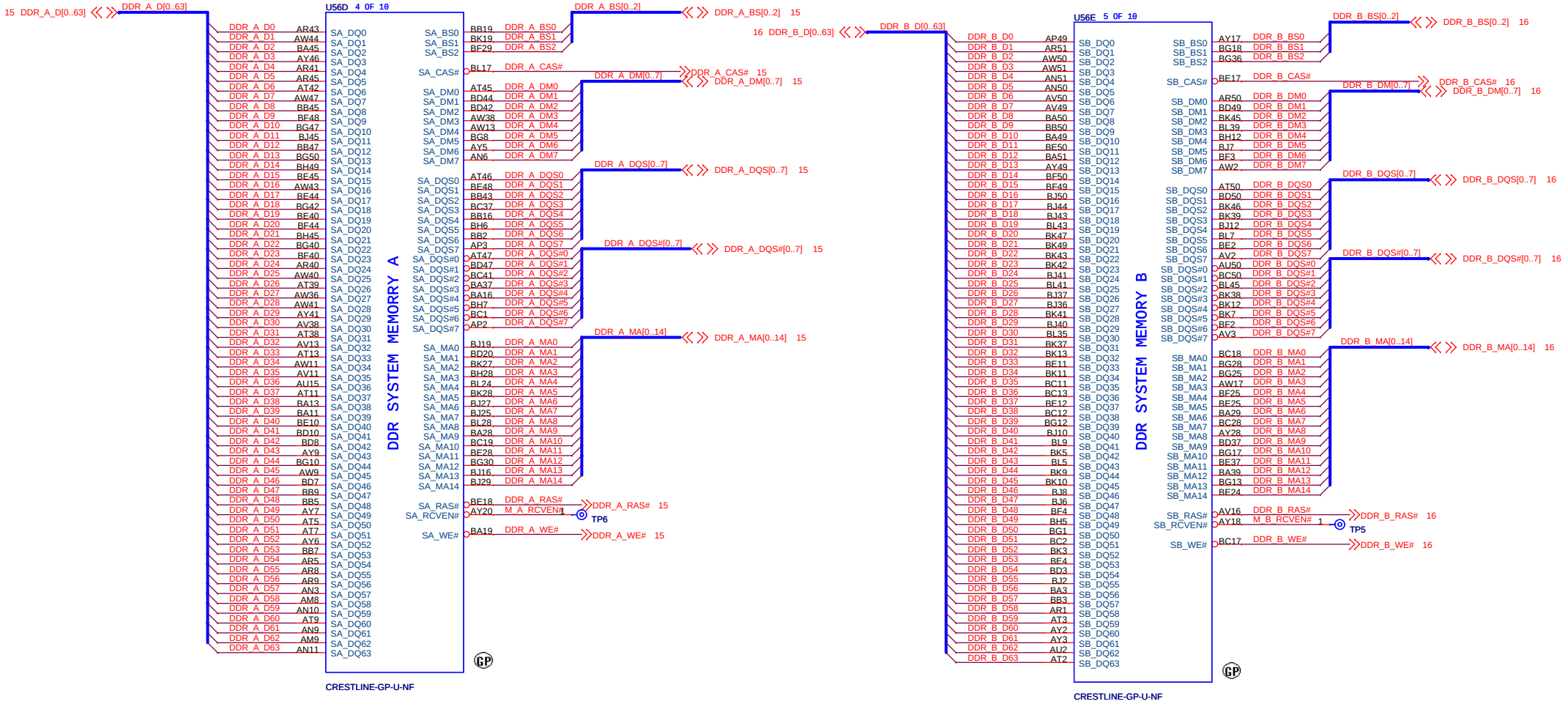

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A3	GMCH-DDR (3/6)	-1

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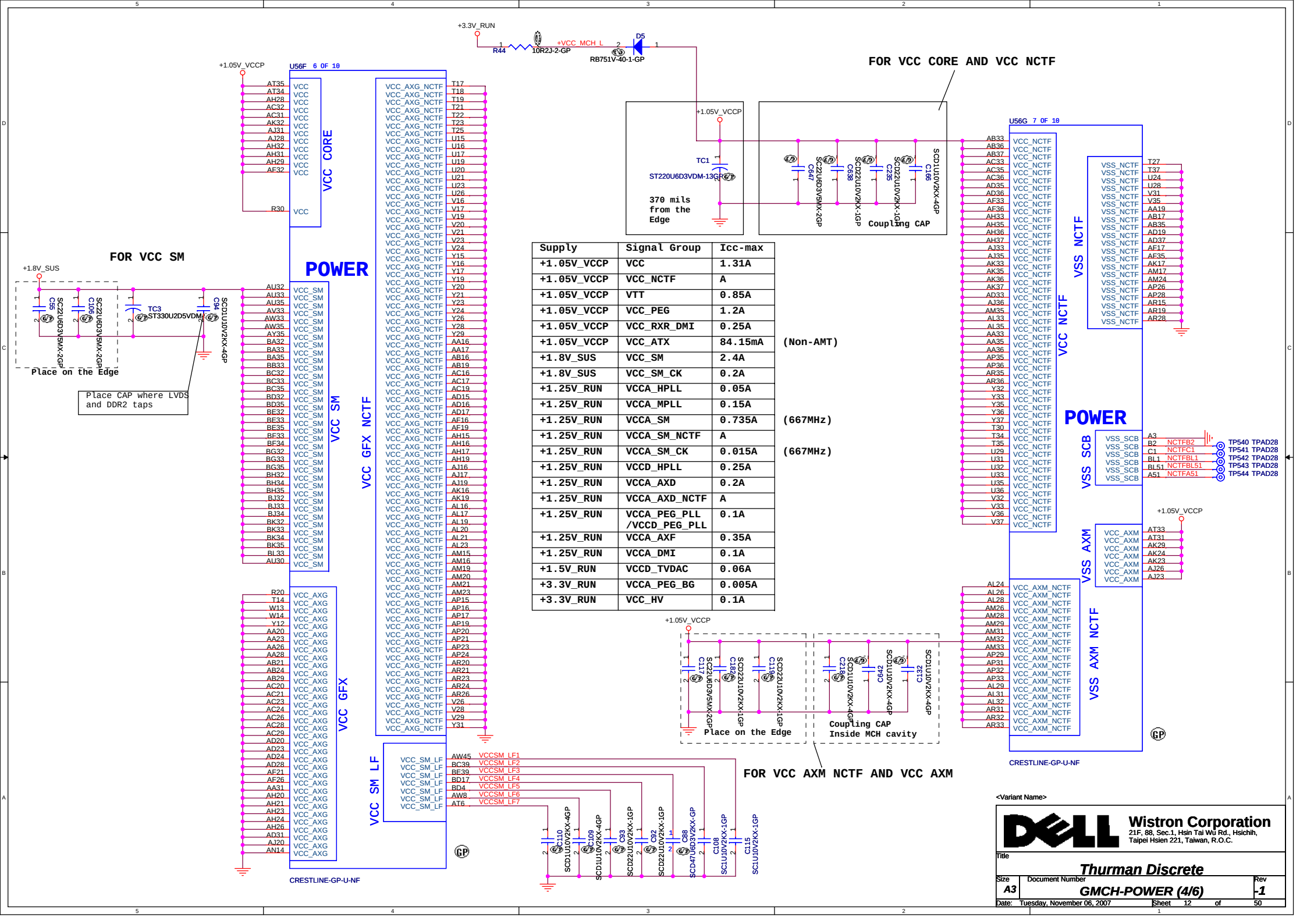

Supply	Signal Group	Icc-max	
+1.05V_VCCP	VCC	1.31A	
+1.05V_VCCP	VCC_NCTF	A	
+1.05V_VCCP	VTT	0.85A	
+1.05V_VCCP	VCC_PEG	1.2A	
+1.05V_VCCP	VCC_RXR_DMI	0.25A	
+1.05V_VCCP	VCC_ATX	84.15mA	(Non-AMT)
+1.8V_SUS	VCC_SM	2.4A	
+1.8V_SUS	VCC_SM_CK	0.2A	
+1.25V_RUN	VCCA_HPLL	0.05A	
+1.25V_RUN	VCCA_MPLL	0.15A	
+1.25V_RUN	VCCA_SM	0.735A	(667MHz)
+1.25V_RUN	VCCA_SM_NCTF	A	
+1.25V_RUN	VCCA_SM_CK	0.015A	(667MHz)
+1.25V_RUN	VCCD_HPLL	0.25A	
+1.25V_RUN	VCCA_AXD	0.2A	
+1.25V_RUN	VCCA_AXD_NCTF	A	
+1.25V_RUN	VCCA_PEG_PLL /VCCD_PEG_PLL	0.1A	
+1.25V_RUN	VCCA_AXF	0.35A	
+1.25V_RUN	VCCA_DMI	0.1A	
+1.5V_RUN	VCCD_TVDAC	0.06A	
+3.3V_RUN	VCCA_PEG_BG	0.005A	
+3.3V_RUN	VCC_HV	0.1A	

<Variant Name>

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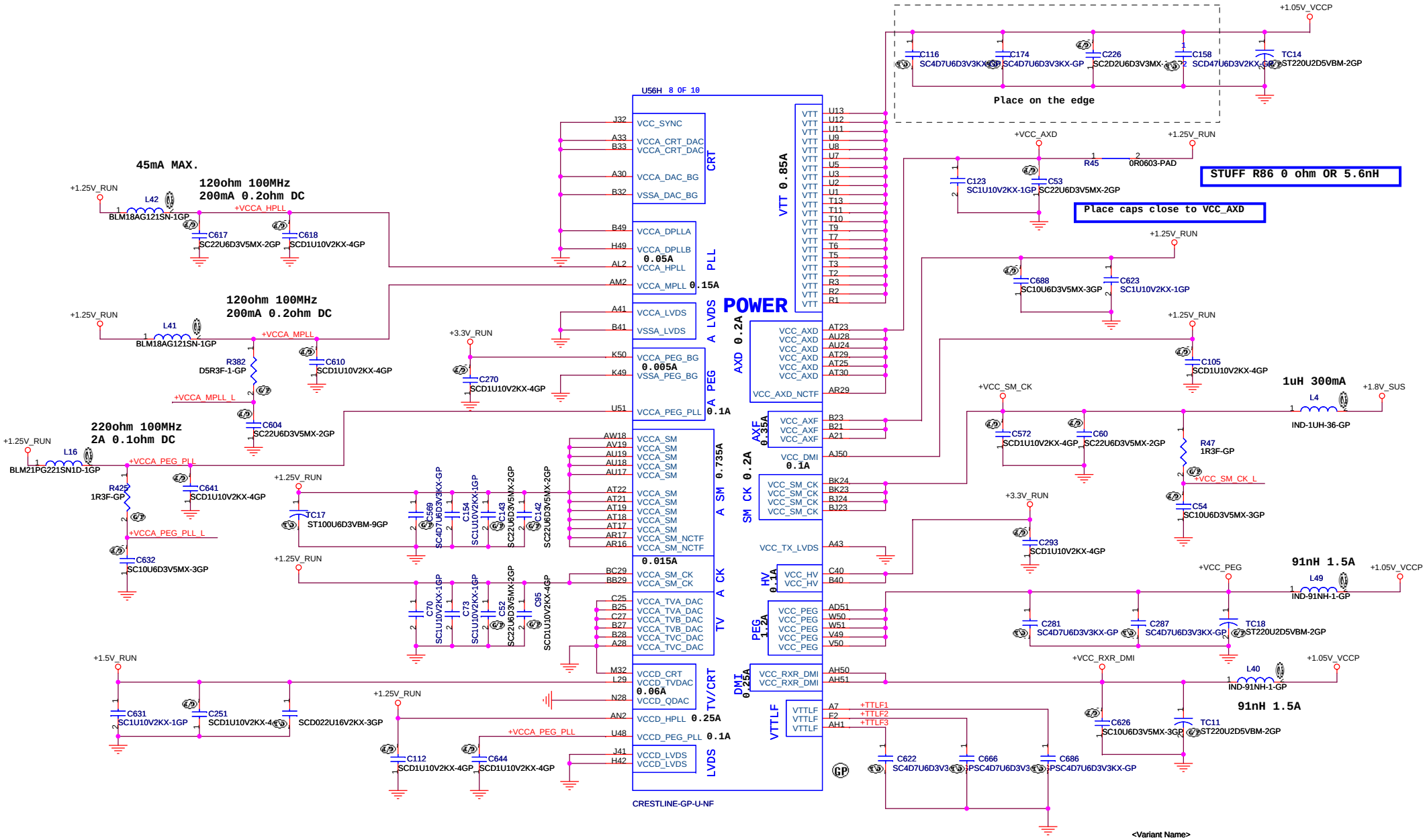
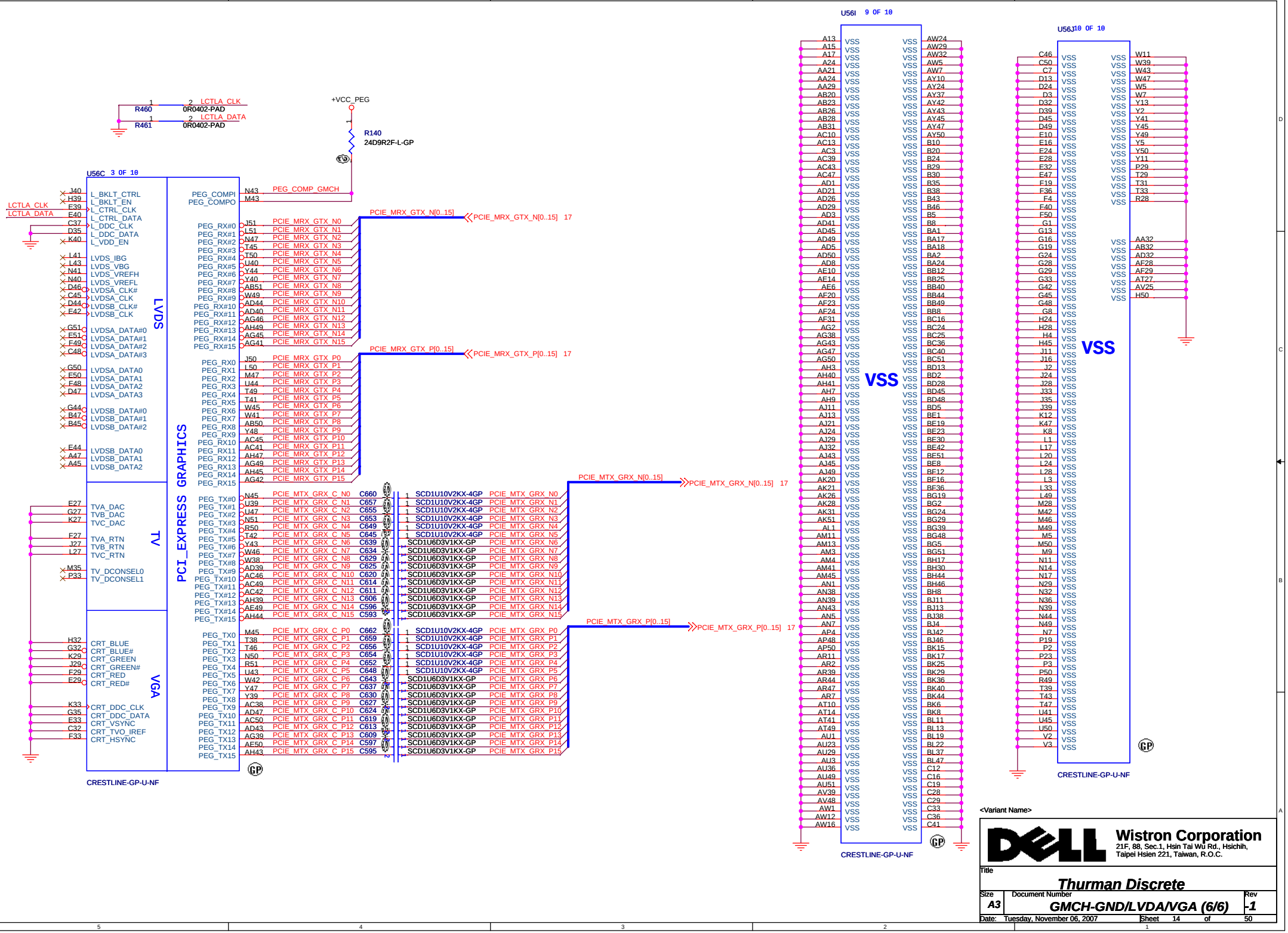
Title: Thurman Discrete

Size	Document Number	Rev
A3	GMCH-POWER (4/6)	-1

Date: Tuesday, November 06, 2007 Sheet 12 of 50


U56H 8 OF 10
POWER
CRESTLINE-GP-U-NF
45mA MAX.
120ohm 100MHz
200mA 0.2ohm DC
120ohm 100MHz
200mA 0.2ohm DC
220ohm 100MHz
2A 0.1ohm DC
Place on the edge
Place caps close to VCC_AXD
STUFF R86 0 ohm OR 5.6nH
1uH 300mA
91nH 1.5A
91nH 1.5A
+1.05V_VCCP
+1.25V_RUN
+1.5V_RUN
+1.8V_SUS
+3.3V_RUN
+VCC_AXD
+VCC_SM_CK
+VCC_PEG
+VCC_RXR_DMI
+VCCA_HPLL
+VCCA_MPLL
+VCCA_MPLL_L
+VCCA_PEG_PLL
+VCCA_PEG_PLL_L
+VCC_SM_CK_L
+TTLF1
+TTLF2
+TTLF3
L42
L41
L16
L4
L49
L40
R45
R382
R428
R47
C617
C618
C610
C604
C641
C632
C270
C105
C572
C60
C54
C293
C123
C53
C688
C623
C116
C174
C226
C158
TC14
C631
C251
C112
C644
C622
C666
C686
C626
TC11
C281
C287
TC18
C17
C569
C154
C143
C142
C70
C73
C52
C95
VCC_SYNC
VCCA_CRT_DAC
VCCA_DAC_BG
VSSA_DAC_BG
VCCA_DPLLA
VCCA_DPLLB
VCCA_HPLL
VCCA_MPLL
VCCA_LVDS
VSSA_LVDS
VCCA_PEG_BG
VSSA_PEG_BG
VCCA_PEG_PLL
VCCA_SM
VCCA_SM_NCTF
VCCA_SM_CK
VCCA_TVA_DAC
VCCA_TVB_DAC
VCCA_TVC_DAC
VCCD_CRT
VCCD_TVDAC
VCCD_QDAC
VCCD_HPLL
VCCD_PEG_PLL
VCCD_LVDS
VTT
VCC_AXD
VCC_AXD_NCTF
VCC_AXF
VCC_DMI
VCC_SM_CK
VCC_TX_LVDS
VCC_HV
VCC_PEG
VCC_RXR_DMI
VTTLF
CRT
PLL
LVDS
A LVDS
A PEG
A SM
A CK
TV
TV/CRT
AXD
AXF
SM CK
PEG
HV
DMI
VTT 0.85A
0.05A
0.15A
0.005A
0.1A
0.2A
0.735A
0.015A
0.06A
0.25A
0.35A
1.2A
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
<Variant Name>
Title
Thurman Discrete
Size A3
Document Number GMCH-POWER/FILTER (5/6)
Rev -1
Date: Tuesday, November 06, 2007
Sheet 13 of 50



Wistron Corporation
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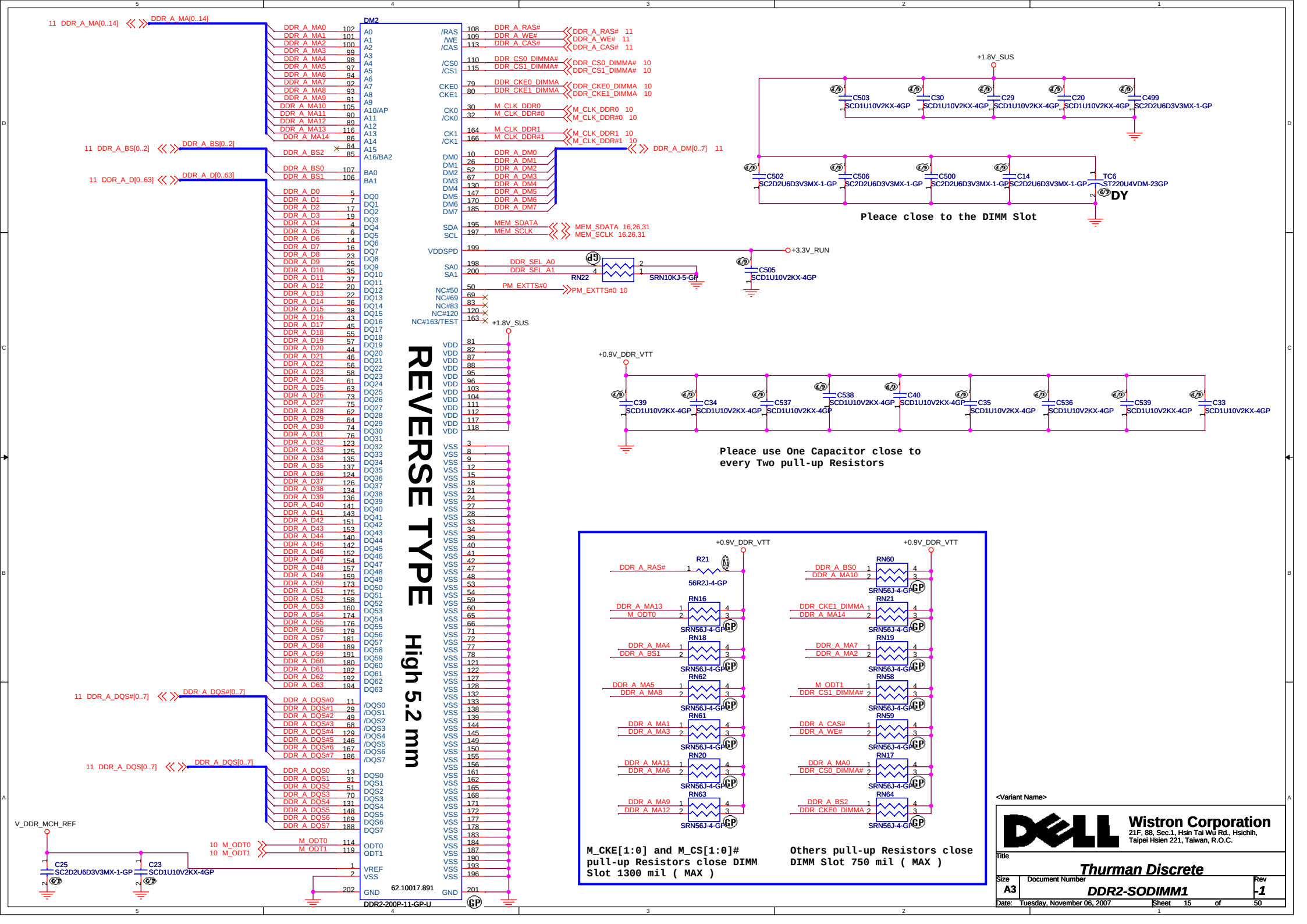
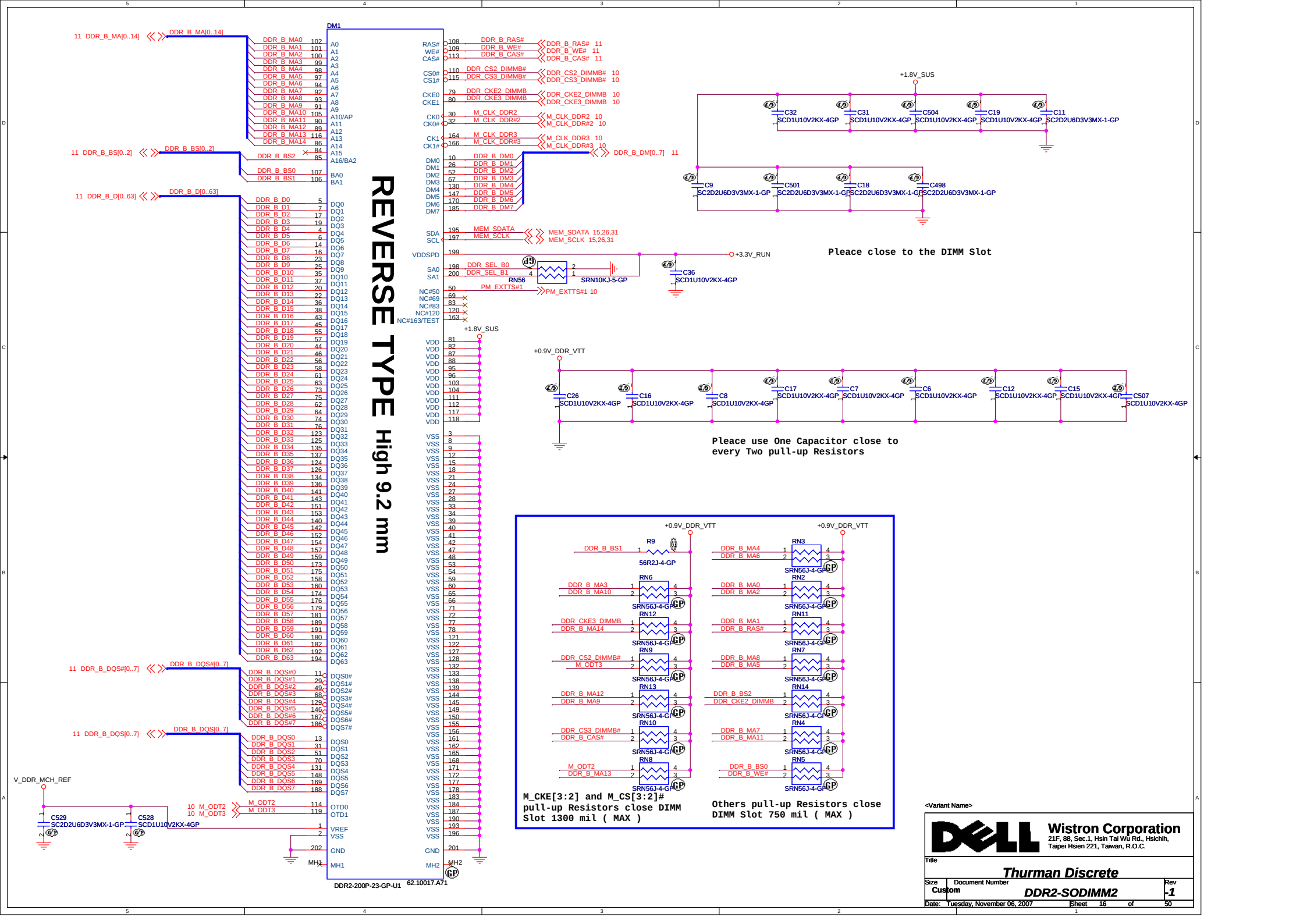
<Variant Name>

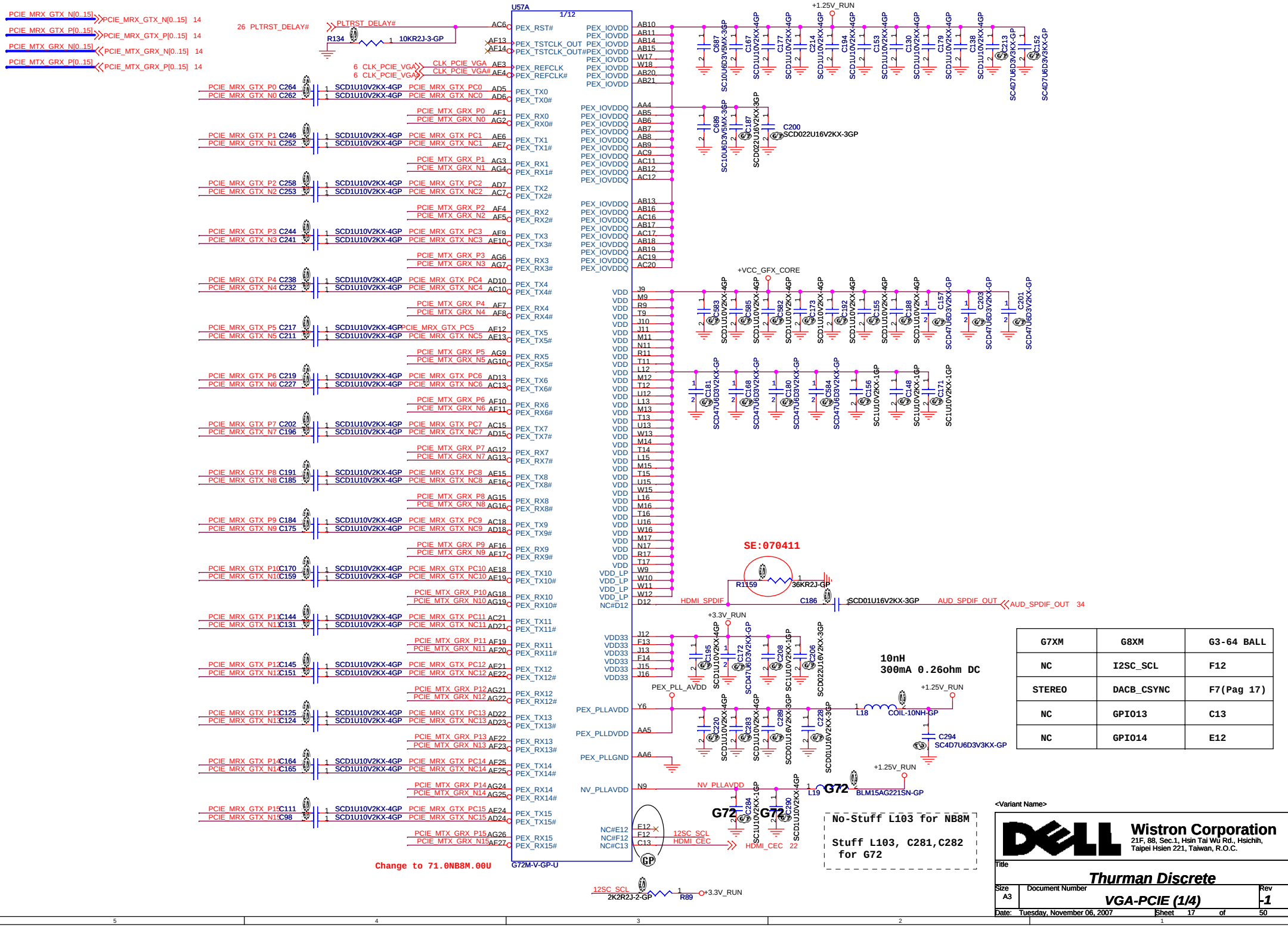
Title: Thurman Discrete

Size: A3 | Document Number: GMCH-GND/LVDA/VGA (6/6) | Rev: -1

Date: Tuesday, November 06, 2007 | Sheet 14 of 50


DM2
DDR_A_MA[0..14]
DDR_A_BS[0..2]
DDR_A_D[0..63]
DDR_A_DQS#[0..7]
DDR_A_DQS[0..7]
DDR_A_DM[0..7]
DDR_A_RAS#
DDR_A_WE#
DDR_A_CAS#
DDR_CS0_DIMMA#
DDR_CS1_DIMMA#
DDR_CKE0_DIMMA
DDR_CKE1_DIMMA
M_CLK_DDR0
M_CLK_DDR#0
M_CLK_DDR1
M_CLK_DDR#1
MEM_SDATA
MEM_SCLK
DDR_SEL_A0
DDR_SEL_A1
PM_EXTTS#0
M_ODT0
M_ODT1
V_DDR_MCH_REF
+1.8V_SUS
+3.3V_RUN
+0.9V_DDR_VTT
62.10017.891
DDR2-200P-11-GP-U
REVERSE TYPE
High 5.2 mm
RN22
SRN10KJ-5-GP
C25
SC2D2U6D3V3MX-1-GP
C23
SCD1U10V2KX-4GP
C503
C30
C29
C20
C499
C502
C506
C500
C14
TC6
ST220U4VDM-23GP
DY
Please close to the DIMM Slot
C39
C34
C537
C538
C40
C35
C536
C539
C33
Please use One Capacitor close to
every Two pull-up Resistors
R21
56R2J-4-GP
RN16
RN18
RN62
RN61
RN20
RN63
RN60
RN21
RN19
RN58
RN59
RN17
RN64
SRN56J-4-GP
M_CKE[1:0] and M_CS[1:0]#
pull-up Resistors close DIMM
Slot 1300 mil (MAX)
Others pull-up Resistors close
DIMM Slot 750 mil (MAX)
<Variant Name>
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Thurman Discrete
Size
A3
Document Number
DDR2-SODIMM1
Rev
-1
Date: Tuesday, November 06, 2007
Sheet 15 of 50


REVERSE TYPE High 9.2 mm
DM1
DDR2-200P-23-GP-U1
62.10017.A71
11 DDR_B_MA[0..14]
DDR_B_MA[0..14]
11 DDR_B_BS[0..2]
DDR_B_BS[0..2]
11 DDR_B_D[0..63]
DDR_B_D[0..63]
11 DDR_B_DQS#[0..7]
DDR_B_DQS#[0..7]
11 DDR_B_DQS[0..7]
DDR_B_DQS[0..7]
DDR_B_DM[0..7] 11
V_DDR_MCH_REF
C529 SC2D2U6D3V3MX-1-GP
C528 SCD1U10V2KX-4GP
10 M_ODT2
10 M_ODT3
+1.8V_SUS
+0.9V_DDR_VTT
+3.3V_RUN
RN56 SRN10KJ-5-GP
C36 SCD1U10V2KX-4GP
PM_EXTTS#1 10
C32 SCD1U10V2KX-4GP
C31 SCD1U10V2KX-4GP
C504 SCD1U10V2KX-4GP
C19 SCD1U10V2KX-4GP
C11 SC2D2U6D3V3MX-1-GP
C9 SC2D2U6D3V3MX-1-GP
C501 SC2D2U6D3V3MX-1-GP
C18 SC2D2U6D3V3MX-1-GP
C498 SC2D2U6D3V3MX-1-GP
Please close to the DIMM Slot
C26 SCD1U10V2KX-4GP
C16 SCD1U10V2KX-4GP
C8 SCD1U10V2KX-4GP
C17 SCD1U10V2KX-4GP
C7 SCD1U10V2KX-4GP
C6 SCD1U10V2KX-4GP
C12 SCD1U10V2KX-4GP
C15 SCD1U10V2KX-4GP
C507 SCD1U10V2KX-4GP
Please use One Capacitor close to
every Two pull-up Resistors
R9 56R2J-4-GP
RN3 RN6 RN2 RN12 RN11 RN9 RN7 RN13 RN14 RN10 RN4 RN8 RN5
SRN56J-4-GP
M_CKE[3:2] and M_CS[3:2]#
pull-up Resistors close DIMM
Slot 1300 mil (MAX)
Others pull-up Resistors close
DIMM Slot 750 mil (MAX)
<Variant Name>
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Thurman Discrete
Size Custom
Document Number DDR2-SODIMM2
Rev -1
Date: Tuesday, November 06, 2007
Sheet 16 of 50



G7XM	G8XM	G3-64 BALL
NC	I2SC_SCL	F12
STEREO	DACB_CSYNC	F7(Pag 17)
NC	GPIO13	C13
NC	GPIO14	E12

<Variant Name>

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

Title: Thurman Discrete

Size	Document Number	Rev
A3	VGA-PCIE (1/4)	-1

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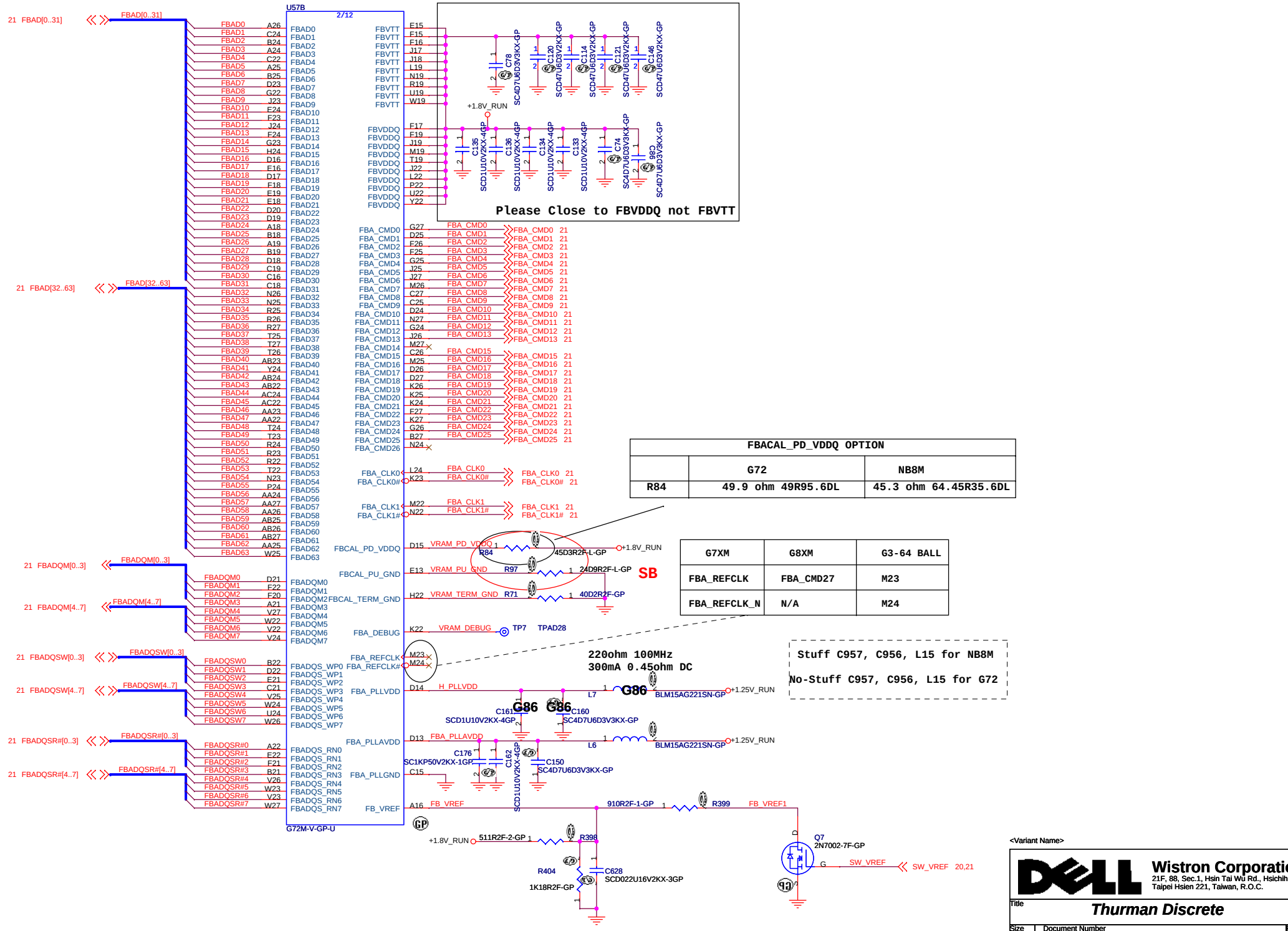

FBACAL_PD_VDDQ OPTION		
	G72	NB8M
R84	49.9 ohm 49R95.6DL	45.3 ohm 64.45R35.6DL

G7XM	G8XM	G3-64 BALL
FBA_REFCLK	FBA_CMD27	M23
FBA_REFCLK_N	N/A	M24

<Variant Name>

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Title: Thurman Discrete

Size	Document Number	Rev
A3	VGA-VRAM(2/4)	-1

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220ohm 100MHz
300mA 0.45ohm DC

Stuff L100 for G72
Stuff L11 for NB8M

RAM_CFG[3:0]			
MIOBD0 MIOBD1 MIOBD8 MIOBD9	Infineon 8MX32 DDR3 1.8V	0101
	HYnix 8MX32 DDR3 1.8V	0111
	Samsung 8MX32 DDR3 1.8V	0110
	Infineon 16MX32 DDR3 1.8V	0001
	HYnix 16MX32 DDR3 1.8V	0010
	Samsung 16MX32 DDR3 1.8V	0011

	DEVID3	DEVID2	DEVID1	DEVID0
G72GLM	1	1	0	0
G72M	1	0	0	0
G72MV	0	1	1	1
G86M	0	1	1	1

R106:Confirm need to no stuff not for G72 and G86.

Stuff L101 for G72
Stuff L53 for NB8M

220ohm 100MHz
300mA 0.45ohm DC

220ohm 100MHz
300mA 0.45ohm DC

G7XM	G8XM	G3-64 ball
GND	12SC_SDA	F11

Stuff R1023 for G72
Stuff R147 for NB8M

SB:70316

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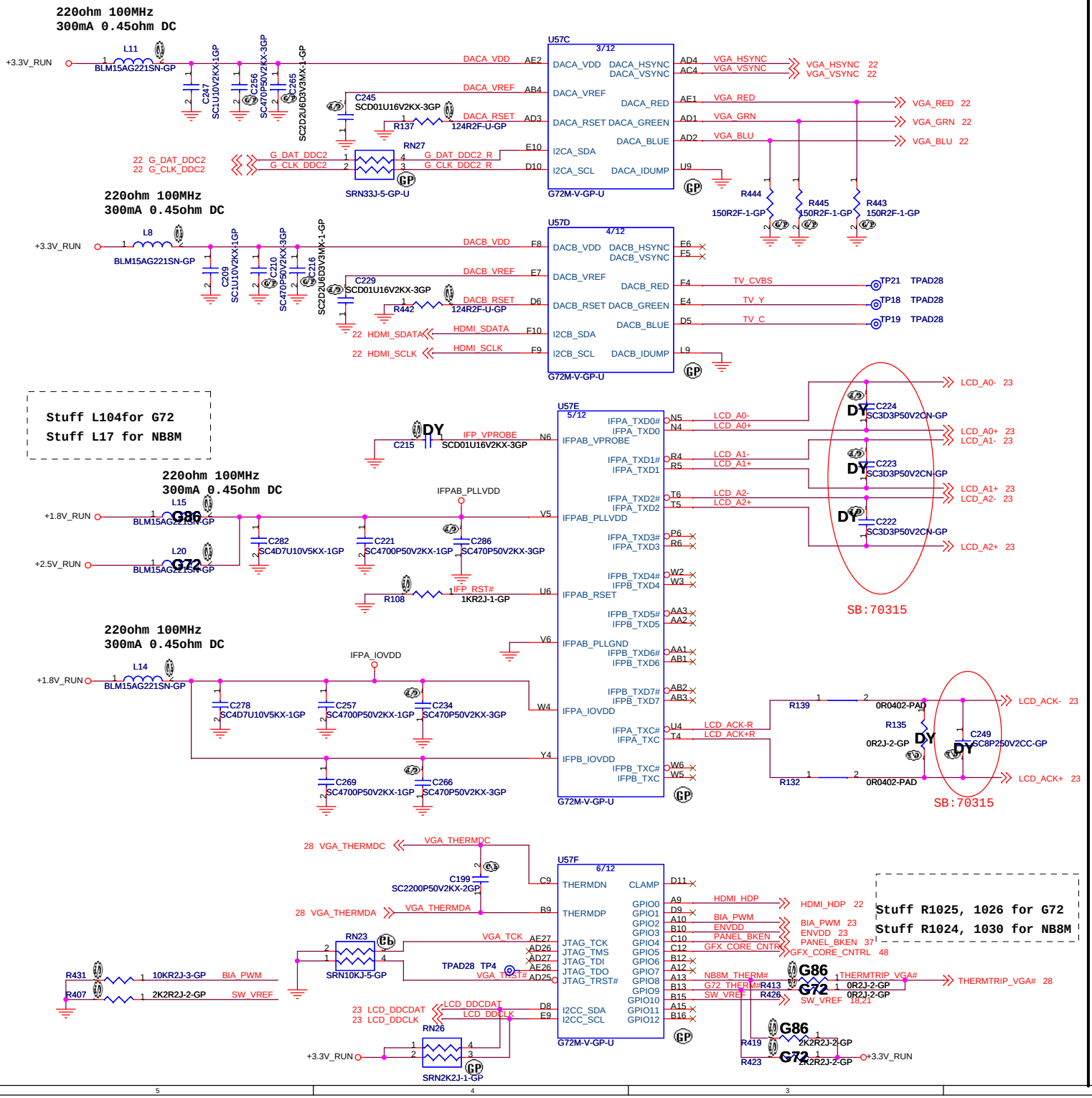
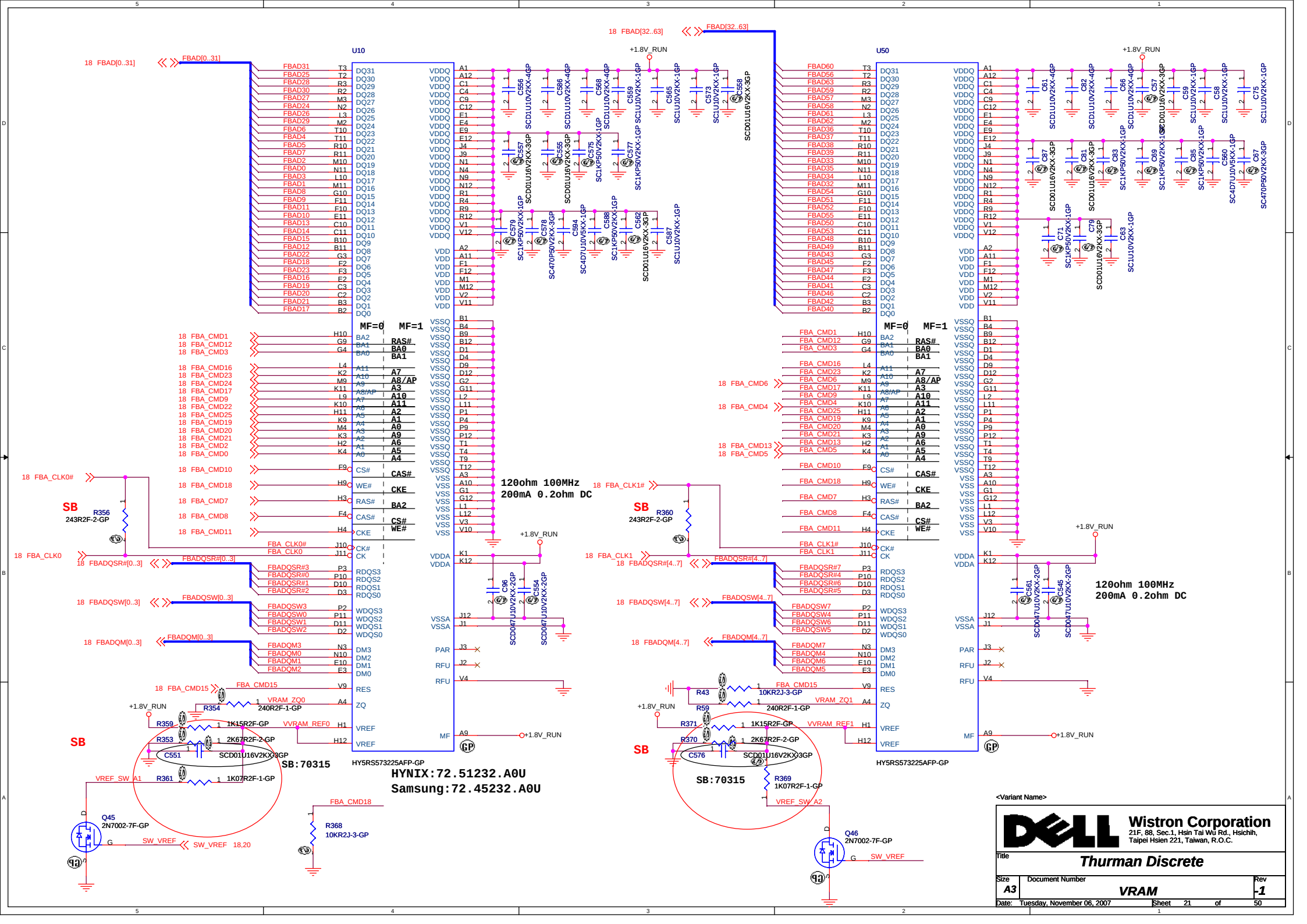
Title: Thurman Discrete		
Size: A3	Document Number: VGA-HDMI	Rev: -1
Date: Tuesday, November 06, 2007	Sheet 19 of 50	


220ohm 100MHz
300mA 0.45ohm DC
+3.3V_RUN
L11
BLM15AG221SN-GP
C247 SC1U10V2KX-1GP
C256
C265
SC2D2U6D3V3MX-1-GP
U57C
3/12
DACA_VDD
DACA_VREF
DACA_RSET
DACA_HSYNC
DACA_VSYNC
DACA_RED
DACA_GREEN
DACA_BLUE
I2CA_SDA
I2CA_SCL
DACA_IDUMP
VGA_HSYNC
VGA_VSYNC
VGA_RED
VGA_GRN
VGA_BLU
C245 SCD01U16V2KX-3GP
R137 124R2F-U-GP
RN27
SRN33J-5-GP-U
G_DAT_DDC2
G_CLK_DDC2
G72M-V-GP-U
R444 150R2F-1-GP
R445 150R2F-1-GP
R443 150R2F-1-GP
220ohm 100MHz
300mA 0.45ohm DC
L8
BLM15AG221SN-GP
C209 SC1U10V2KX-1GP
C210 SC470P50V2KX-3GP
C216 SC2D2U6D3V3MX-1-GP
U57D
4/12
DACB_VDD
DACB_VREF
DACB_RSET
DACB_HSYNC
DACB_VSYNC
DACB_RED
DACB_GREEN
DACB_BLUE
I2CB_SDA
I2CB_SCL
DACB_IDUMP
TV_CVBS
TV_Y
TV_C
C229 SCD01U16V2KX-3GP
R442 124R2F-U-GP
HDMI_SDATA
HDMI_SCLK
TP21 TPAD28
TP18 TPAD28
TP19 TPAD28
Stuff L104for G72
Stuff L17 for NB8M
220ohm 100MHz
300mA 0.45ohm DC
L15
BLM15AG221SN-GP
L20
BLM15AG221SN-GP
+1.8V_RUN
+2.5V_RUN
C282 SC4D7U10V5KX-1GP
C221 SC4700P50V2KX-1GP
C286 SC470P50V2KX-3GP
R108 1KR2J-1-GP
IFP_RST#
IFPAB_PLLVDD
U57E
5/12
IFPA_TXD0#
IFPA_TXD0
IFPAB_VPROBE
IFPA_TXD1#
IFPA_TXD1
IFPA_TXD2#
IFPA_TXD2
IFPAB_PLLVDD
IFPA_TXD3#
IFPA_TXD3
IFPB_TXD4#
IFPB_TXD4
IFPAB_RSET
IFPB_TXD5#
IFPB_TXD5
IFPAB_PLLGND
IFPB_TXD6#
IFPB_TXD6
IFPB_TXD7#
IFPB_TXD7
IFPA_IOVDD
IFPA_TXC#
IFPA_TXC
IFPB_IOVDD
IFPB_TXC#
IFPB_TXC
G72M-V-GP-U
C215 SCD01U16V2KX-3GP
IFP_VPROBE
LCD_A0-
LCD_A0+
LCD_A1-
LCD_A1+
LCD_A2-
LCD_A2+
C224 SC3D3P50V2CN-GP
C223 SC3D3P50V2CN-GP
C222 SC3D3P50V2CN-GP
SB:70315
220ohm 100MHz
300mA 0.45ohm DC
L14
BLM15AG221SN-GP
+1.8V_RUN
IFPA_IOVDD
C278 SC4D7U10V5KX-1GP
C257 SC4700P50V2KX-1GP
C234 SC470P50V2KX-3GP
C269 SC4700P50V2KX-1GP
C266 SC470P50V2KX-3GP
LCD_ACK-R
LCD_ACK+R
R139 0R0402-PAD
R135 0R2J-2-GP
R132 0R0402-PAD
C249 SC8P250V2CC-GP
LCD_ACK-
LCD_ACK+
SB:70315
28 VGA_THERMDC
28 VGA_THERMDA
C199 SC2200P50V2KX-2GP
RN23
SRN10KJ-5-GP
VGA_TCK
TPAD28 TP4
VGA_TRST#
JTAG_TCK
JTAG_TMS
JTAG_TDI
JTAG_TDO
JTAG_TRST#
THERMDN
THERMDP
CLAMP
GPIO0
GPIO1
GPIO2
GPIO3
GPIO4
GPIO5
GPIO6
GPIO7
GPIO8
GPIO9
GPIO10
GPIO11
GPIO12
I2CC_SDA
I2CC_SCL
HDMI_HDP
BIA_PWM
ENVDD
PANEL_BKEN
GFX_CORE_CNTR
NB8M_THERM#
G72_THERM#
SW_VREF
THERMTRIP_VGA#
R431 10KR2J-3-GP
R407 2K2R2J-2-GP
BIA_PWM
SW_VREF
23 LCD_DDCDAT
23 LCD_DDCLK
RN26
SRN2K2J-1-GP
R413
R426
R419
R423
G86
G72
Stuff R1025, 1026 for G72
Stuff R1024, 1030 for NB8M
+3.3V_RUN
19 PEX_PLL_EN_TERM100
19 BAR2_SIZE
19 DEVID0
19 DEVID1
19 DEVID2
19 DEVID3
19 DEVID4
19 3GIO_ADR_0
19 3GIO_ADR_1
19 3GIO_PADFG3
19 3GIO_ADR_2
19 SUB_VENDOR
19 PCI_IOBAR
R449 2K2R2J-2-GP
R138 2K2R2J-2-GP
R142 2K2R2J-2-GP
R441 2K2R2J-2-GP
R446 2K2R2J-2-GP
R439 2K2R2J-2-GP
R141 10KR2F-2-GP
R435 2K2R2J-2-GP
R434 2K2R2J-2-GP
R130 2K2R2J-2-GP
R126 2K2R2J-2-GP
R451 2K2R2J-2-GP
R440 2K2R2J-2-GP
DY
MIOAD6
MIOAD8
MIOAD9
3GIO_ADR_[2:0]
NV43/NV44 001
G7X/NV44 010
* MIOAD0,6,8,9 DEFAULT 0
G72M G8XM DEFAULT STRAP
MIOBD2 CRYSTALA0 CRYSTALA 0 No require
MIOBD6 CRYSTALA1 TVMODE2 0 No require
MIOB_HSYNC - 3GIO_PADFG3 0 No require
MIOBD7 MIOBLE_FPIO PCI_IOBAR 1 No require
MIOB_DE - BAR2_SIZE 0 No require
STRAPS PIN DESCRIPTION Value
ROMTYPE [1:0] MIOBD10 MIO_VSYNC * 01
SUB_VENDOR MIOAD1 0
PEX_PLL_TERM MIOAD0 0
* Parallel=00, SERIAL AT25F=01
DEFAULT,Serial SST45VF=10,
LPC=11
<Variant Name>
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Thurman Discrete
Size A3
Document Number VGA-LVDS/TV/CRT/STRAP (3/3)
Rev -1
Date: Tuesday, November 06, 2007
Sheet 20 of 50


U10
U50
MF=0 MF=1
RAS#
BA0
BA1
A7
A8/AP
A3
A10
A11
A2
A1
A0
A9
A6
A5
A4
CS#
CAS#
WE#
CKE
BA2
120ohm 100MHz
200mA 0.2ohm DC
SB
R356
243R2F-2-GP
R360
243R2F-2-GP
R354
240R2F-1-GP
R359
1K15R2F-GP
R353
2K67R2F-2-GP
R361
1K07R2F-1-GP
C551
SCD01U16V2KX-3GP
SB:70315
R43
10KR2J-3-GP
R59
240R2F-1-GP
R371
1K15R2F-GP
R370
2K67R2F-2-GP
C576
SCD01U16V2KX-3GP
R369
1K07R2F-1-GP
SB:70315
R368
10KR2J-3-GP
Q45
2N7002-7F-GP
Q46
2N7002-7F-GP
HY5RS573225AFP-GP
HYNIX:72.51232.A0U
Samsung:72.45232.A0U
+1.8V_RUN
SW_VREF
SW_VREF 18,20
VREF_SW_A1
VREF_SW_A2
VRAM_ZQ0
VRAM_ZQ1
VRAM_REF0
VRAM_REF1
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Thurman Discrete
Size
A3
Document Number
VRAM
Rev
-1
Date: Tuesday, November 06, 2007
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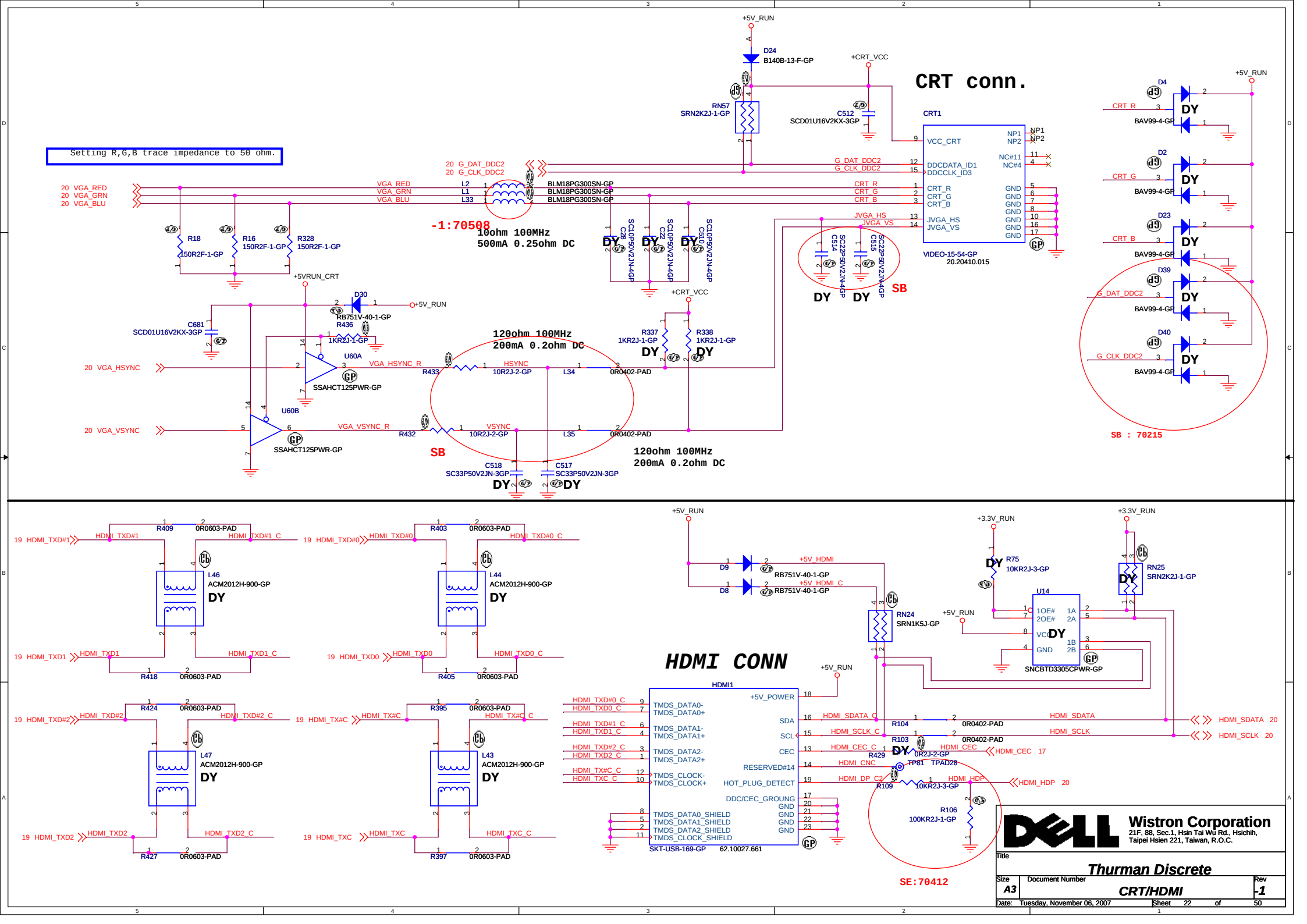
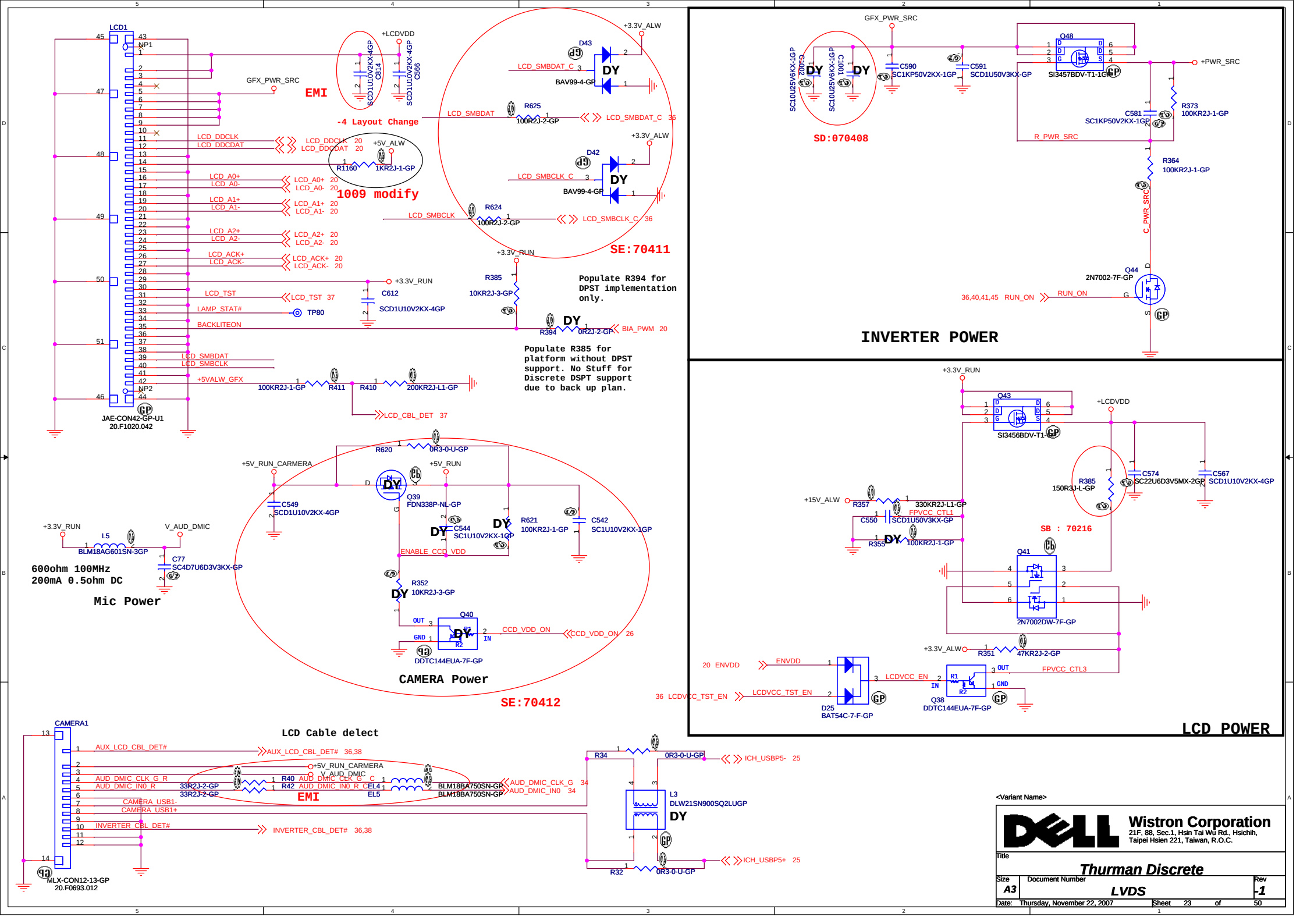

CRT conn.
HDMI CONN
Setting R,G,B trace impedance to 50 ohm.
-1:70508
10ohm 100MHz
500mA 0.25ohm DC
120ohm 100MHz
200mA 0.2ohm DC
SB : 70215
SE:70412
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Thurman Discrete
Size A3
Document Number CRT/HDMI
Rev -1
Date: Tuesday, November 06, 2007
Sheet 22 of 50


LCD1
JAE-CON42-GP-U1
20.F1020.042
EMI
-4 Layout Change
1009 modify
SE:70411
Populate R394 for DPST implementation only.
Populate R385 for platform without DPST support. No Stuff for Discrete DSPT support due to back up plan.
Mic Power
600ohm 100MHz
200mA 0.5ohm DC
CAMERA Power
SE:70412
LCD Cable delect
MLX-CON12-13-GP
20.F0693.012
SD:070408
INVERTER POWER
SB : 70216
LCD POWER
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Thurman Discrete
LVDS
Thursday, November 22, 2007

RTC circuitry

ICH8-Strap PIN

integrated VccSus1_05,VccSus1_5,VccCL1_5	
ICH_INTVRMEN	High=Enable Low=Disable
integrated VccLan1_05VccCL1_05	
ICH_LAN100_SLP	High=Enable Low=Disable

-1:70524

SM_SATASB Place within 500 mil of ICH8-M

Change to 71.0ICH8.M08

GLAN_COMP place within 500 mil of ICH8M

This circuit is only needed if the platform has the SNIFFER

Distance between the ICH8-M and cap on the "P" signal should be identical distance between the ICH8-M and cap on the "N" signal for same pair.

ICH8-M-1-GP-U-NF

ICH8-Strap PIN

XOR Chain Entrance Strap		
ICH_RSVD	ACZ_DOUT	Description
0	0	RSVD
0	1	Enter XOR Chain
1	0	Normal Operation(default)
1	1	Set PCIE port cofig bit1

<Variant Name>

Wistron Corporation
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Title: Thurman Discrete

Size: A3 | Document Number: ICH8M-RTC/IDE/LPC/DHI (1/4) | Rev: -1

Date: Thursday, November 22, 2007 | Sheet 24 of 50

ICH8-Strap PIN

BOOT BIOS Strap		
PCI_GNT#0 (R166)	SPI_CS#1 (R167)	BOOT BIOS Location
0	1	SPI(Default)
1	0	PCI
1	1	LPC
A16 swap override strap		
PCI_GNT#3 (R168)	low = A16 swap override enable high = default	

PCI_GNT#0 — R582 — 1KR2J-1-GP
ICH_SPI_CS1# R — R292 — DY — 1KR2J-1-GP
PCI_GNT#3 — R581 — DY — 1KR2J-1-GP

PCI I/F PULL HIGH

RP4 — SRN8K2J-2-GP-U — +3.3V_RUN
PCI_SERR# 1 — 10 PCI_STOP#
PCI_TRDY# 2 — 9 PCI_DEVSEL#
PCI_IRDY# 3 — 8 PCI_FRAME#
PCI_PLOCK# 4 — 7 PCI_REQ#1
+3.3V_RUN 5 — 6

RP5 — SRN8K2J-2-GP-U — +3.3V_RUN
PCI_PIRQB# 1 — 10 +3.3V_RUN
PCI_REQ#0 2 — 9 SB_WPAN_PCIE_RST#
PCI_PIRQC# 3 — 8 PCI_PIRQA#
USB_IDE# 4 — 7 PCI_PIRQD#
+3.3V_RUN 5 — 6 PCI_PERR#
26 USB_IDE#

BIOS should not enable the internal GPIO pull up

RN52 — SRN10KJ-5-GP — SB_WLAN_PCIE_RST# — SB_NB_PCIE_RST#
R295 — 20KR3J-1-GP — SB_WWAN_PCIE_RST#
RN53 — SRN100KJ-6-GP — SB_NB_PCIE_RST# — SB_WLAN_PCIE_RST#
R296 — 20KR3J-1-GP — SB_LOM_PCIE_RST#

PCIE Interface Routing	
LANE1	MiniCard WWAN
LANE2	MiniCard WLAN
LANE3	No use
LANE4	Express Card
LANE5	No use
LANE6	LAN

	IDSEL	INT	REQ	GNT
1394/ MediaCard	AD17	C D	1	1

PCI Interface Routing

Add Buffers as need for Loading and Fanout concerns

PCI

U29C 3 OF 6

32 PCI_AD[0..31] — PCI_AD[0..31]
PCI_AD0 D20 — PCI_AD1 E19 — PCI_AD2 D19 — PCI_AD3 A20 — PCI_AD4 D17 — PCI_AD5 A21 — PCI_AD6 A19 — PCI_AD7 C19 — PCI_AD8 A18 — PCI_AD9 B16 — PCI_AD10 A12 — PCI_AD11 E16 — PCI_AD12 A14 — PCI_AD13 G16 — PCI_AD14 A15 — PCI_AD15 B6 — PCI_AD16 C11 — PCI_AD17 A9 — PCI_AD18 D11 — PCI_AD19 B12 — PCI_AD20 C12 — PCI_AD21 D10 — PCI_AD22 C7 — PCI_AD23 F13 — PCI_AD24 E11 — PCI_AD25 E13 — PCI_AD26 E12 — PCI_AD27 D8 — PCI_AD28 A6 — PCI_AD29 E8 — PCI_AD30 D6 — PCI_AD31 A3

REQ0# A4 PCI_REQ#0 — GNT0# D7 PCI_GNT#0
REQ1#/GPIO50 E18 PCI_REQ#1 — PCI_REQ#1 32
GNT1#/GPIO51 C18 PCI_GNT#1 — PCI_GNT#1 32
REQ2#/GPIO52 B19 SB_WWAN_PCIE_RST# — SB_WWAN_PCIE_RST# 31
GNT2#/GPIO53 F18 PCI_GNT#2 — TP114
GNT3#/GPIO55 C10 PCI_GNT#3
REQ3#/GPIO54 A11 SB_LOM_PCIE_RST# — SB_LOM_PCIE_RST# 29

C/BE0# C17 PCI_C_BE#0
C/BE1# E15 PCI_C_BE#1
C/BE2# F16 PCI_C_BE#2
C/BE3# E17 PCI_C_BE#3
PCI_C_BE#[0..3] — PCI_C_BE#[0..3] 32

IRDY# C8 PCI_IRDY# — PCI_IRDY# 32
PAR D9 PCI_PAR — PCI_PAR 32
PCIRST# G6 PCI_RST# G — R281 33R2J-2-GP — PCI_RST# 32
DEVSEL# D16 PCI_DEVSEL# — PCI_DEVSEL# 32
PERR# A7 PCI_PERR# — PCI_PERR# 32
FRAME# A17 PCI_FRAME# — PCI_FRAME# 32
PLOCK# B7 PCI_PLOCK# — TP124
SERR# F10 PCI_SERR# — PCI_SERR# 32
STOP# C16 PCI_STOP# — PCI_STOP# 32
TRDY# C9 PCI_TRDY# — PCI_TRDY# 32

PLTRST# AG24 PCI_PLTRST#
PCICLK B10 CLK_PCI_ICH — CLK_PCI_ICH 6
PME# G7 ICH_PME# — ICH_PME# 37

U28 — 16mA — +3.3V_SUS
C404 — SCD1U10V2KX-4GP
SNLVC1G08DCKRG4-GP
R260 — 33R2J-2-GP — PLT_RST# S — PLTRST# 10,29,30,31,36
R261 — DY — 0R2J-2-GP

Interrupt I/F

PIRQA# F9 — PIRQB# B5 — PIRQC# C5 — PIRQD# A10
32 PCI_PIRQC# — 32 PCI_PIRQD#
PIRQE#/GPIO2 F8 SB_WPAN_PCIE_RST# — SB_WPAN_PCIE_RST# 31
PIRQF#/GPIO3 G11 SB_WLAN_PCIE_RST# — SB_WLAN_PCIE_RST# 31
PIRQG#/GPIO4 F12 SB_NB_PCIE_RST# — SB_NB_PCIE_RST# 10
PIRQH#/GPIO5 R3 PCIE_MCARD2_DET# — PCIE_MCARD2_DET# 31

ICH8-M-1-GP-U-NF

CLK_ICH_14M EMI Mode
Place close to ICH8-M
CLK_PCI_ICH — R294 10R2J-2-GP — DY — CLK_ICHPCI — C462 SC8P250V2CC-GP — DY — EMI

MiniCard WWAN

31 PCIE_RX1- — PCIE_RX1- — P27 PERN1
31 PCIE_RX1+ — PCIE_RX1+ — P26 PERP1
31 PCIE_TX1- — PCIE_TX1- C409 — SCD1U10V2KX-4GP — PCIE_TXN1_C N29 PETN1
31 PCIE_TX1+ — PCIE_TX1+ C407 — SCD1U10V2KX-4GP — PCIE_TXP1_C N28 PETP1

MiniCard WLAN

31 PCIE_RX2- — PCIE_RX2- — M27 PERN2
31 PCIE_RX2+ — PCIE_RX2+ — M26 PERP2
31 PCIE_TX2- — PCIE_TX2- C416 — SCD1U10V2KX-4GP — PCIE_TXN2_C L29 PETN2
31 PCIE_TX2+ — PCIE_TX2+ C414 — SCD1U10V2KX-4GP — PCIE_TXP2_C L28 PETP2

Express Card

30 PCIE_RX4- — PCIE_RX4- — K27 PERN3
30 PCIE_RX4+ — PCIE_RX4+ — K26 PERP3
30 PCIE_TX4- — PCIE_TX4- C429 — SCD1U10V2KX-4GP — PCIE_TXN3_C J29 PETN3
30 PCIE_TX4+ — PCIE_TX4+ C425 — SCD1U10V2KX-4GP — PCIE_TXP3_C J28 PETP3

LAN

29 PCIE_RX6- — PCIE_RX6- — H27 PERN4
29 PCIE_RX6+ — PCIE_RX6+ — H26 PERP4
29 PCIE_TX6- — PCIE_TX6- C433 — SCD1U10V2KX-4GP — PCIE_TXN4_C G29 PETN4
29 PCIE_TX6+ — PCIE_TX6+ C432 — SCD1U10V2KX-4GP — PCIE_TXP4_C G28 PETP4

F27 PERN5
F26 PERP5
E29 PETN5
E28 PETP5

D27 PERN6/GLAN_RXN
D26 PERP6/GLAN_RXP
C29 PETN6/GLAN_TXN
C28 PETP6/GLAN_TXP

U29B 2 OF 6

PCI-Express

Direct Media Interface

DMI0RXN V27 DMI_MTX_IRX_N0 — DMI_MTX_IRX_N0 10
DMI0RXP V26 DMI_MTX_IRX_P0 — DMI_MTX_IRX_P0 10
DMI0TXN U29 DMI_MRX_ITX_N0 — DMI_MRX_ITX_N0 10
DMI0TXP U28 DMI_MRX_ITX_P0 — DMI_MRX_ITX_P0 10
DMI1RXN Y27 DMI_MTX_IRX_N1 — DMI_MTX_IRX_N1 10
DMI1RXP Y26 DMI_MTX_IRX_P1 — DMI_MTX_IRX_P1 10
DMI1TXN W29 DMI_MRX_ITX_N1 — DMI_MRX_ITX_N1 10
DMI1TXP W28 DMI_MRX_ITX_P1 — DMI_MRX_ITX_P1 10
DMI2RXN AB26 DMI_MTX_IRX_N2 — DMI_MTX_IRX_N2 10
DMI2RXP AB25 DMI_MTX_IRX_P2 — DMI_MTX_IRX_P2 10
DMI2TXN AA29 DMI_MRX_ITX_N2 — DMI_MRX_ITX_N2 10
DMI2TXP AA28 DMI_MRX_ITX_P2 — DMI_MRX_ITX_P2 10
DMI3RXN AD27 DMI_MTX_IRX_N3 — DMI_MTX_IRX_N3 10
DMI3RXP AD26 DMI_MTX_IRX_P3 — DMI_MTX_IRX_P3 10
DMI3TXN AC29 DMI_MRX_ITX_N3 — DMI_MRX_ITX_N3 10
DMI3TXP AC28 DMI_MRX_ITX_P3 — DMI_MRX_ITX_P3 10
DMI_CLKN T26 CLK_PCIE_ICH# — CLK_PCIE_ICH# 6
DMI_CLKP T25 CLK_PCIE_ICH — CLK_PCIE_ICH 6
DMI_ZCOMP Y23 DMI_COMP — R246 24D9R2F-L-GP — +1.5V_PCIE_ICH
DMI_IRCOMP Y24

DMI_COMP R158 place within 500 mil of ICH8M

SPI

SPI_CLK B23
SPI_CS0# B23
SPI_CS1# F22
SPI_MOSI D23
SPI_MISO F21

USB

USBP0N G3 ICH_USBP0- — ICH_USBP0- 42
USBP0P G2 ICH_USBP0+ — ICH_USBP0+ 42
USBP1N H5 ICH_USBP1- — ICH_USBP1- 42
USBP1P H4 ICH_USBP1+ — ICH_USBP1+ 42
USBP2N H2
USBP2P H1
USBP3N J3
USBP3P J2
USBP4N K5 ICH_USBP4- — ICH_USBP4- 38
USBP4P K4 ICH_USBP4+ — ICH_USBP4+ 38
USBP5N K2 ICH_USBP5- — ICH_USBP5- 23
USBP5P K1 ICH_USBP5+ — ICH_USBP5+ 23
USBP6N L3 ICH_USBP6- — ICH_USBP6- 30
USBP6P L2 ICH_USBP6+ — ICH_USBP6+ 30
USBP7N M5 ICH_USBP7- — ICH_USBP7- 33
USBP7P M4 ICH_USBP7+ — ICH_USBP7+ 33
USBP8N M2
USBP8P M1
USBP9N N3 ICH_USBP9- — ICH_USBP9- 31
USBP9P N2 ICH_USBP9+ — ICH_USBP9+ 31
USBRBIAS F2 USBRBIAS — R272 22D6R2F-L1-GP
USBRBIAS# F3

OC0# AJ19 USB_OC0#
OC1#/GPIO40 AG16 USB_OC1#
OC2#/GPIO41 AG15 USB_OC2#
OC3#/GPIO42 AE15 USB_OC3#
OC4#/GPIO43 AF15 USB_OC4#
OC5#/GPIO29 AG17 USB_OC5#
OC6#/GPIO30 AD12 USB_OC6#
OC7#/GPIO31 AJ18 USB_OC7#
OC8# AD14 USB_OC8#
OC9# AH18 USB_OC9#

42 USB_OC0#
42 USB_OC1#

ICH8-M-1-GP-U-NF

USB0	USB1
USB1	USB2
USB2	
USB3	
USB4	Biometric
USB5	Camera
USB6	Express Card
USB7	BT
USB8	
USB9	MINI Card WWAN

ICH_SPI_CS0# — R597 0R0402-PAD — +3.3V_ALW — U80 74LVC1G08GW-1-GP
37 SPI_CS0# — R612 DY — SPI_CS0# R — 15R2J-GP
R611 — 15R2J-GP — 36 ICH_EC_SPI_CLK — R291 15R2J-GP — ICH_EC_SPI_CLK_R — ICH_SPI_CS# — ICH_SPI_CS1# R
SIO_SPI_CS# 36 — R290 15R2J-GP — ICH_EC_SPI_DO_R — ICH_EC_SPI_DIN
36 ICH_EC_SPI_DO
36 ICH_EC_SPI_DIN

Layout Note:
Place R235, R237 and R234 within 500 mils from ICH.

USBRBIAS close to ICH8M 500 mils and Trace impedance should be 60 ohm +/- 15%

RN67 — SRN10KJ-5-GP — +3.3V_SUS — USB_OC5# — USB_OC4#
RP1 — SRN10KJ-L3-GP — +3.3V_SUS
USB_OC6# — USB_OC7# — USB_OC0# — USB_OC1# — USB_OC2# — USB_OC3# — USB_OC8#

<Variant Name>

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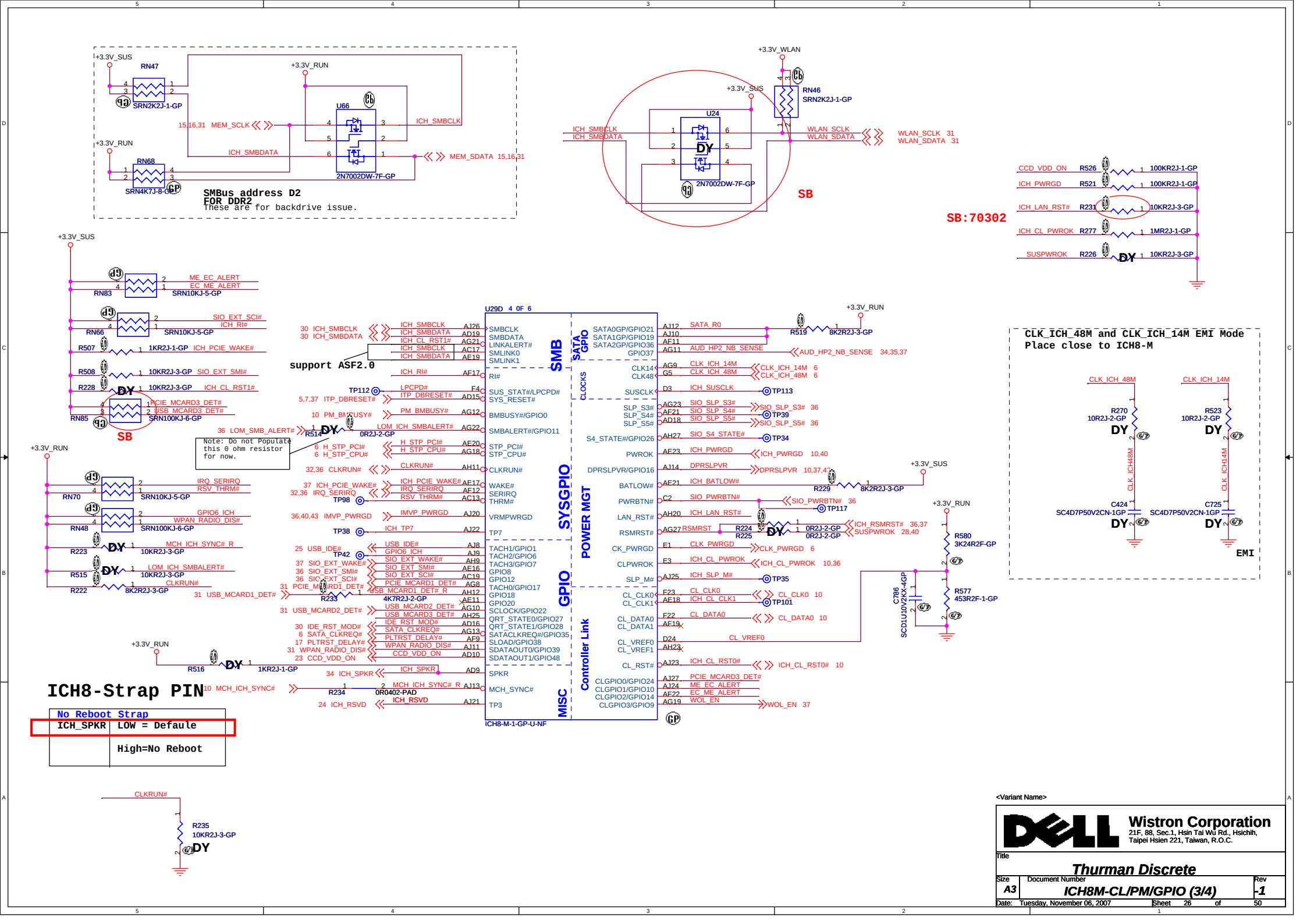
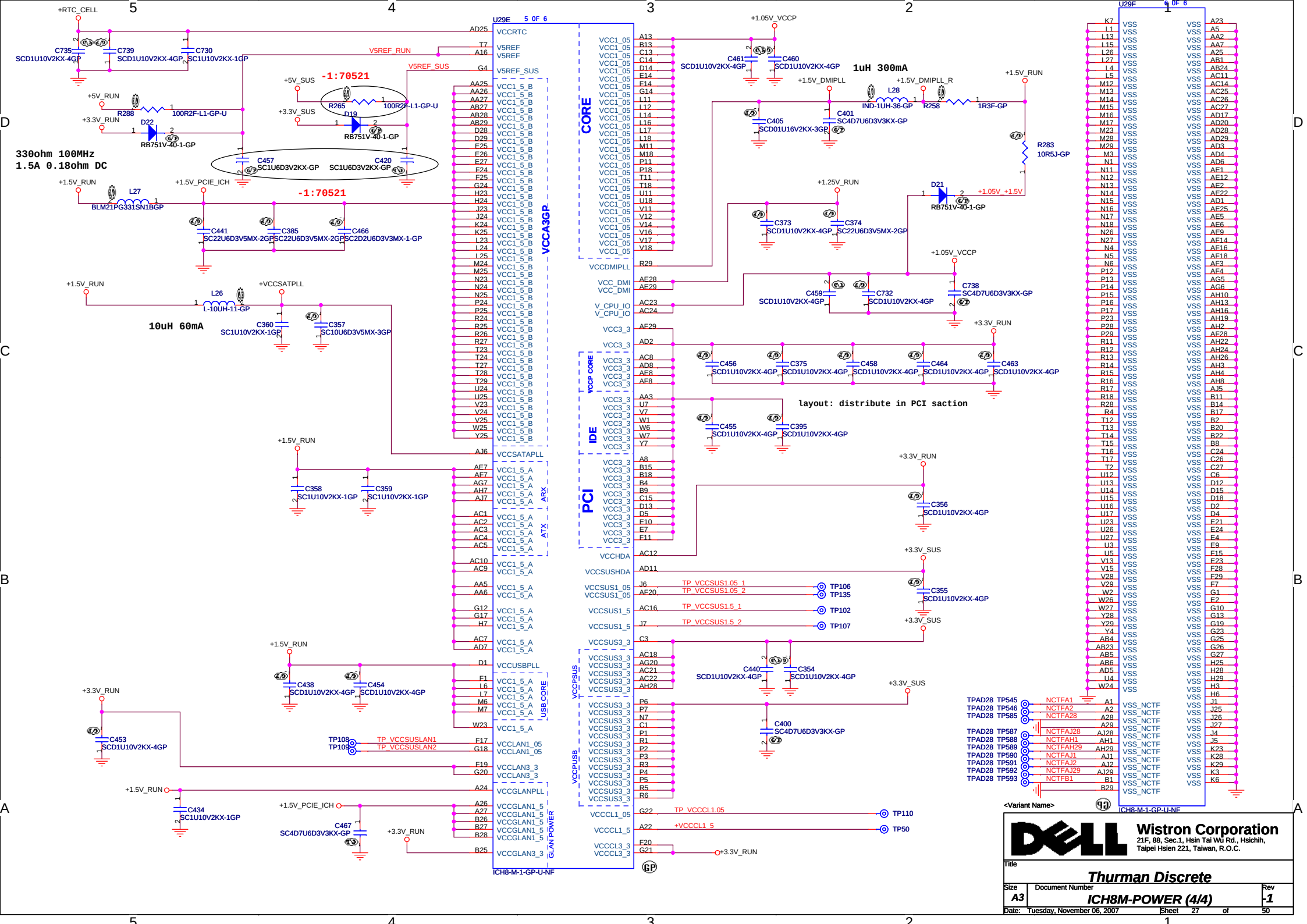
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.

Title: Thurman Discrete
Size: A3 — Document Number: ICH8M-PCIE/USB/SPI/DMI (2/4) — Rev: -1
Date: Thursday, November 22, 2007 — Sheet 25 of 50


SMBus address D2
FOR DDR2
These are for backdrive issue.
SB
SB:70302
support ASF2.0
Note: Do not Populate this 0 ohm resistor for now.
CLK_ICH_48M and CLK_ICH_14M EMI Mode
Place close to ICH8-M
EMI
ICH8-Strap PIN
No Reboot Strap
ICH_SPKR LOW = Defaule
High=No Reboot
ICH8-M-1-GP-U-NF
SMB
SATA GPIO
CLOCKS
SYSGPIO
POWER MGT
GPIO
Controller Link
MISC
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Thurman Discrete
ICH8M-CL/PM/GPIO (3/4)
Tuesday, November 06, 2007


+RTC_CELL
C735 SCD1U10V2KX-4GP
C739 SCD1U10V2KX-4GP
C730 SC1U10V2KX-1GP
V5REF_RUN
V5REF_SUS
+5V_SUS
-1:70521
R265 100R2F-L1-GP-U
D19 RB751V-40-1-GP
+5V_RUN
R288 100R2F-L1-GP-U
+3.3V_RUN
D22 RB751V-40-1-GP
330ohm 100MHz
1.5A 0.18ohm DC
C457 SC1U6D3V2KX-GP
C420 SC1U6D3V2KX-GP
+1.5V_RUN
L27 BLM21PG331SN1BGP
+1.5V_PCIE_ICH
-1:70521
C441 SC22U6D3V5MX-2GP
C385 SC22U6D3V5MX-2GP
C466 SC2D2U6D3V3MX-1-GP
+1.5V_RUN
L26 L-10UH-11-GP
10uH 60mA
+VCCSATAPLL
C360 SC1U10V2KX-1GP
C357 SC10U6D3V5MX-3GP
+1.5V_RUN
C358 SC1U10V2KX-1GP
C359 SC1U10V2KX-1GP
+1.5V_RUN
C438 SCD1U10V2KX-4GP
C454 SCD1U10V2KX-4GP
+3.3V_RUN
C453 SCD1U10V2KX-4GP
TP108
TP109
TP_VCCSUSLAN1
TP_VCCSUSLAN2
+1.5V_RUN
C434 SC1U10V2KX-1GP
+1.5V_PCIE_ICH
C467 SC4D7U6D3V3KX-GP
+3.3V_RUN
U29E 5 OF 6
VCCRTC
V5REF
V5REF
V5REF_SUS
VCCA3GP
VCCSATAPLL
ARX
ATX
USB_CORE
VCCUSBPLL
VCCLAN1_05
VCCLAN3_3
VCCGLANPLL
GLAN_POWER
CORE
VCCDMIPLL
VCCP CORE
IDE
PCI
VCCHDA
VCCSUSHDA
VCCSUS1_05
VCCSUS1_5
VCCSUS3_3
VCCPSUS
VCCPUSB
VCCCL1_05
VCCCL1_5
VCCCL3_3
ICH8-M-1-GP-U-NF
+1.05V_VCCP
C461 SCD1U10V2KX-4GP
C460 SCD1U10V2KX-4GP
1uH 300mA
+1.5V_DMIPLL
+1.5V_DMIPLL_R
L28 IND-1UH-36-GP
R258 1R3F-GP
+1.5V_RUN
C405 SCD01U16V2KX-3GP
C401 SC4D7U6D3V3KX-GP
R283 10R5J-GP
+1.25V_RUN
D21 RB751V-40-1-GP
+1.05V +1.5V
C373 SCD1U10V2KX-4GP
C374 SC22U6D3V5MX-2GP
+1.05V_VCCP
C459 SCD1U10V2KX-4GP
C732 SCD1U10V2KX-4GP
C738 SC4D7U6D3V3KX-GP
+3.3V_RUN
C456 SCD1U10V2KX-4GP
C375 SCD1U10V2KX-4GP
C458 SCD1U10V2KX-4GP
C464 SCD1U10V2KX-4GP
C463 SCD1U10V2KX-4GP
layout: distribute in PCI saction
C455 SCD1U10V2KX-4GP
C395 SCD1U10V2KX-4GP
+3.3V_RUN
C356 SCD1U10V2KX-4GP
+3.3V_SUS
C355 SCD1U10V2KX-4GP
TP_VCCSUS1.05_1
TP_VCCSUS1.05_2
TP106
TP135
TP_VCCSUS1.5_1
TP102
TP_VCCSUS1.5_2
TP107
+3.3V_SUS
C440 SCD1U10V2KX-4GP
C354 SCD1U10V2KX-4GP
+3.3V_SUS
C400 SC4D7U6D3V3KX-GP
TP_VCCCL1.05
TP110
+VCCCL1_5
TP50
+3.3V_RUN
U29F 6 OF 6
VSS_NCTF
NCTFA1
NCTFA2
NCTFA28
NCTFAJ28
NCTFAH1
NCTFAH29
NCTFAJ1
NCTFAJ2
NCTFAJ29
NCTFB1
TPAD28 TP545
TPAD28 TP546
TPAD28 TP585
TPAD28 TP587
TPAD28 TP588
TPAD28 TP589
TPAD28 TP590
TPAD28 TP591
TPAD28 TP592
TPAD28 TP593
<Variant Name>
ICH8-M-1-GP-U-NF
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Thurman Discrete
Size A3
Document Number ICH8M-POWER (4/4)
Rev -1
Date: Tuesday, November 06, 2007
Sheet 27 of 50

SSID = THERMAL

REM_DIODE1_N and REM_DIODE1_P routing Trace width and Spacing use 10 / 10 mil

Place inside CPU socket

C455 Please close to Guardian

C456 Please close to Guardian

H_THERMDA and H_THERMDC routing Trace width and Spacing use 10 / 10 mil

C451 Please Close to Guardian

Place near the bottom SODIMM CONN

REM_DIODE4_N and REM_DIODE4_P routing Trace width and Spacing use 10 / 10 mil

Thermal sensor for Mini Card should be placed TOP Side under WWAN CARD

C459 Please Close to Guardian

Thermal sensor for VGA

C453 Please Close to Guardian

Close to Pin5, Pin6

Close to Pin9

U16

EMC4001-HZH-1GP

Version B: 74.04001.A73

Note :

VSET = (Tp - 70) / 21
3.3 * (R411/ R406 + R411) = (Tp - 70) / 21
Where Tp = 70 to 101 degrees C
Tp set at 88 degrees C
Guardian temp tolerance = +/- 3 degrees C

should be placed BOT DIMM

pull up on SIO

C916, C459, C472 Please Close to Guardian

VGA THERMALTRIP

CPU THERMALTRIP

MCH THERMALTRIP

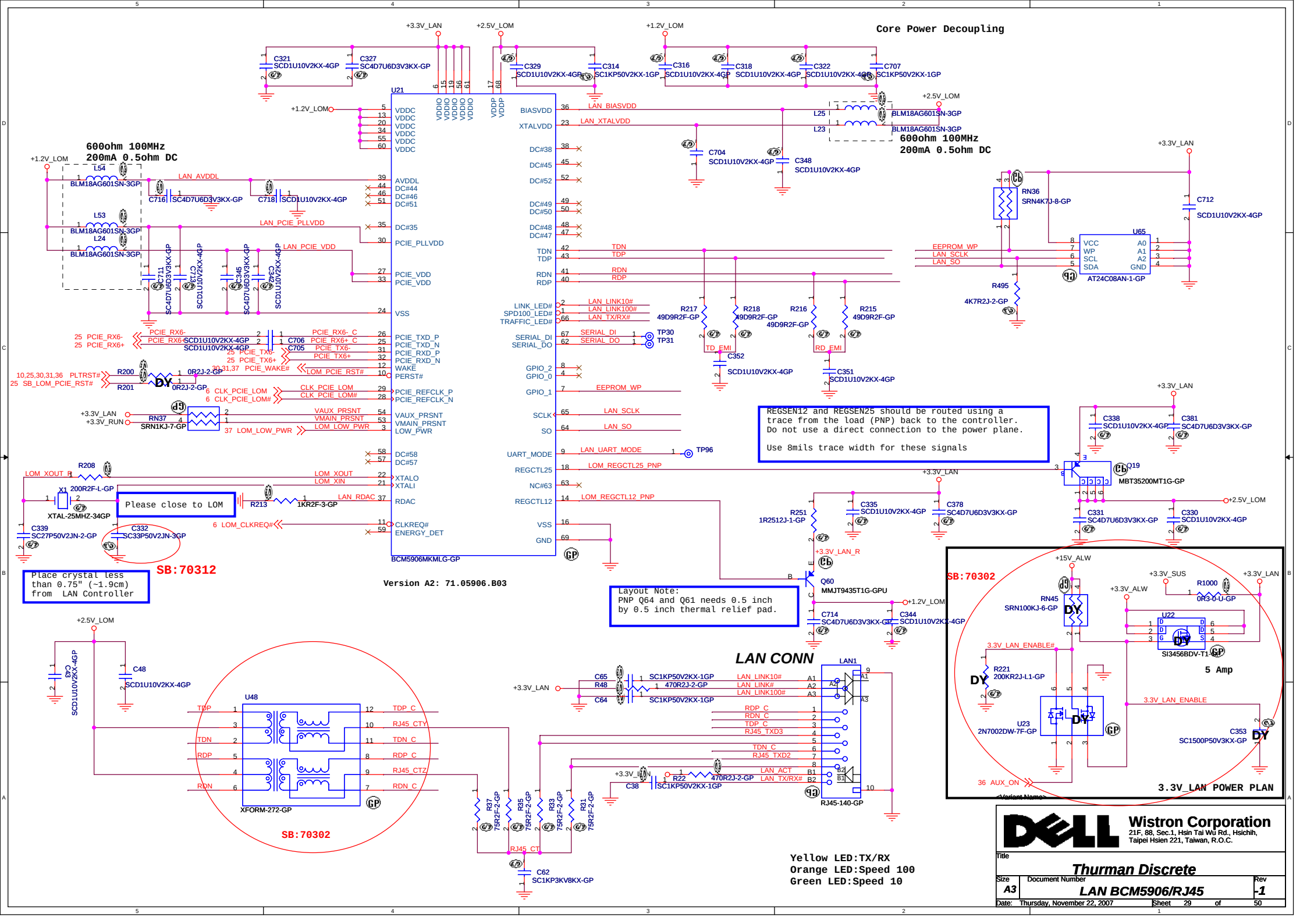
熱敏電阻

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

Title: Thurman Discrete

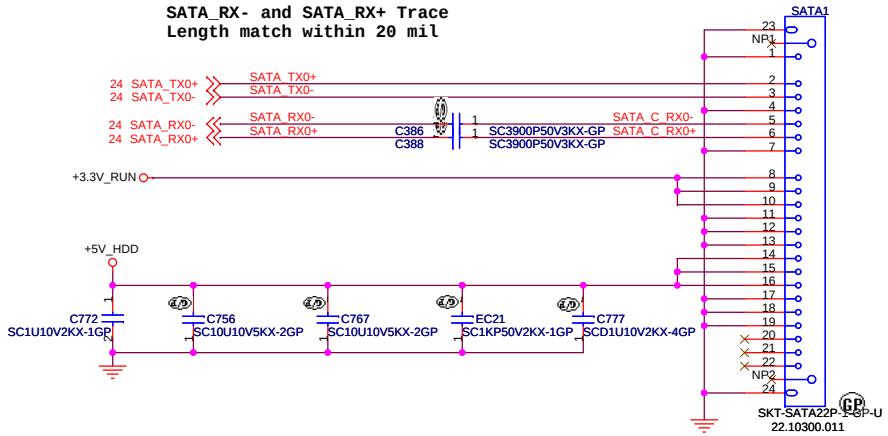
Size: A3 | Document Number: FAN/EMC4001 | Rev: -1

Date: Tuesday, November 06, 2007 | Sheet 28 of 50

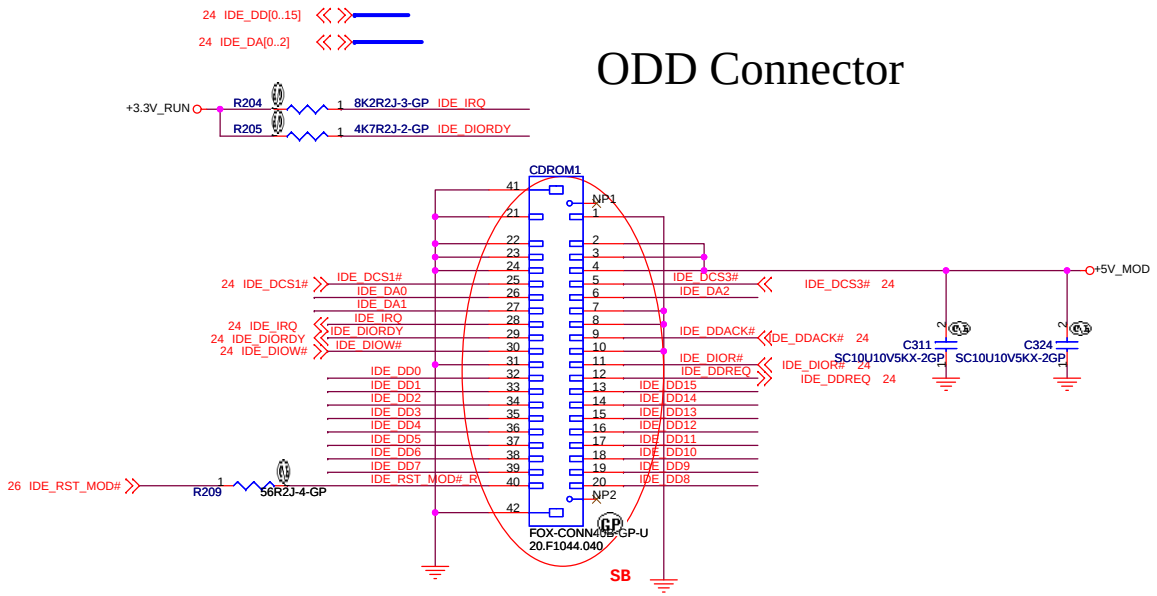

Core Power Decoupling
600ohm 100MHz
200mA 0.5ohm DC
U21
BCM5906MKMLG-GP
Version A2: 71.05906.B03
SB:70312
Please close to LOM
Place crystal less than 0.75" (~1.9cm) from LAN Controller
REGSEN12 and REGSEN25 should be routed using a trace from the load (PNP) back to the controller. Do not use a direct connection to the power plane.
Use 8mils trace width for these signals
Layout Note: PNP Q64 and Q61 needs 0.5 inch by 0.5 inch thermal relief pad.
LAN CONN
LAN1
RJ45-140-GP
XFORM-272-GP
SB:70302
5 Amp
3.3V_LAN POWER PLAN
Yellow LED:TX/RX
Orange LED:Speed 100
Green LED:Speed 10
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
Thurman Discrete
LAN BCM5906/RJ45
Date: Thursday, November 22, 2007
Sheet 29 of 50

SSID = IDE & SATA

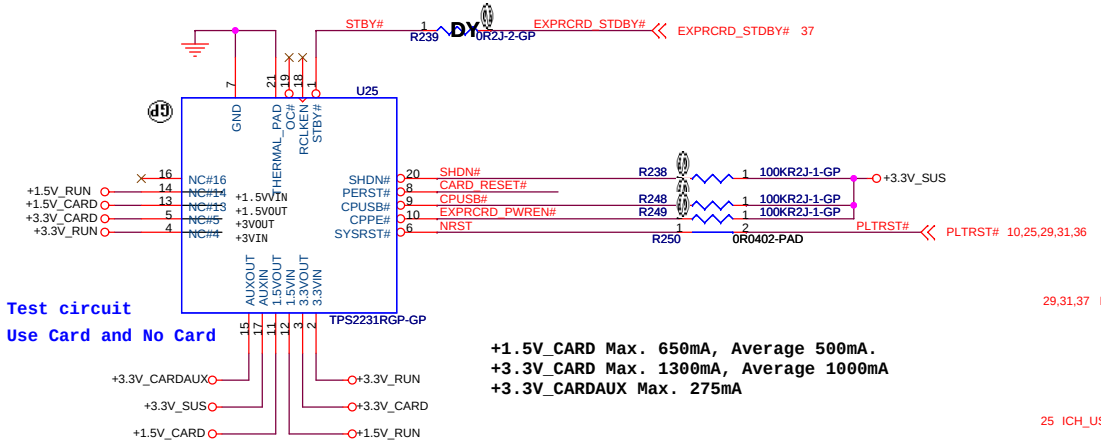
SATA HDD Connector



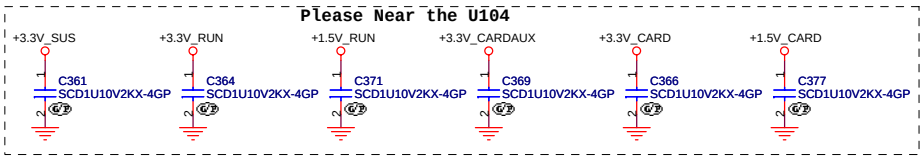
ODD Connector

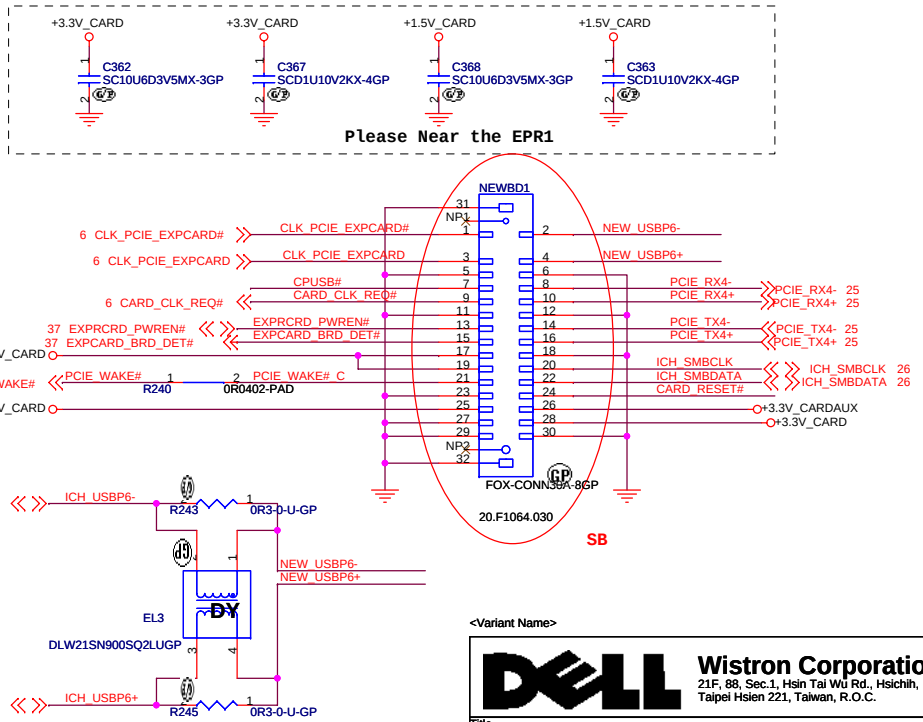


Express Card



+1.5V_CARD Max. 650mA, Average 500mA.
+3.3V_CARD Max. 1300mA, Average 1000mA
+3.3V_CARDAUX Max. 275mA





<Variant Name>

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

Title: ***Thurman Discrete***

Size	Document Number	Rev
A3	HDD/ODD/TO EXPRESS BD CONN	-1

Date: Tuesday, November 06, 2007 Sheet 30 of 50

JMINI Pin	Debug Pin Name	EC Pin
16	HOST_DEBUG_TX	70
17	HOST_DEBUG_RX	71
19	8051_TX	82
42	8051_RX	81

DEBUG PINS

MiniCard WLAN connector

WLAN1
SKT-MINI52P-9-GP
62.10043.411

Prevent backdrive when WoW is enabled.

C587 Please Near the MINICARD1/Pin24

For Debug card used only.

SB : 70302

SB:070208

SE:070412

This circuit is only needed if the platform has the SNIFFER

MiniCard WWAN connector

SB : 70215

Layout note: Place caps EC10-EC14 close Mini Card connector.

C595 Please Near the MINICARD2/Pin24

SB

SC:70330

close to SIM1.C1

SE:070408

Close WLAN1

SIM1
CARDBUS6P-GP
62.10024.841

WWAN1
SKT-MINI52P-5-GP
20.F0832.052

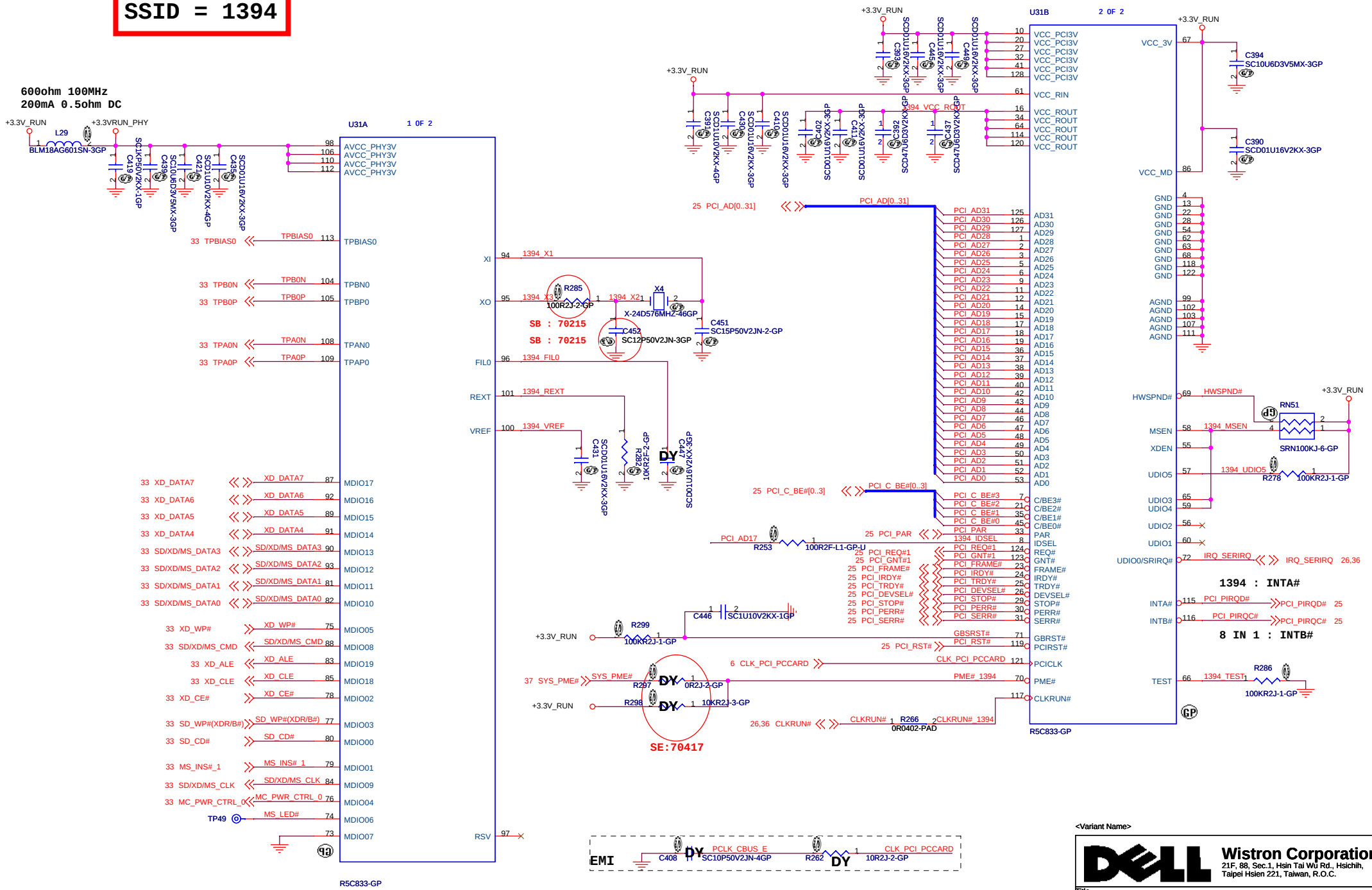
Layout note: Place caps EC87,EC88 close SIM Card connector.

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

Title: Thurman Discrete
Size: A3
Document Number: MINICARD/WLAN/WWAN
Rev: -1
Date: Tuesday, November 06, 2007
Sheet 31 of 50

SSID = 1394

600ohm 100MHz
200mA 0.5ohm DC



<Variant Name>

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

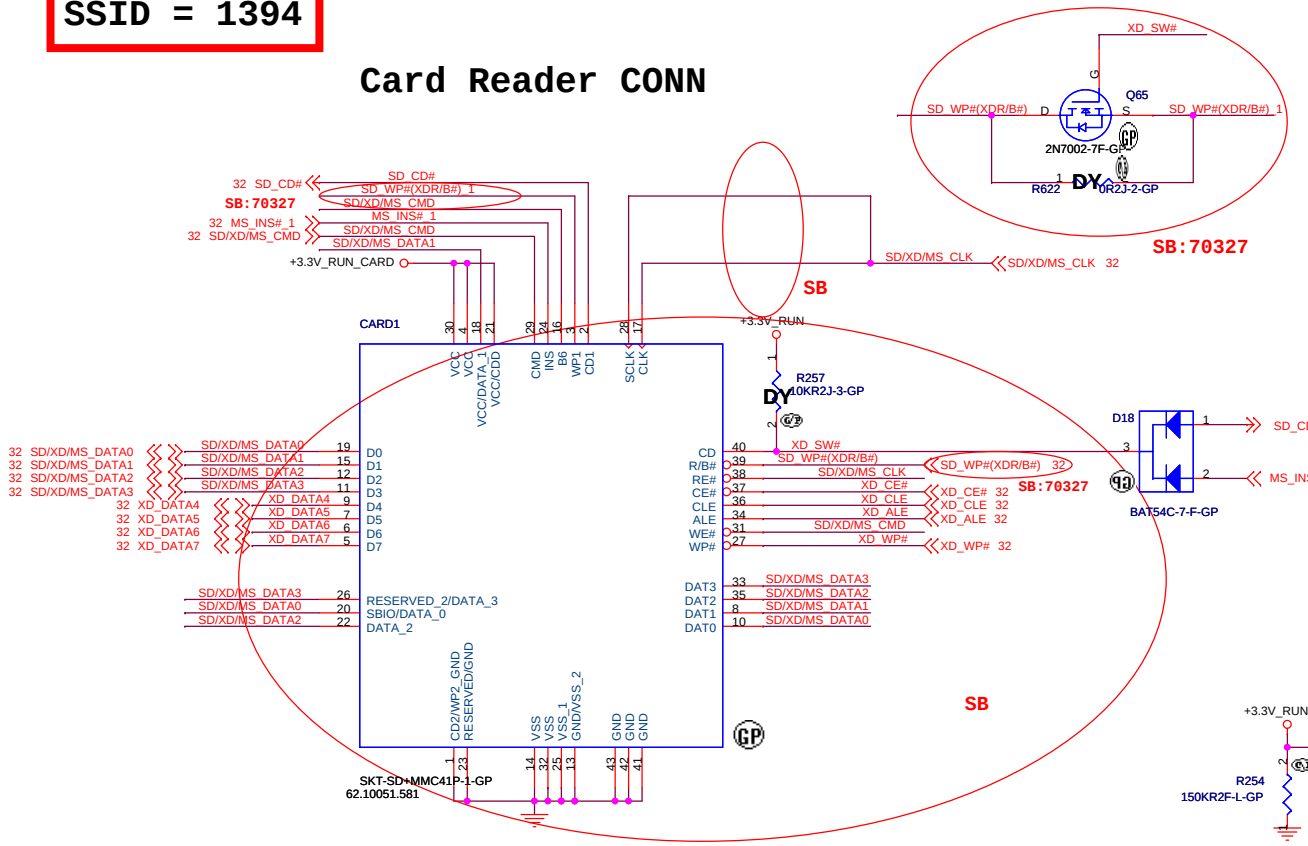
Title: ***Thurman Discrete***

Size	Document Number	Rev
A3	1394 R5C833	-1

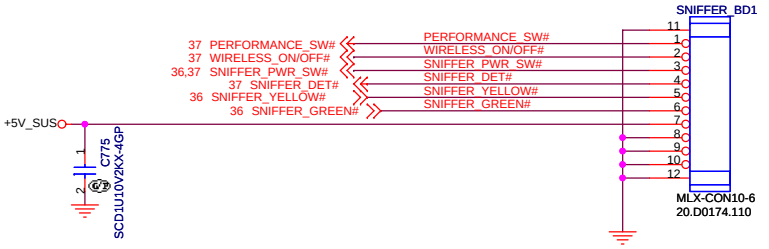
Date: Tuesday, November 06, 2007 Sheet 32 of 50

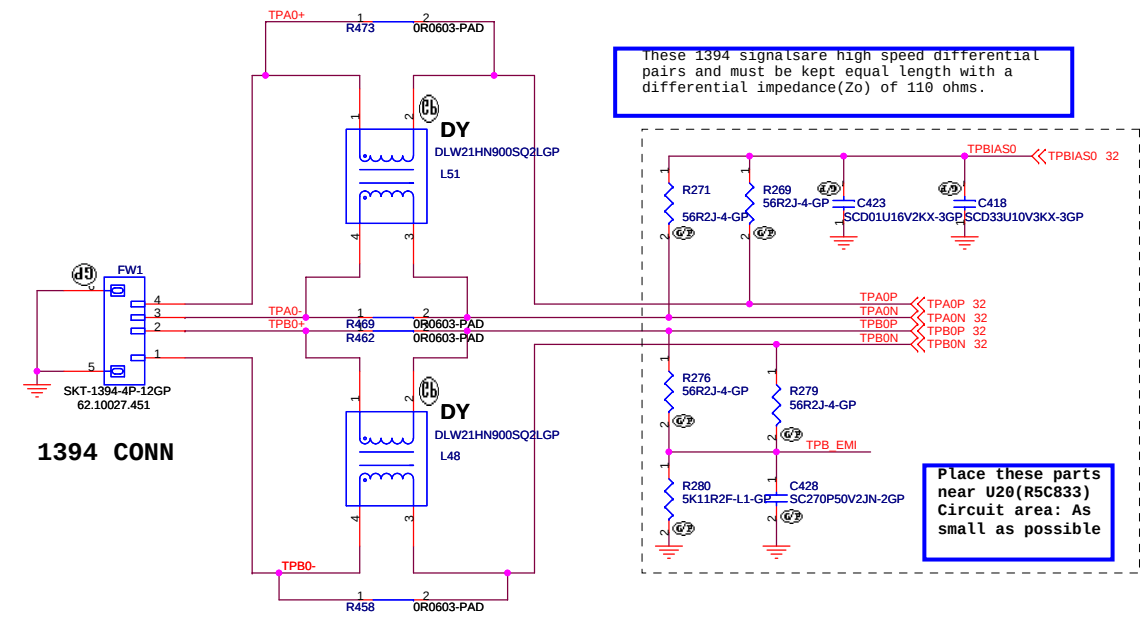
SSID = 1394

Card Reader CONN



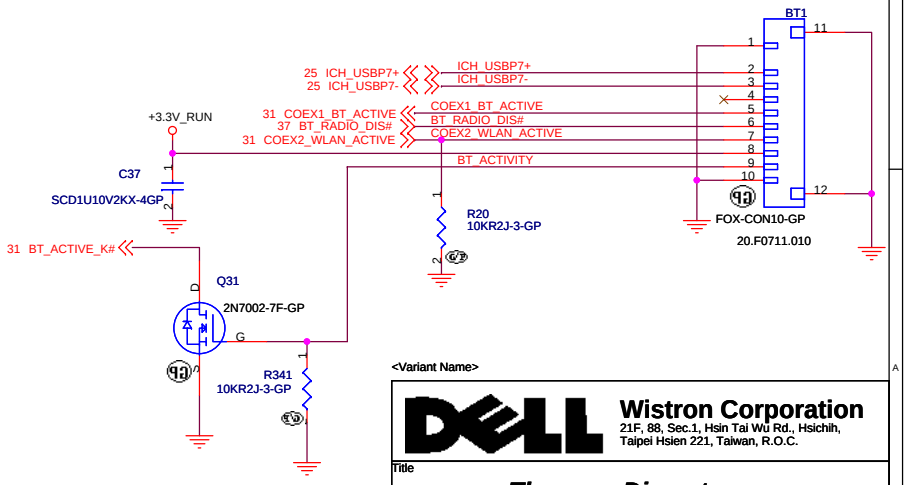
SNIFFER BOARD CONN





1394 CONN

Bluetooth Module conn.



<Variant Name>

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

Title: Thurman Discrete

Size	Document Number	Rev
A3	8in1 /1394/SNIFFER BD CON/BT	-1

Date: Tuesday, November 06, 2007 Sheet 33 of 50

60ohm 100MHz
3000mA 0.05ohm DC

+3.3V_RUN
L60
BLM21PG600SN-1GP
+3V_RUN_DVDD_CORE
C783 SCD1U10V2KX-4GP
C450 SCD1U10V2KX-4GP
C791 SC1U10V2KX-1GP
R284 100KR2J-1-GP
C448 SC1KP50V2KX-1GP
+3V_RUN_DVDD_CORE3

U76
DVDD_CORE
DVDD_CORE
DVDD
BIT_CLK
SDATA_IN
SDATA_OUT
SYNC
RESET#
AVDD1
AVDD2
SENSE_A
SENSE_B
PORT_A_L
PORT_A_R
VREFOUT_A
PORT_B_L
PORT_B_R
VREFOUT_B
PORT_C_L
PORT_C_R
VREFOUT_C
PORT_D_L
PORT_D_R
VREFOUT_D
PORTE_L
PORTE_R
VREFOUT_E
PORTF_L
PORTF_R
VREFOUT_F
PORTG_L
PORTG_R
PORTH_L
PORTH_R
CD_L
CD_GND
CD_R
VOLUME UP/DMIC_0/GPIO1
VOLUME DN/DMIC_1/GPIO2
SPDIF_IN/GPIO0/DMIC_CLK
SPDIF_OUT
DVSS1
DVSS2
PC_BEEP
CAP2
VREFFILT
AVSS1
AVSS2
STAC9228X5TAEB4X-GP

+VDDA
C770 SCD1U10V2KX-4GP
C436 SC1U10V2KX-1GP

24 ICH_AZ_CODEC_BITCLK
24 ICH_AZ_CODEC_SDIN0
24 ICH_AZ_CODEC_SDOUT
24 ICH_AZ_CODEC_SYNC
24 ICH_AZ_CODEC_RST#
R583 33R2J-2-GP
SB_AZ_CODEC_SDIN0_R

+3.3V_RUN
U36
74LVC1G125DC-GP
23 AUD_DMIC_CLK_G
AUD_DMIC_CLK
R306 0R2J-2-GP

23 AUD_DMIC_IN0
35 AUD_EAPD#
AUD_DMIC_IN0
AUD_EAPD#
R584 4K7R2J-2-GP
11/06
AUD_DMIC_CLK
17 AUD_SPDIF_OUT
AUD_SPDIF_OUT

AUD_SENSE_A
AUD_SENSE_B
AUD_HP1_OUT_L
AUD_HP1_OUT_R
AUD_HP1_OUT_L 35
AUD_HP1_OUT_R 35
TO Audio OP
AUD_LINE_OUT_L
AUD_LINE_OUT_R
AUD_LINE_OUT_L 35
AUD_LINE_OUT_R 35
AUD_EXT_MIC_L
AUD_EXT_MIC_R
AUD_VREFOUT_B
AUD_HP2_OUT_L 35
AUD_HP2_OUT_R 35
AUD_PC_BEEP
AUD_CAP2
AUD_VREFFLT
C760 SC10U10V5KX-2GP
C761 SC10U10V5KX-2GP

PORT C : LEAVE NC
IF NO INTERNAL MICS.

Port A---> HP1
Port E---> ext Mic
Port D---> Speaker
Port F---> HP2

+VDDA
R569 5K1R2F-2-GP
R573 39K2R2F-L-GP
C778 SC1KP50V2KX-1GP
HP1_NB_SENSE
Q64 2N7002-7F-GP
AUD_HP1_NB_SENSE 35,37
R300 5K1R2F-2-GP
R316 39K2R2F-L-GP
R313 20KR2J-L2-GP
C758 SC1KP50V2KX-1GP
SB
MIC_SWITCH
AUD_HP2_NB_SENSE 26,35,37
Q24 2N7002DW-7F-GP
HP2_NB_SENSE
AUD_MIC_SWITCH

Change R352 to 2.67K
1% for AD1984

If SENSE_A total length
> 6" change C to 0.1uF

PC BEEP
C780 SCD1U10V2KX-4GP
AUD_BEEP
R302 20KR2J-L2-GP
AUD_SYS_BEEP
10KR2J-3-GP
R587
SB

+VDDA
U33
74AHC1G86GW-GP
From SB
ICH_SPKR 26
BEEP 36
From EC
XOR gate

B0 Version:71.09228.A0G

Azalia I/F EMI
ICH_AZ_CODEC_SDOUT
R578 47R2J-2-GP
DY
ICH_AZ_CODEC_SDOUT1
C787 SCD1U10V2KX-4GP

Azalia I/F EMI
ICH_AZ_CODEC_BITCLK
R579 47R2J-2-GP
DY
ICH_AZ_CODEC_BITCLK1
C788 SCD1U10V2KX-4GP

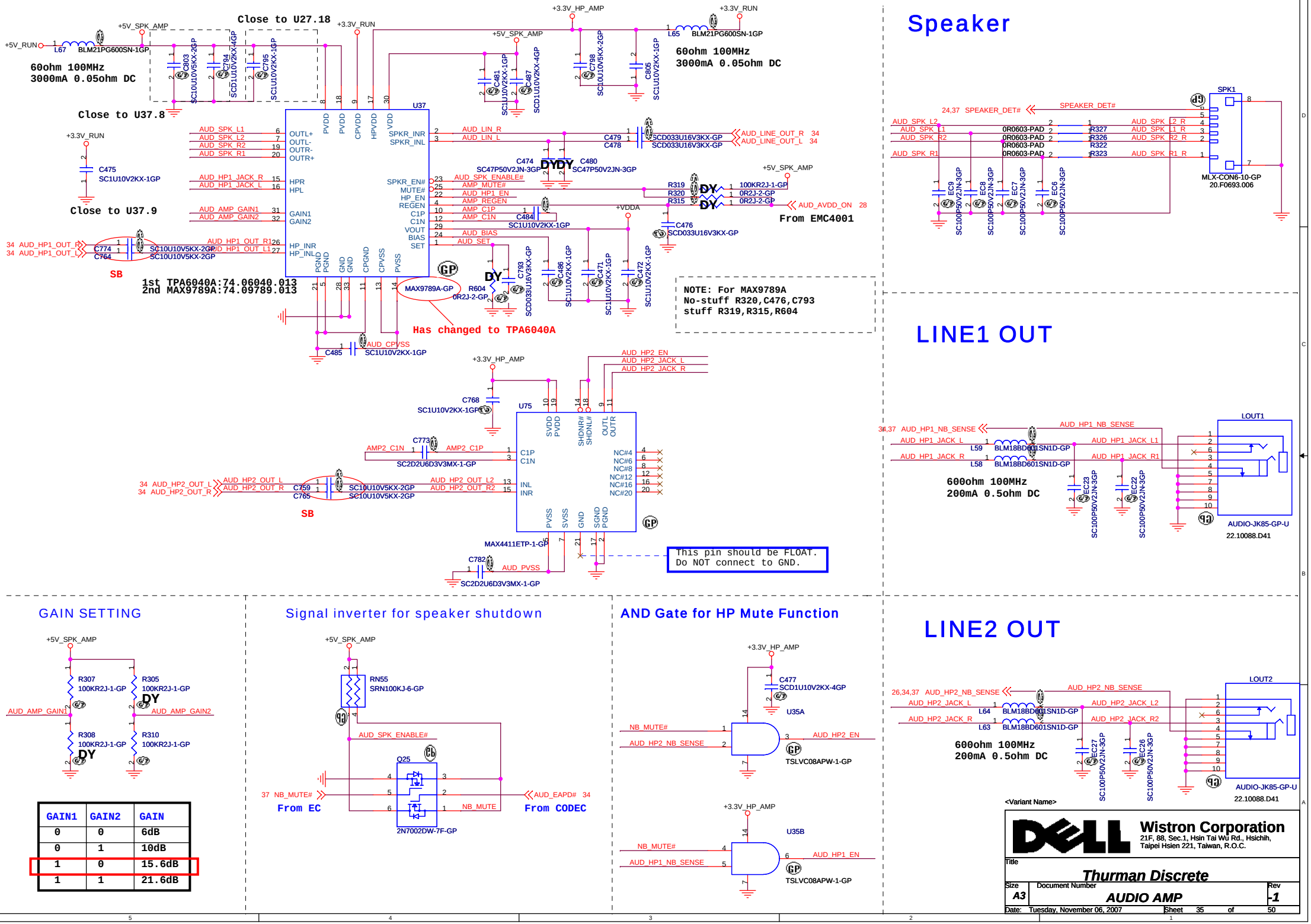
MIC IN
AUD_VREFOUT_B
R576 4K7R2J-2-GP
R599 4K7R2J-2-GP
C790 SC10U10V5KX-2GP
AUD_EXT_MIC_L
AUD_EXT_MIC_R
C785 SC1U6D3V3KX-1GP
C789 SC1U6D3V3KX-1GP
MIC_IN_L_2
MIC_IN_R_2
R586
R594
-1:70507
MIC_IN_L_3
MIC_IN_R_3
0R0402-PAD
BLM18BD601SN1D-GP
L62
L61
MIC_IN_L_C
MIC_IN_R_C
EC25 SC100P50V2JN-3GP
EC24 SC100P50V2JN-3GP
+3.3V_RUN
R602 100KR2J-1-GP
AUD_MIC_SWITCH
MIC1
AUDIO-JK85-GP-U
22.10088.D41

600ohm 100MHz
200mA 0.5ohm DC

<Variant Name>

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

Title: Thurman Discrete
Size: A3
Document Number: CODEC STAC9228
Rev: -1
Date: Thursday, November 22, 2007
Sheet 34 of 50



GAIN1	GAIN2	GAIN
0	0	6dB
0	1	10dB
1	0	15.6dB
1	1	21.6dB

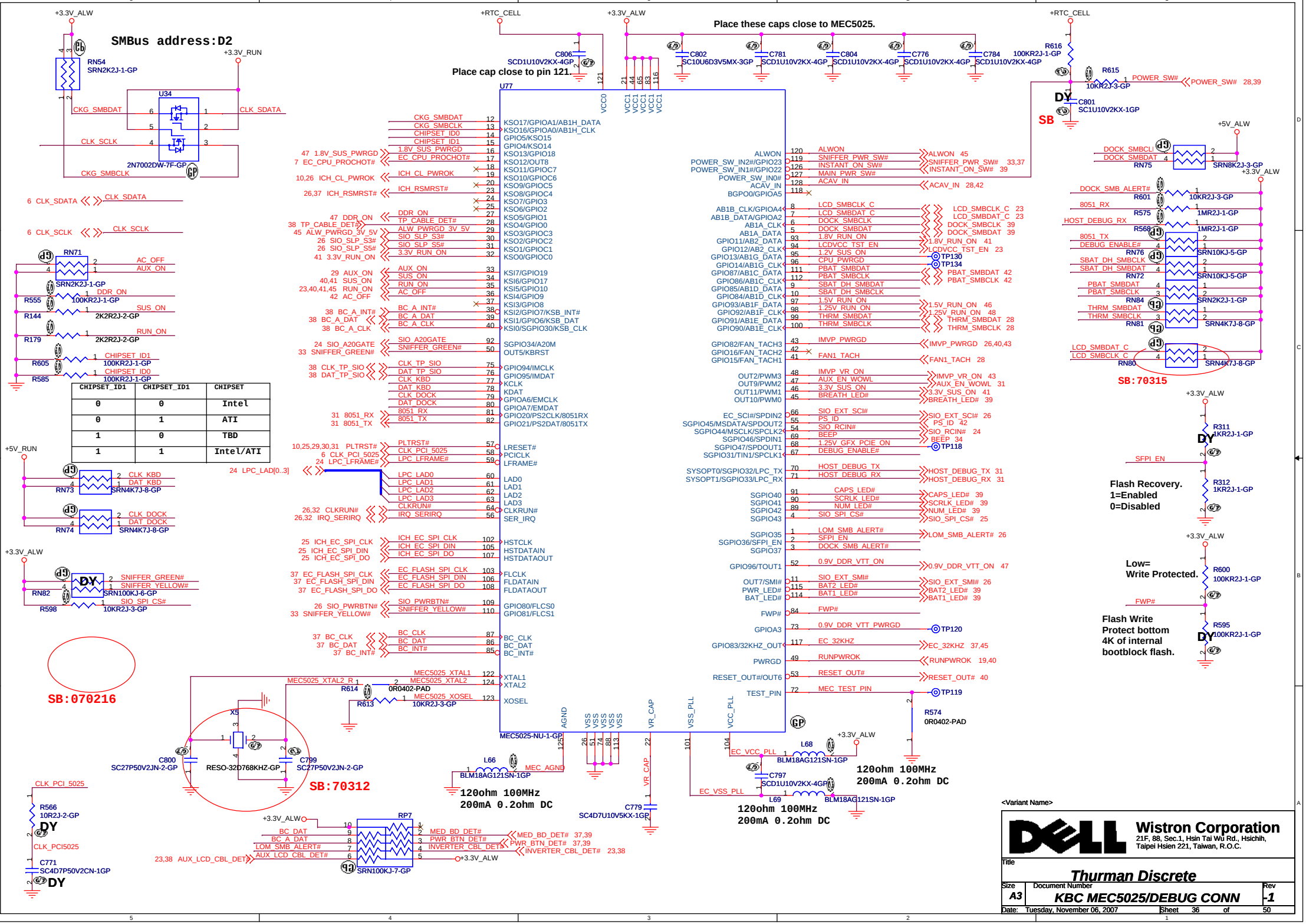
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: Thurman Discrete

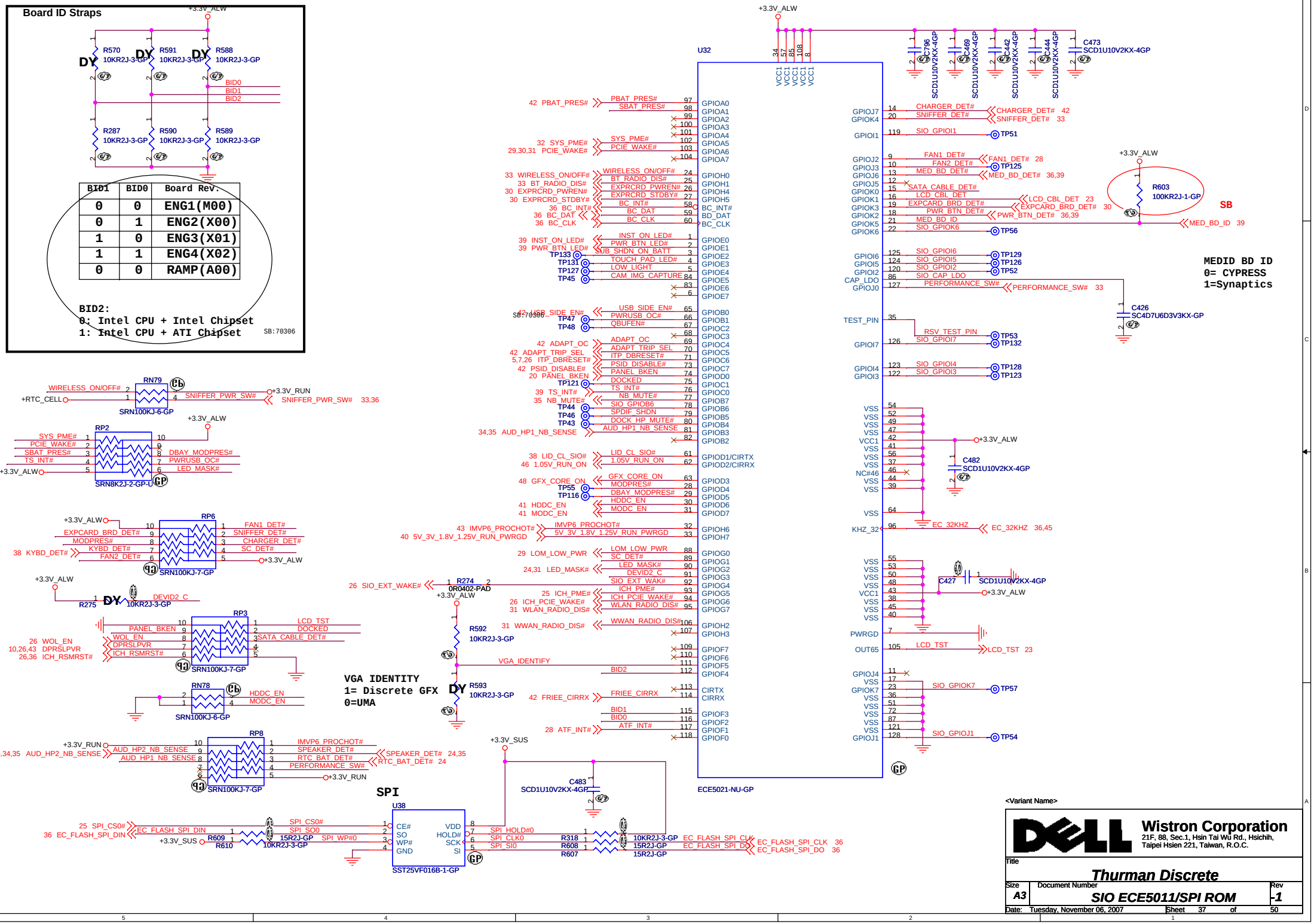
Size: A3 | Document Number: AUDIO AMP | Rev: -1

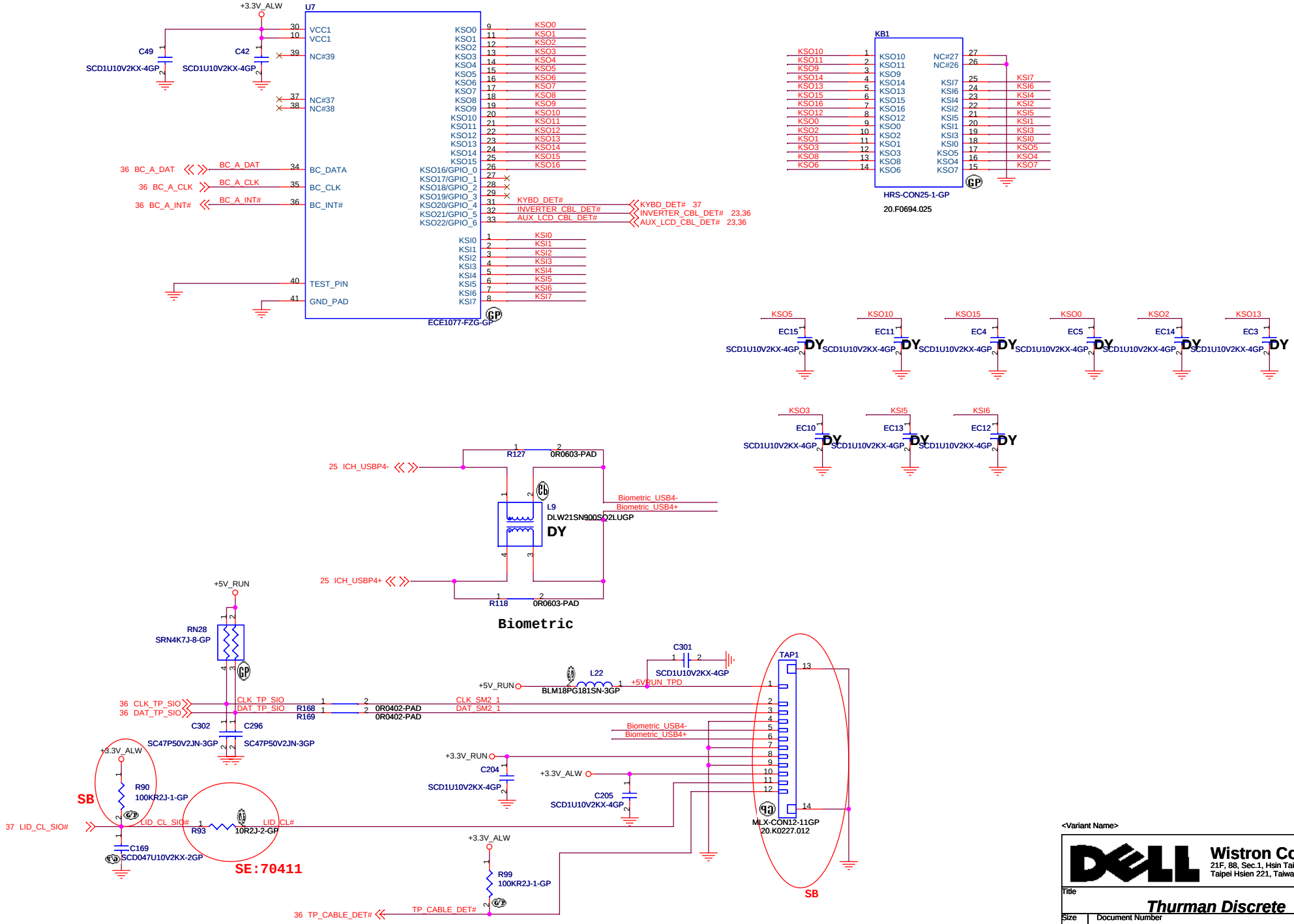
Date: Tuesday, November 06, 2007 | Sheet 35 of 50

<Variant Name>



CHIPSET_ID1	CHIPSET_ID1	CHIPSET
0	0	Intel
0	1	ATI
1	0	TBD
1	1	Intel/ATI


Board ID Straps
+3.3V_ALW
R570 10KR2J-3-GP DY
R591 10KR2J-3-GP DY
R588 10KR2J-3-GP DY
BID0
BID1
BID2
R287 10KR2J-3-GP
R590 10KR2J-3-GP
R589 10KR2J-3-GP
BID1 BID0 Board Rev.
0 0 ENG1(M00)
0 1 ENG2(X00)
1 0 ENG3(X01)
1 1 ENG4(X02)
0 0 RAMP(A00)
BID2:
0: Intel CPU + Intel Chipset
1: Intel CPU + ATI Chipset
SB:70306
U32
ECE5021-NU-GP
+3.3V_ALW
C796 SCD1U10V2KX-4GP
C469 SCD1U10V2KX-4GP
C442 SCD1U10V2KX-4GP
C444 SCD1U10V2KX-4GP
C473 SCD1U10V2KX-4GP
42 PBAT_PRES#
PBAT_PRES#
SBAT_PRES#
32 SYS_PME#
29,30,31 PCIE_WAKE#
SYS_PME#
PCIE_WAKE#
33 WIRELESS_ON/OFF#
33 BT_RADIO_DIS#
30 EXPRCRD_PWREN#
30 EXPRCRD_STDBY#
36 BC_INT#
36 BC_DAT
36 BC_CLK
WIRELESS_ON/OFF#
BT_RADIO_DIS#
EXPRCRD_PWREN#
EXPRCRD_STDBY#
BC_INT#
BC_DAT
BC_CLK
39 INST_ON_LED#
39 PWR_BTN_LED#
TP133
TP131
TP127
TP45
INST_ON_LED#
PWR_BTN_LED#
SUB_SHDN_ON_BATT
TOUCH_PAD_LED#
LOW_LIGHT
CAM_IMG_CAPTURE
42 USB_SIDE_EN#
SB:70308
TP47
TP48
USB_SIDE_EN#
PWRUSB_OC#
QBUFEN#
42 ADAPT_OC
42 ADAPT_TRIP_SEL
5,7,26 ITP_DBRESET#
42 PSID_DISABLE#
20 PANEL_BKEN
TP121
39 TS_INT#
35 NB_MUTE#
TP44
TP46
TP43
34,35 AUD_HP1_NB_SENSE
ADAPT_OC
ADAPT_TRIP_SEL
ITP_DBRESET#
PSID_DISABLE#
PANEL_BKEN
DOCKED
TS_INT#
NB_MUTE#
SIO_GPIOB6
SPDIF_SHDN
DOCK_HP_MUTE#
AUD_HP1_NB_SENSE
38 LID_CL_SIO#
46 1.05V_RUN_ON
LID_CL_SIO#
1.05V_RUN_ON
48 GFX_CORE_ON
TP55
TP116
41 HDDC_EN
41 MODC_EN
GFX_CORE_ON
MODPRES#
DBAY_MODPRES#
HDDC_EN
MODC_EN
43 IMVP6_PROCHOT#
40 5V_3V_1.8V_1.25V_RUN_PWRGD
IMVP6_PROCHOT#
5V_3V_1.8V_1.25V_RUN_PWRGD
29 LOM_LOW_PWR
24,31 LED_MASK#
LOM_LOW_PWR
SC_DET#
LED_MASK#
DEVID2_C
SIO_EXT_WAK#
26 SIO_EXT_WAKE#
R274 0R0402-PAD
25 ICH_PME#
26 ICH_PCIE_WAKE#
31 WLAN_RADIO_DIS#
ICH_PME#
ICH_PCIE_WAKE#
WLAN_RADIO_DIS#
31 WWAN_RADIO_DIS#
WWAN_RADIO_DIS#
R592 10KR2J-3-GP
VGA_IDENTIFY
BID2
R593 10KR2J-3-GP DY
42 FRIEE_CIRRX
FRIEE_CIRRX
BID1
BID0
28 ATF_INT#
ATF_INT#
CIRTX
CIRRX
GPIOA0 GPIOA1 GPIOA2 GPIOA3 GPIOA4 GPIOA5 GPIOA6 GPIOA7
GPIOH0 GPIOH1 GPIOH4 GPIOH5
BC_INT# BD_DAT BC_CLK
GPIOE0 GPIOE1 GPIOE2 GPIOE3 GPIOE4 GPIOE5 GPIOE6 GPIOE7
GPIOB0 GPIOB1 GPIOC2 GPIOC3 GPIOC4 GPIOC5 GPIOC6 GPIOC7 GPIOD0 GPIOC1 GPIOC0 GPIOB7 GPIOB6 GPIOB5 GPIOB4 GPIOB3 GPIOB2
GPIOD1/CIRTX GPIOD2/CIRRX
GPIOD3 GPIOD4 GPIOD5 GPIOD6 GPIOD7
GPIOH6 GPIOH7
GPIOG0 GPIOG1 GPIOG2 GPIOG3 GPIOG4 GPIOG5 GPIOG6 GPIOG7
GPIOH2 GPIOH3
GPIOF7 GPIOF6 GPIOF5 GPIOF4
GPIOF3 GPIOF2 GPIOF1 GPIOF0
GPIOJ7 GPIOK4 GPIOI1 GPIOJ2 GPIOJ3 GPIOJ6 GPIOJ5 GPIOK0 GPIOK1 GPIOK3 GPIOK2 GPIOK5 GPIOK6
CHARGER_DET# SNIFFER_DET# SIO_GPIOI1 FAN1_DET# FAN2_DET# MED_BD_DET# SATA_CABLE_DET# LCD_CBL_DET# EXPCARD_BRD_DET# PWR_BTN_DET# MED_BD_ID SIO_GPIOK6
CHARGER_DET# 42
SNIFFER_DET# 33
TP51
FAN1_DET# 28
TP125
MED_BD_DET# 36,39
LCD_CBL_DET 23
EXPCARD_BRD_DET# 30
PWR_BTN_DET# 36,39
MED_BD_ID 39
TP56
GPIOI6 GPIOI5 GPIOI2 CAP_LDO GPIOJ0
SIO_GPIOI6 SIO_GPIOI5 SIO_GPIOI2 SIO_CAP_LDO PERFORMANCE_SW#
TP129 TP126 TP52
PERFORMANCE_SW# 33
C426 SC4D7U6D3V3KX-GP
TEST_PIN GPIOI7
RSV_TEST_PIN SIO_GPIOI7
TP53 TP132
GPIOI4 GPIOI3
SIO_GPIOI4 SIO_GPIOI3
TP128 TP123
R603 100KR2J-1-GP SB
MEDID BD ID
0= CYPRESS
1=Synaptics
VSS VCC1 NC#46 KHZ_32
C482 SCD1U10V2KX-4GP
EC_32KHZ EC_32KHZ 36,45
C427 SCD1U10V2KX-4GP
PWRGD OUT65
LCD_TST LCD_TST 23
GPIOJ4 GPIOK7 GPIOJ1
SIO_GPIOK7 TP57
SIO_GPIOJ1 TP54
RN79 SRN100KJ-6-GP
WIRELESS_ON/OFF# +RTC_CELL SNIFFER_PWR_SW#
+3.3V_RUN SNIFFER_PWR_SW# 33,36
RP2 SRN8K2J-2-GP-U
SYS_PME# PCIE_WAKE# SBAT_PRES# TS_INT#
DBAY_MODPRES# PWRUSB_OC# LED_MASK#
RP6 SRN100KJ-7-GP
EXPCARD_BRD_DET# MODPRES# 38 KYBD_DET# FAN2_DET#
FAN1_DET# SNIFFER_DET# CHARGER_DET# SC_DET#
R275 DEVID2_C
RP3 SRN100KJ-7-GP
PANEL_BKEN WOL_EN DPRSLPVR 26 ICH_RSMRST#
LCD_TST DOCKED SATA_CABLE_DET#
RN78 SRN100KJ-6-GP
HDDC_EN MODC_EN
RP8 SRN100KJ-7-GP
+3.3V_RUN 26,34,35 AUD_HP2_NB_SENSE AUD_HP1_NB_SENSE
IMVP6_PROCHOT# SPEAKER_DET# RTC_BAT_DET# PERFORMANCE_SW#
SPEAKER_DET# 24,35 RTC_BAT_DET# 24
VGA IDENTITY
1= Discrete GFX
0=UMA
SPI
U38 SST25VF016B-1-GP
25 SPI_CS0# 36 EC_FLASH_SPI_DIN +3.3V_SUS
SPI_CS0# SPI_SO0 SPI_WP#0
EC_FLASH_SPI_DIN
R609 15R2J-GP R610 10KR2J-3-GP
CE# SO WP# GND VDD HOLD# SCK SI
SPI_HOLD#0 SPI_CLK0 SPI_SI0
R318 R608 R607 10KR2J-3-GP 15R2J-GP 15R2J-GP
EC_FLASH_SPI_CLK EC_FLASH_SPI_DO
EC_FLASH_SPI_CLK 36 EC_FLASH_SPI_DO 36
C483 SCD1U10V2KX-4GP
<Variant Name>
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Thurman Discrete
Size A3
Document Number SIO ECE5011/SPI ROM
Rev -1
Date: Tuesday, November 06, 2007
Sheet 37 of 50



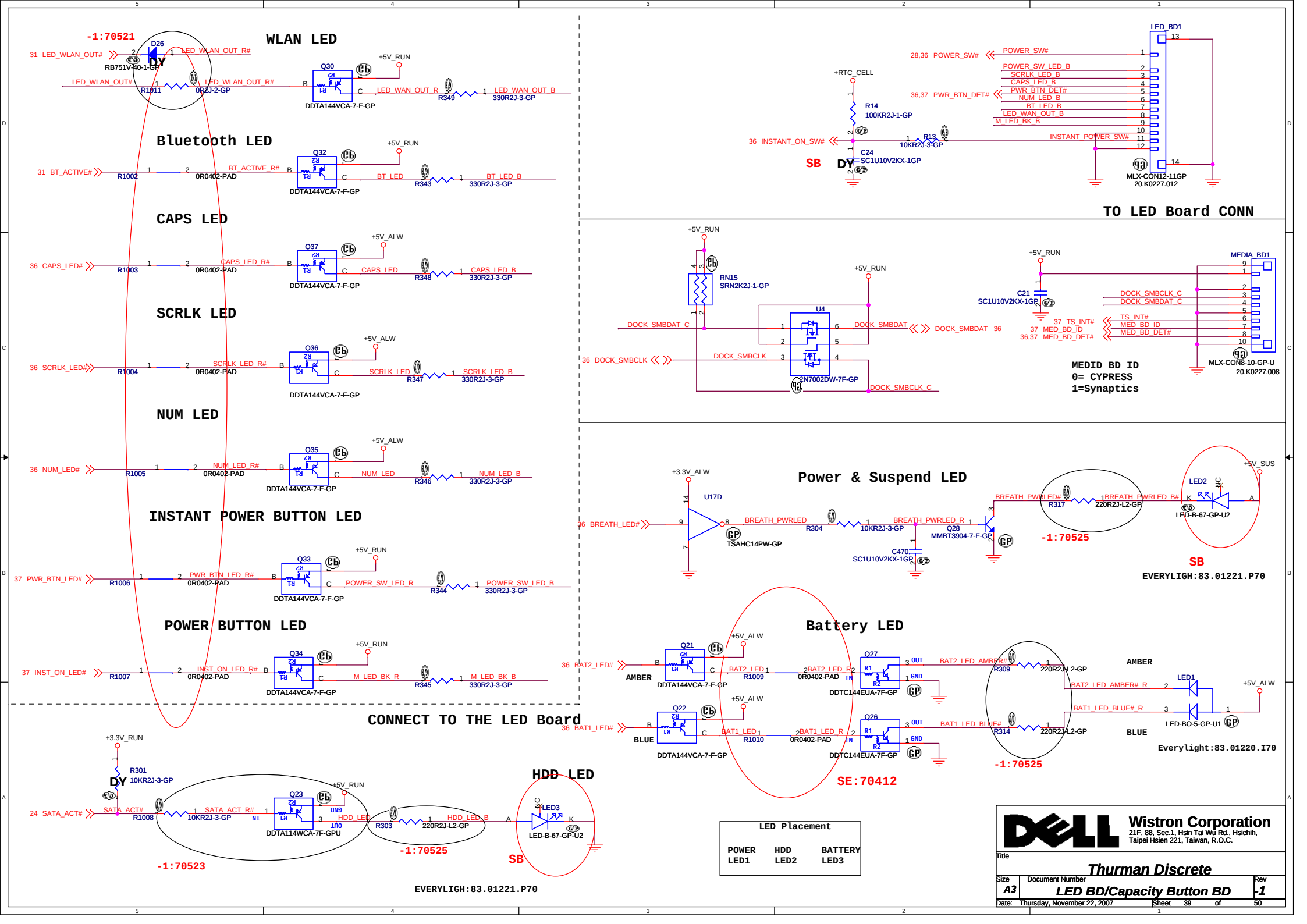
<Variant Name>

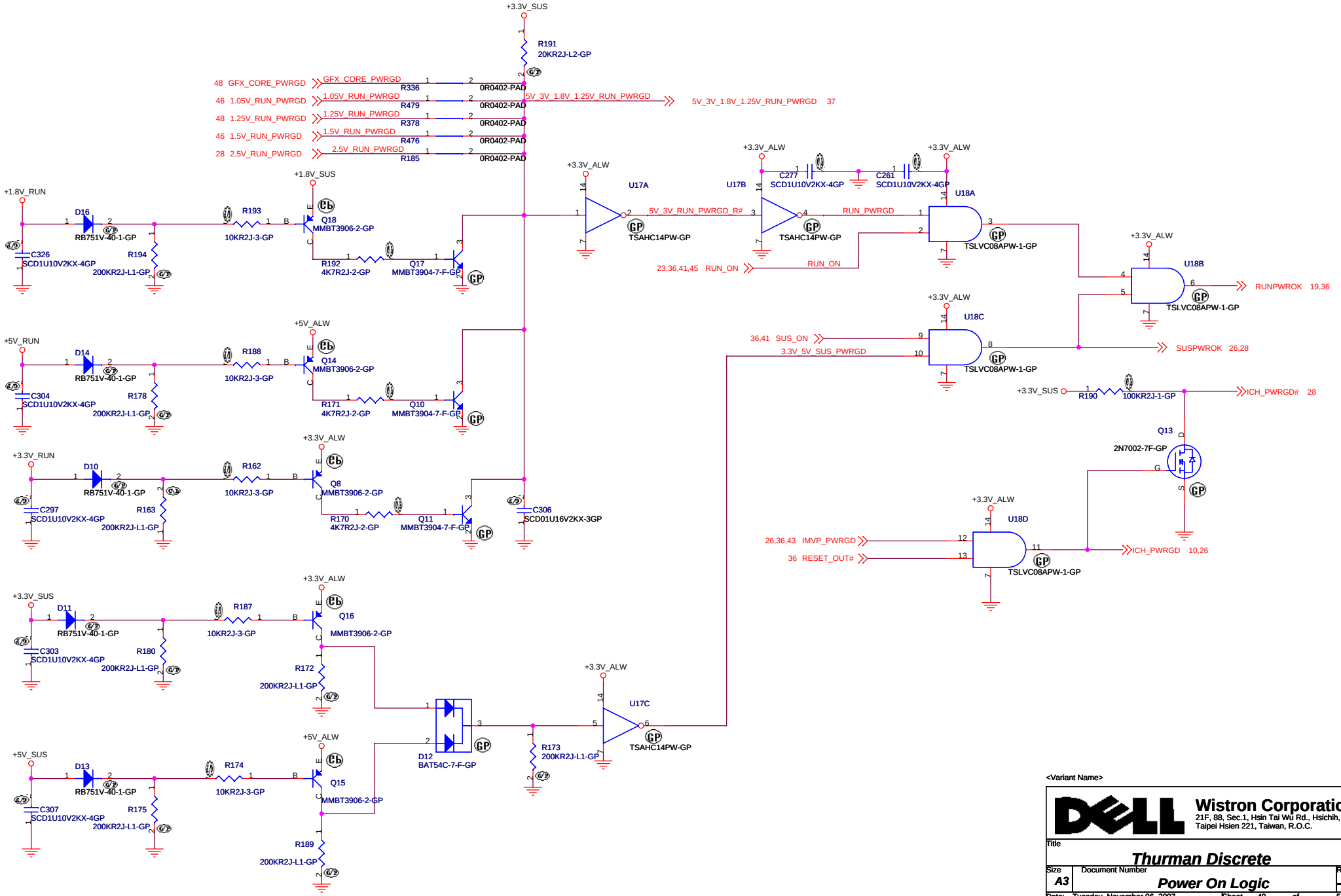
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: ***Thurman Discrete***

Size	Document Number	Rev
A3	SIO ECE1077/KB CONN/TP	-1

Date: Tuesday, November 06, 2007 Sheet 38 of 50


-1:70521
WLAN LED
31 LED_WLAN_OUT#
D26
RB751V-40-1-GP
DY
LED_WLAN_OUT_R#
R1011
0R2J-2-GP
Q30
DDTA144VCA-7-F-GP
+5V_RUN
LED_WAN_OUT_R
R349
330R2J-3-GP
LED_WAN_OUT_B
Bluetooth LED
31 BT_ACTIVE#
R1002
0R0402-PAD
BT_ACTIVE_R#
Q32
DDTA144VCA-7-F-GP
BT_LED
R343
330R2J-3-GP
BT_LED_B
CAPS LED
36 CAPS_LED#
R1003
0R0402-PAD
CAPS_LED_R#
Q37
DDTA144VCA-7-F-GP
+5V_ALW
CAPS_LED
R348
330R2J-3-GP
CAPS_LED_B
SCRLK LED
36 SCRLK_LED#
R1004
0R0402-PAD
SCRLK_LED_R#
Q36
DDTA144VCA-7-F-GP
SCRLK_LED
R347
330R2J-3-GP
SCRLK_LED_B
NUM LED
36 NUM_LED#
R1005
0R0402-PAD
NUM_LED_R#
Q35
DDTA144VCA-7-F-GP
NUM_LED
R346
330R2J-3-GP
NUM_LED_B
INSTANT POWER BUTTON LED
37 PWR_BTN_LED#
R1006
0R0402-PAD
PWR_BTN_LED_R#
Q33
DDTA144VCA-7-F-GP
POWER_SW_LED_R
R344
330R2J-3-GP
POWER_SW_LED_B
POWER BUTTON LED
37 INST_ON_LED#
R1007
0R0402-PAD
INST_ON_LED_R#
Q34
DDTA144VCA-7-F-GP
M_LED_BK_R
R345
330R2J-3-GP
M_LED_BK_B
CONNECT TO THE LED Board
+3.3V_RUN
R301
10KR2J-3-GP
DY
24 SATA_ACT#
SATA_ACT#
R1008
10KR2J-3-GP
SATA_ACT_R#
Q23
DDTA114WCA-7F-GPU
HDD_LED
R303
220R2J-L2-GP
HDD_LED_B
HDD LED
LED3
LED-B-67-GP-U2
SB
-1:70523
-1:70525
EVERYLIGH:83.01221.P70
+RTC_CELL
R14
100KR2J-1-GP
36 INSTANT_ON_SW#
R13
10KR2J-3-GP
C24
SC1U10V2KX-1GP
SB
DY
28,36 POWER_SW#
36,37 PWR_BTN_DET#
POWER_SW#
POWER_SW_LED_B
SCRLK_LED_B
CAPS_LED_B
PWR_BTN_DET#
NUM_LED_B
BT_LED_B
LED_WAN_OUT_B
M_LED_BK_B
INSTANT_POWER_SW#
LED_BD1
MLX-CON12-11GP
20.K0227.012
TO LED Board CONN
+5V_RUN
RN15
SRN2K2J-1-GP
U4
2N7002DW-7F-GP
DOCK_SMBDAT_C
DOCK_SMBCLK
DOCK_SMBDAT
DOCK_SMBDAT 36
36 DOCK_SMBCLK
DOCK_SMBCLK_C
C21
SC1U10V2KX-1GP
37 TS_INT#
37 MED_BD_ID
36,37 MED_BD_DET#
DOCK_SMBCLK_C
DOCK_SMBDAT_C
TS_INT#
MED_BD_ID
MED_BD_DET#
MEDIA_BD1
MLX-CON8-10-GP-U
20.K0227.008
MEDID BD ID
0= CYPRESS
1=Synaptics
Power & Suspend LED
+3.3V_ALW
U17D
TSAHC14PW-GP
36 BREATH_LED#
BREATH_PWRLED
R304
10KR2J-3-GP
BREATH_PWRLED_R
Q28
MMBT3904-7-F-GP
C470
SC1U10V2KX-1GP
BREATH_PWRLED#
R317
220R2J-L2-GP
BREATH_PWRLED_B#
LED2
LED-B-67-GP-U2
+5V_SUS
-1:70525
SB
EVERYLIGH:83.01221.P70
Battery LED
36 BAT2_LED#
Q21
DDTA144VCA-7-F-GP
AMBER
BAT2_LED
R1009
Q27
DDTC144EUA-7F-GP
BAT2_LED_R
0R0402-PAD
BAT2_LED_AMBER#
R309
220R2J-L2-GP
BAT2_LED_AMBER# R
AMBER
LED1
LED-BO-5-GP-U1
36 BAT1_LED#
Q22
DDTA144VCA-7-F-GP
BLUE
BAT1_LED
R1010
Q26
DDTC144EUA-7F-GP
BAT1_LED_R
0R0402-PAD
BAT1_LED_BLUE#
R314
220R2J-L2-GP
BAT1_LED_BLUE# R
BLUE
+5V_ALW
-1:70525
SE:70412
Everylight:83.01220.I70
LED Placement
POWER LED1
HDD LED2
BATTERY LED3
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Thurman Discrete
Size A3
Document Number
LED BD/Capacity Button BD
Rev -1
Date: Thursday, November 22, 2007
Sheet 39 of 50



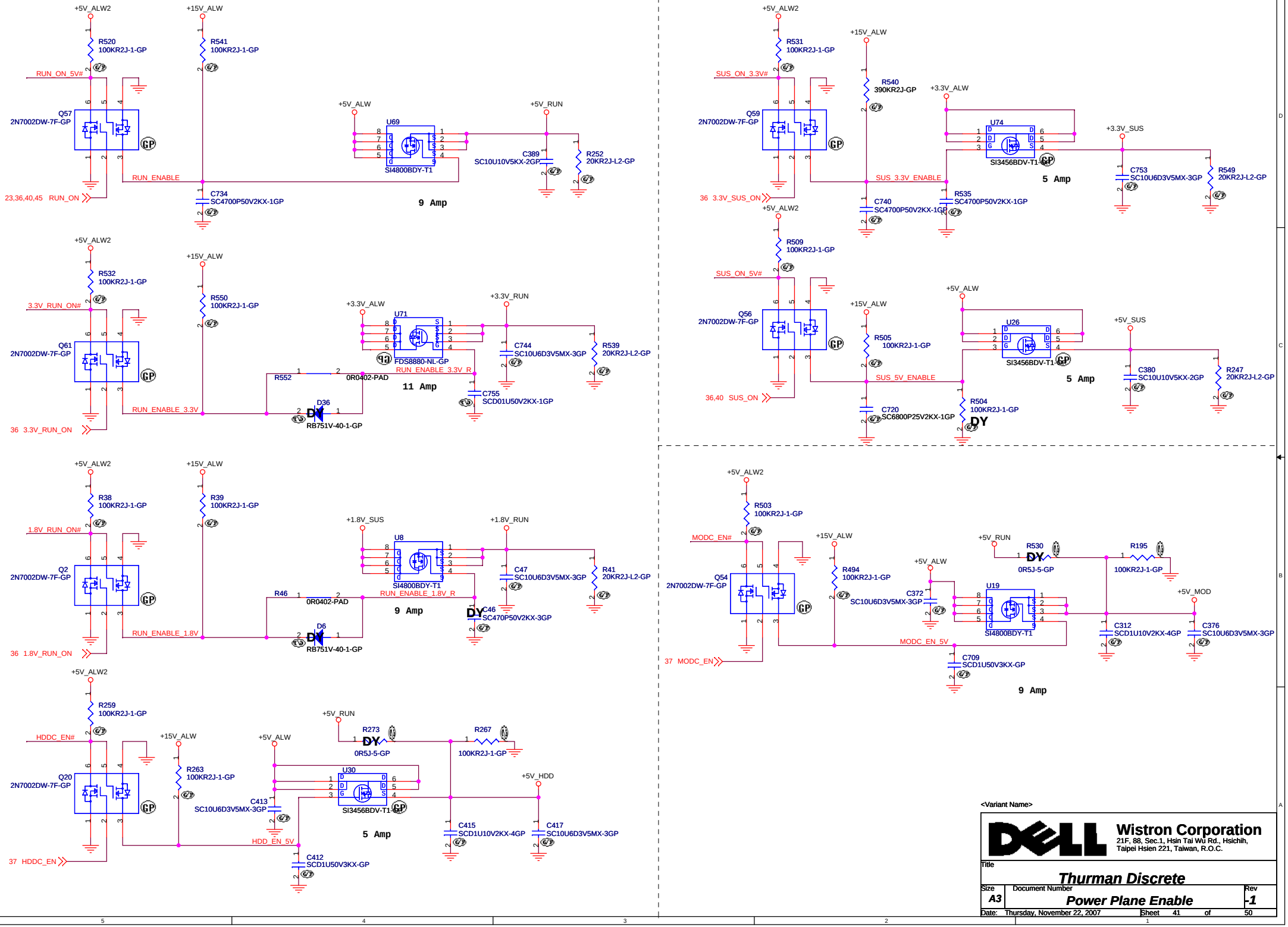
<Variant Name>

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

Title: Thurman Discrete

Size: A3 | Document Number: Power On Logic | Rev: -1

Date: Tuesday, November 06, 2007 | Sheet 40 of 50



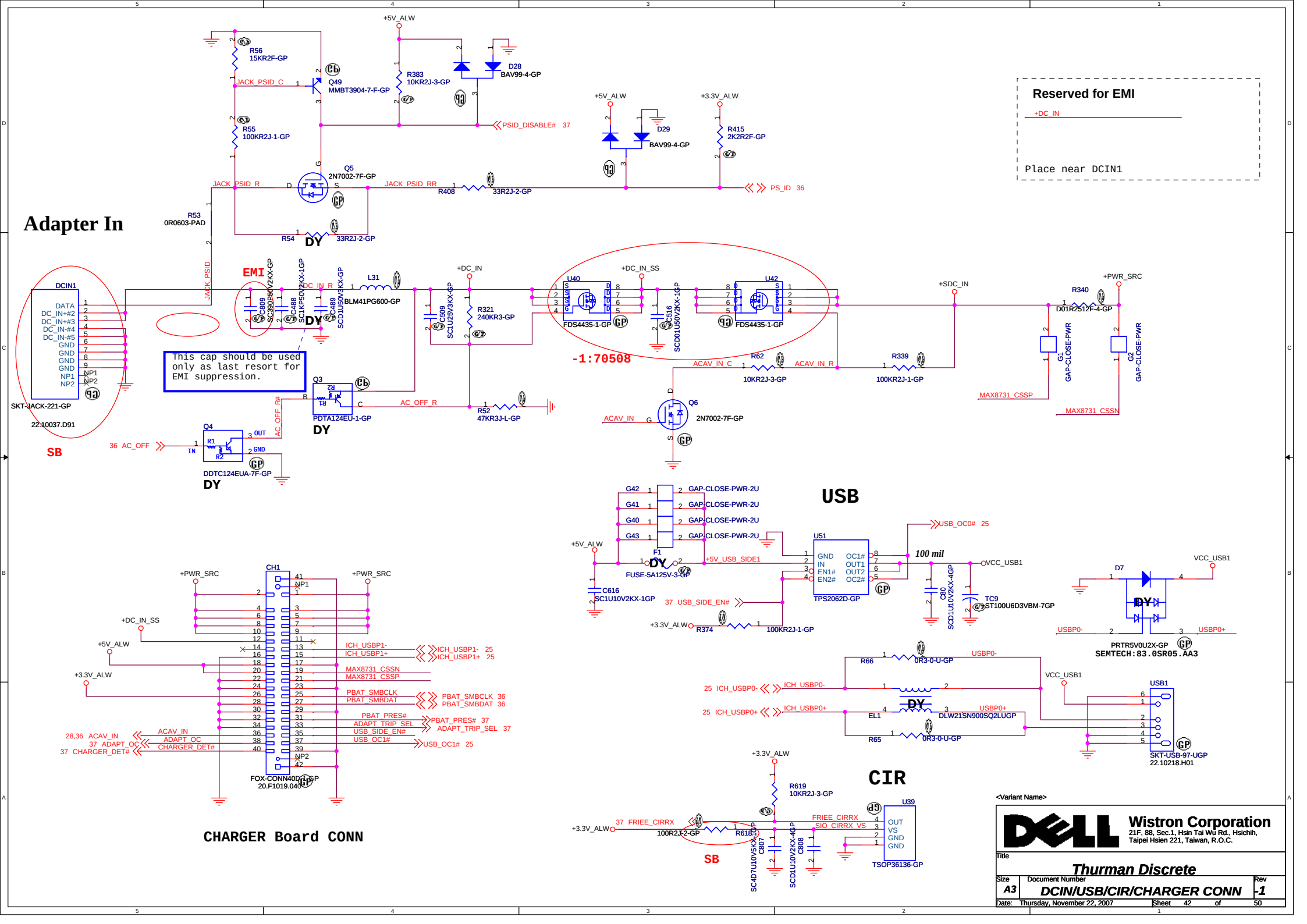
<Variant Name>

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

Title: ***Thurman Discrete***

Size	Document Number	Rev
A3	***Power Plane Enable***	-1

Date: Thursday, November 22, 2007 Sheet 41 of 50


Adapter In
Reserved for EMI
+DC_IN
Place near DCIN1
R56 15KR2F-GP
Q49 MMBT3904-7-F-GP
R383 10KR2J-3-GP
D28 BAV99-4-GP
R55 100KR2J-1-GP
Q5 2N7002-7F-GP
R53 0R0603-PAD
R54 33R2J-2-GP
R408 33R2J-2-GP
D29 BAV99-4-GP
R415 2K2R2F-GP
PSID_DISABLE# 37
PS_ID 36
JACK_PSID_C
JACK_PSID_R
JACK_PSID_RR
DCIN1
SKT-JACK-221-GP
22.10037.D91
SB
EMI
DY
This cap should be used only as last resort for EMI suppression.
L31 BLM41PG600-GP
R321 240KR3-GP
R52 47KR3J-L-GP
Q3 PDTA124EU-1-GP
Q4 DDTC124EUA-7F-GP
36 AC_OFF
U40 FDS4435-1-GP
U42 FDS4435-1-GP
-1:70508
Q6 2N7002-7F-GP
ACAV_IN
ACAV_IN_C
ACAV_IN_R
R62 10KR2J-3-GP
R339 100KR2J-1-GP
+SDC_IN
+PWR_SRC
R340 D01R2512F-4-GP
MAX8731_CSSP
MAX8731_CSSN
GAP-CLOSE-PWR
USB
F1 FUSE-5A125V-3-GP
U51 TPS2062D-GP
100 mil
VCC_USB1
USB_OC0# 25
+5V_USB_SIDE1
37 USB_SIDE_EN#
R374 100KR2J-1-GP
D7 PRTR5V0U2X-GP
SEMTECH:83.0SR05.AA3
USBP0-
USBP0+
R66 0R3-0-U-GP
R65 0R3-0-U-GP
EL1 DLW21SN900SQ2LUGP
ICH_USBP0-
ICH_USBP0+
USB1 SKT-USB-97-UGP
22.10218.H01
CH1 FOX-CONN40D-GP
20.F1019.040
CHARGER Board CONN
ICH_USBP1-
ICH_USBP1+
MAX8731_CSSN
MAX8731_CSSP
PBAT_SMBCLK
PBAT_SMBDAT
PBAT_PRES#
ADAPT_TRIP_SEL
USB_SIDE_EN#
USB_OC1#
ACAV_IN
ADAPT_OC
CHARGER_DET#
CIR
R619 10KR2J-3-GP
R618 100R2J-2-GP
37 FRIEE_CIRRX
FRIEE_CIRRX
SIO_CIRRX_VS
U39 TSOP36136-GP
SB
<Variant Name>
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Thurman Discrete
Size A3
Document Number DCIN/USB/CIR/CHARGER CONN
Rev -1
Date: Thursday, November 22, 2007
Sheet 42 of 50

Thermal Design = 35.2A
Peak Current [Ipeak]= 44A
OCP design = 1.2 * Ipeak

I/P cap: 10U 25V K1206 X5R/ 78.10622.52L
Inductor: 0.45UH ETQP4LR45XFC/ 68.R4510.10A
O/P cap: 330U 2V EEFSX0D331XE/ 79.33719.20L
H/S: SI7392DP/ POWERPAK-8/ 16.5mOhm/ 4.5Vgs/ 84.07392.A37
L/S: SI7336ADP/ POWERPAK-8/ 4mOhm/ 4.5Vgs/ 84.07336.B37

+PWR_SRC +CPU_PWR_SRC
L70 BLM21PG300SN-2GP
L71 BLM21PG300SN-2GP
L72 BLM21PG300SN-2GP
-4 Layout Change
TC6 SE68U25VM-L1-GP
TC22 SE100U25VM-14GP
EMI
071004 add TC6

G9 GAP-CLOSE-PWR 6260_AGND

+5V_RUN R78 0R0603-PAD
+5V_ALW R83 DY 0R3-0-U-GP
+5V_6260 C183 SCD01U50V2KX-1GP 6260_AGND
R82 10R3J-3-GP
6260_VDD
C163 SC1U10V2KX-1GP

6260_VIN R406 10R3J-3-GP +CPU_PWR_SRC
+3.3V_6260 R112 0R0603-PAD +3.3V_RUN
R107 DY 0R3-0-U-GP +3.3V_ALW
R116 1K91R2F-1-GP +3.3V_RUN
IMVP_PWRGD 26,36,40

U15 ISL6260CCRZ-T-GP
VDD 20 VIN 18 3V3 39 PGOOD 40
VSS 19 GND 41
PSI# 1 PMON 2 RBIAS 3 VR_TT# 4 SOFT 6 NTC 5
VID0 28 VID1 29 VID2 30 VID3 31 VID4 32 VID5 33 VID6 34
VR_ON 35 DPRSLPVR 36 CLK_EN# 38 DPRSTP# 37 VDIFF 11
FB 10 COMP 9 VW 8
RTN 13 VSEN 12 DROOP 14 DFB 15
FCCM 24 PWM1 27 ISEN1 23 PWM2 26 ISEN2 22 PWM3 25 ISEN3 21 OCSET 7
VSUM 17 VO 16

8 VID[0..6] VID[0..6]
7 H_PSI# R117 0R0402-PAD 6260_PSI#
28 PWR_MON R436 IMVP_VR_ON DY 0R2J-2-GP 6260_PMON
C646 SC1U10V2KX-1GP
R122 147KR2F-GP 6260_RBIAS
37 IMVP6_PROCHOT# R421 DY 0R2J-2-GP 6260_NTC_R
R381 DY NTC-470K-2-GP 6260_NTC
SB:70308
C237 SC1500P50V2KX-2GP
C236 SCD01U25V2KX-GP SB
6260_AGND

VID0 R81 0R0402-PAD 6260_VID0
VID1 R80 0R0402-PAD 6260_VID1
VID2 R79 0R0402-PAD 6260_VID2
VID3 R85 0R0402-PAD 6260_VID3
VID4 R86 0R0402-PAD 6260_VID4
VID5 R91 0R0402-PAD 6260_VID5
VID6 R95 0R0402-PAD 6260_VID6

36 IMVP_VR_ON R96 0R0402-PAD 6260_VR_ON
10,26,37 DPRSLPVR R102 499R2F-2-GP 6260_DPRSLPVR
TP82 CLK_ENABLE# 6260_DPRSTP#
SB : 70301
7,10,24 H_DPRSTP# R105 0R0402-PAD
VDIFF_C R121 332R2F-1-GP C230 SC1200P50V2KX-1GP VDIFF_VSEN R110 0R0603-PAD 6260_VDIFF
R114 1K69R2F-2-GP
6260_FB1
6260_COMP_R R136 82K5R2F-GP 6260_COMP
C243 SC1500P50V3KX-GP C240 SC270P50V2JN-2GP
R125 6K34R2F-GP 6260_VW
C233 SC1KP50V2KX-1GP
SB : 70301

R129 931R3F-2-GP
8 VSSSENSE R416 0R0603-PAD 6260_RTN
C197 SC1KP50V2KX-1GP
SB : 70301
C250 SCD1U16V2KX-3GP
6260_AGND
8 VCCSENSE R422 0R0603-PAD C212 SC1KP50V2KX-1GP
6260_AGND

6260_FCCM 24 6260_FCCM 44
6260_PWM1 27
6260_ISEN1 23
6260_PWM2 26 6260_PWM2 44
6260_ISEN2 22 6260_ISEN2 44
6260_PWM3 25 6260_PWM3 44
6260_ISEN3 21 6260_ISEN3 44
6260_OCSET 7 R428 13K7R2F-GP 6260_VO 16 6260_VO 44

C189 SCD22U10V3KX-2GP
C193 SCD1U16V2KX-3GP
C190 SCD1U16V2KX-3GP
R98 4K53R2F-1-GP
R92 2K43R2F-GP
6260_VSUM 17 6260_VSUM 44
SB : 70301
R412 1KR2F-3-GP
R384 NTC-6K8-3-GP
R101 15KR2F-GP 6260_VSUM_R
6260_DFB
R414 10K5R2F-GP
6260_DROOP C635 SC330P50V3KX-GP 6260_VO
C198 SCD1U10V2KX-4GP
6260_AGND

+PWR_SRC
C811 SCD1U50V3KX-GP
C810 SCD1U50V3KX-GP
C816 SCD1U50V3KX-GP
C815 SCD1U50V3KX-GP
C525 SC10U25V6KX-1GP
C521 SC10U25V6KX-1GP
C519 SC10U25V6KX-1GP
C523 SC47U25V6KX-1GP
EMI

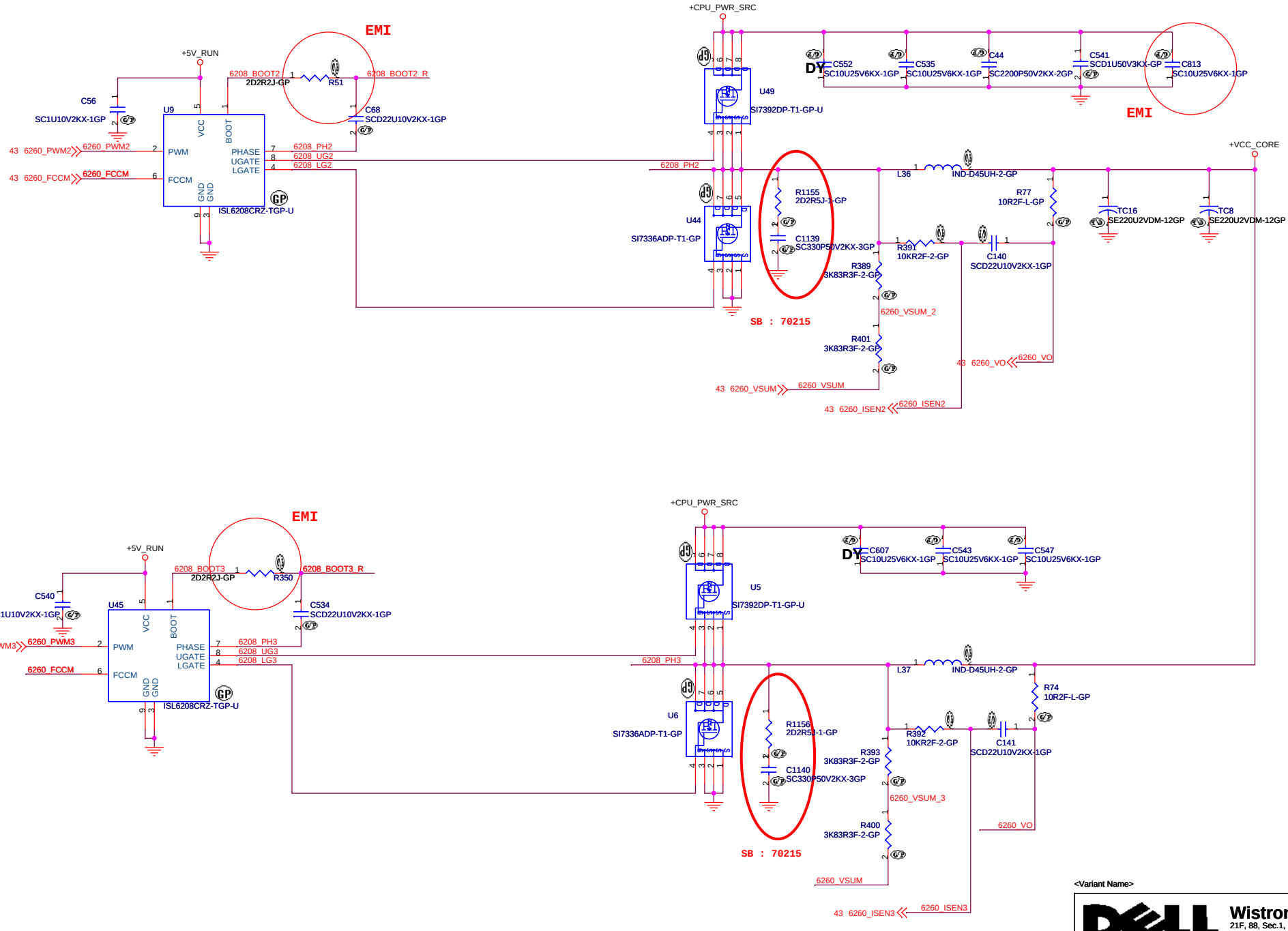
6208_BOOT1_R 2D2R2J-GP R69 6208_BOOT1
EMI
+5V_RUN
C97 SCD22U10V2KX-1GP
U12 ISL6208CRZ-TGP-U
BOOT VCC PHASE UGATE LGATE PWM FCCM GND GND
6208_PH1 6208_UG1 6208_LG1
C84 SC1U10V2KX-1GP
6260_PWM1 6260_FCCM

+CPU_PWR_SRC
C89 SC10U25V6KX-1GP
C107 SC10U25V6KX-1GP
C113 SC2200P50V2KX-2GP
C90 SCD1U50V3KX-GP
C812 SCD1U50V3KX-GP
EMI
U13 SI7392DP-T1-GP-U
6208_UG1 6208_PH1
U11 SI7336ADP-T1-GP
6208_LG1
R1157 2D2R5J-1-GP
C1138 SC330P50V2KX-3GP
SB:70215
L39 IND-D45UH-2-GP
+VCC_CORE
R76 10R2F-L-GP
TC12 SE220U2VDM-12GP
TC15 SE220U2VDM-12GP
R390 10KR2F-2-GP 6260_ISEN1
C139 SCD22U10V2KX-1GP
R388 3K83R3F-2-GP
6260_VSUM_1
6260_VO
R402 3K83R3F-2-GP
6260_VSUM

<Variant Name>

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

Title: Thurman Discrete
Size: A3 | Document Number: CPU Core-01 | Rev: -1
Date: Thursday, November 22, 2007 | Sheet 43 of 50



<Variant Name>

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

Title: ***Thurman Discrete***

Size	Document Number	Rev
A3	*CPU Core-02*	-1

Date: Tuesday, November 06, 2007 Sheet 44 of 50

Design Current = 4.66A
OCP design > 6.65A

Design Current = 8.53A
OCP design > 12.12A

SB:70308

TI suggest R<=15Kohm

SB : 70215

SB : 70215

SB : 70301

Vout=1V*(R1+R2)/R2

I/P cap: 10U 25V K1206 X5R/ 78.10622.52L
Inductor: 3.3UH MPL73-3R3 Delta 6Arms 13.5Apeak / 68.3R310.10U
Inductor: 1.5UH M MPL73-1R5 Delta 9Arms 18Apeak / 68.1R510.10I
O/P cap: 220U6.3V 6TPE220M 25mOhm 2.4Arms/ 77.22271.17L
H/S: FDS8884 SO-8/ 30mOhm/ 4.5Vgs/ 84.08884.037
L/S: FDS6690AS SO-8/ 15mOhm/ 4.5Vgs/ 84.06690.E37
L/S: FDS8896 SO-8/ 7.3mOhm/ 4.5Vgs/ 84.08896.037

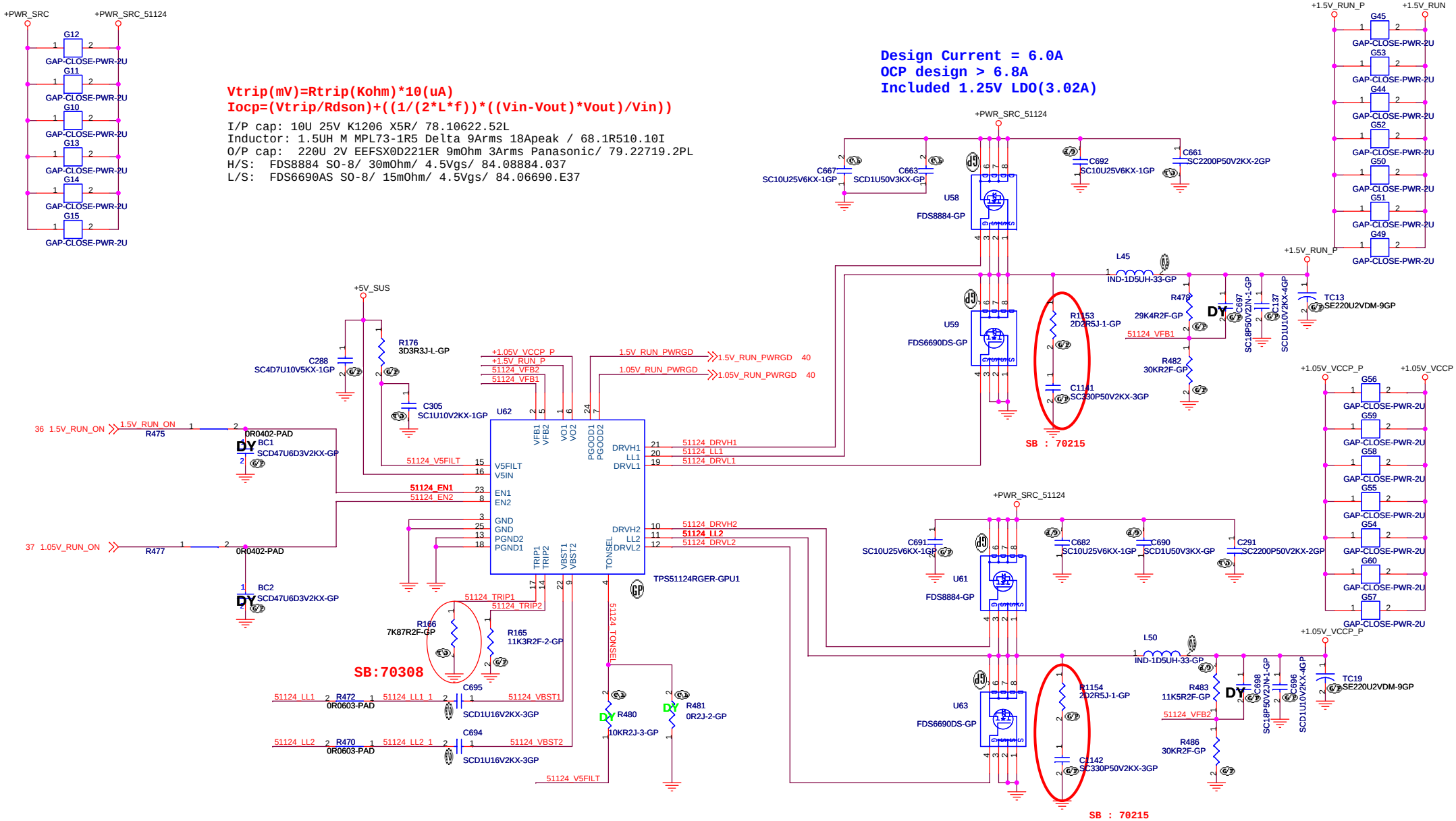
	GND	VREF2	FLOAT	VSFILT
SKIPSEL	**AUTOSKIP**	AUTOSKIP /FAULTS OFF	PWM	PWM
COMP	N/A	N/A	CURRENT MODE	**D-Cap MODE**
TONSEL	380k/CH1 580k/CH2	**280k/CH1 430k/CH2**	220k/CH1 330k/CH2	180k/CH1 2870k/CH2
VFB1	N/A	not use	ADJ.	**5V Fixed Output**
VFB2	N/A	not use	ADJ.	**3.3V Fixed Output**
EN1,EN2	Switcher OFF	not use	Swithchr ON	**Switcher ON**
EN3,EN5	LDO OFF	not use	**LDO ON**	VREG3 on

15V

SB

SB

Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.			
Title: **Thurman Discrete**			
Size: A3	Document Number: DCDC 5V/3V		Rev: -1
Date: Thursday, November 22, 2007	Sheet 45 of 50		



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

Vout=0.758V*(R1+R2)/R2 --> PWM mode
Vout=0.764V*(R1+R2)/R2 --> Skip Mode

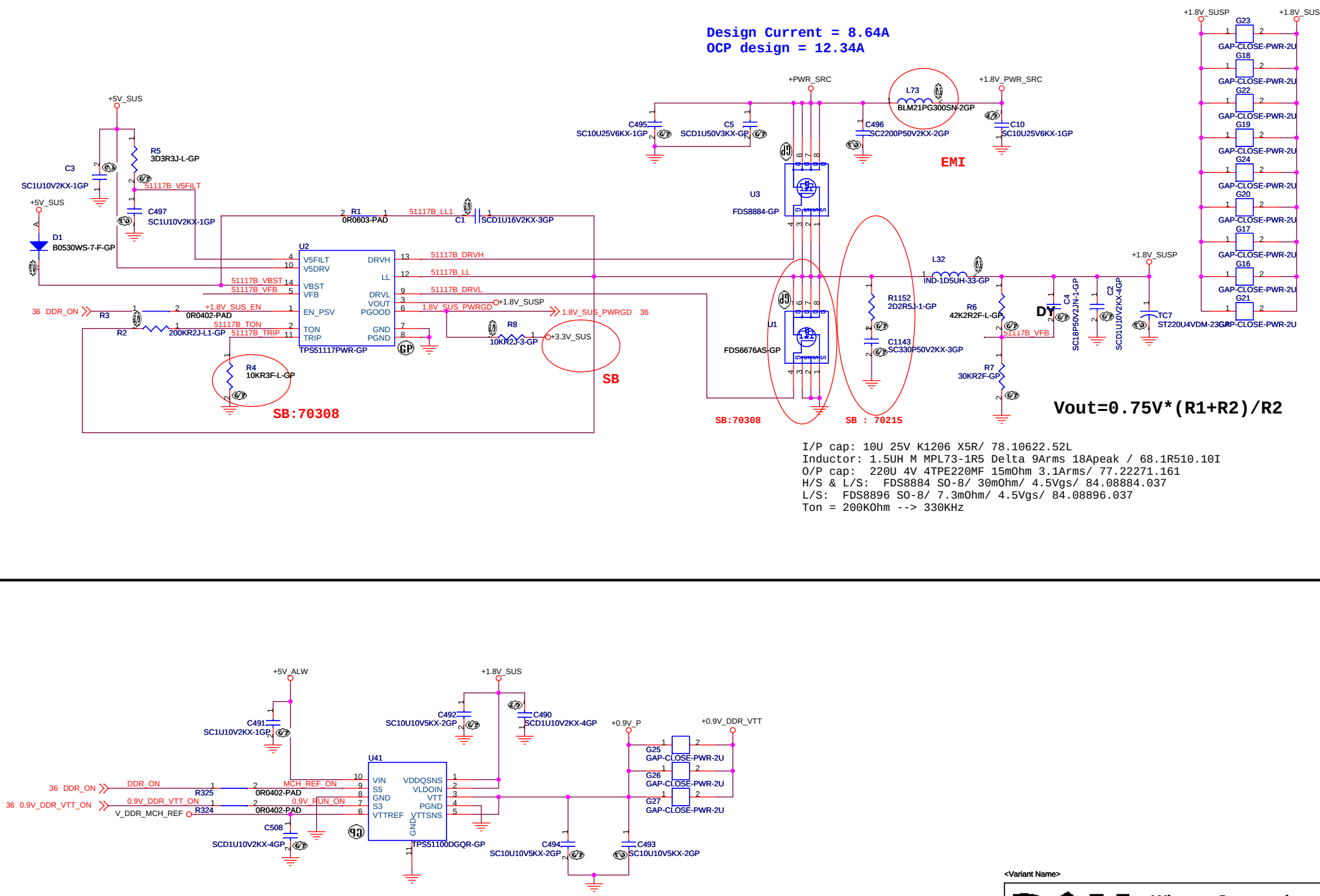
<Variant Name>

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

Title: Thurman Discrete

Size	Document Number	Rev
A3	DCDC 1.5V/1.05V	-1

Date: Thursday, November 22, 2007 Sheet 46 of 50



<variant_name>

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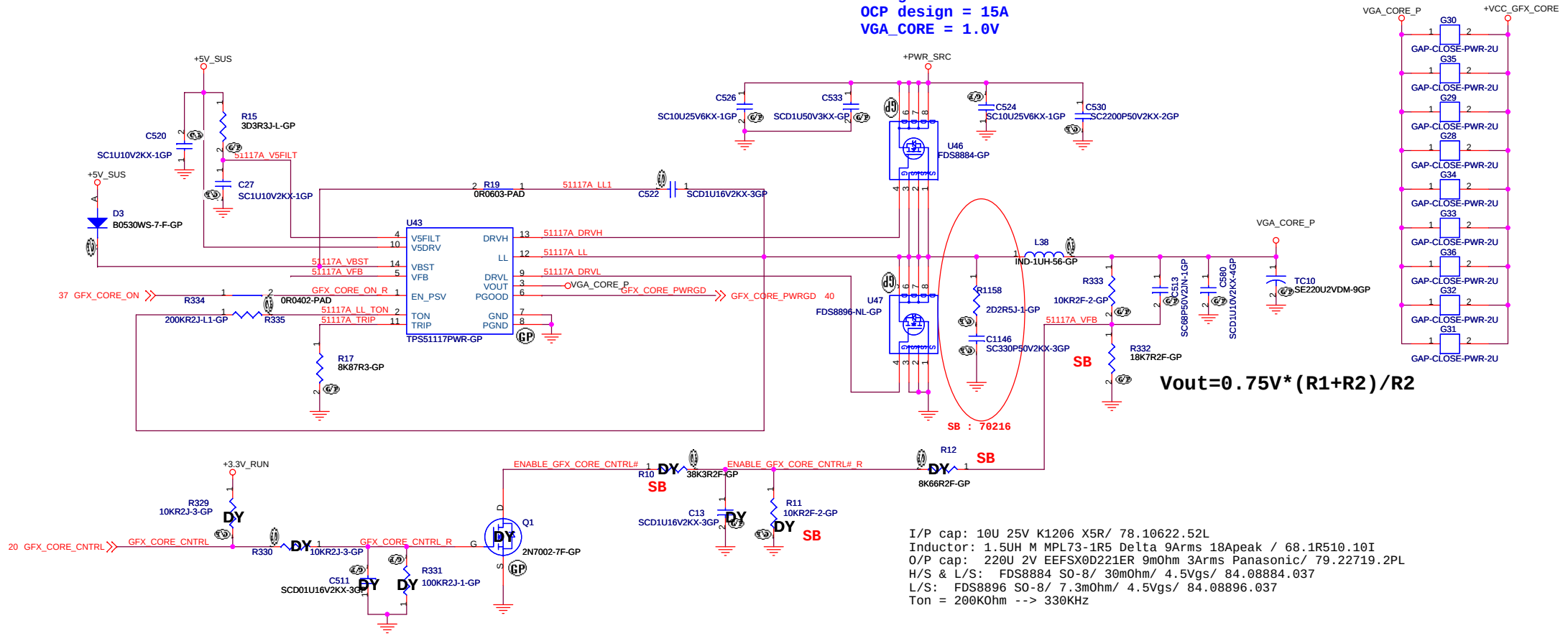
Taipei Hsien 221, Taiwan, R.O.C.

Title	Thurman Discrete	
Size: A3	Document Number: DCDC 1.8V/0.9V	Rev: -1
Date: Thursday, November 22, 2007	Sheet 47 of 50	

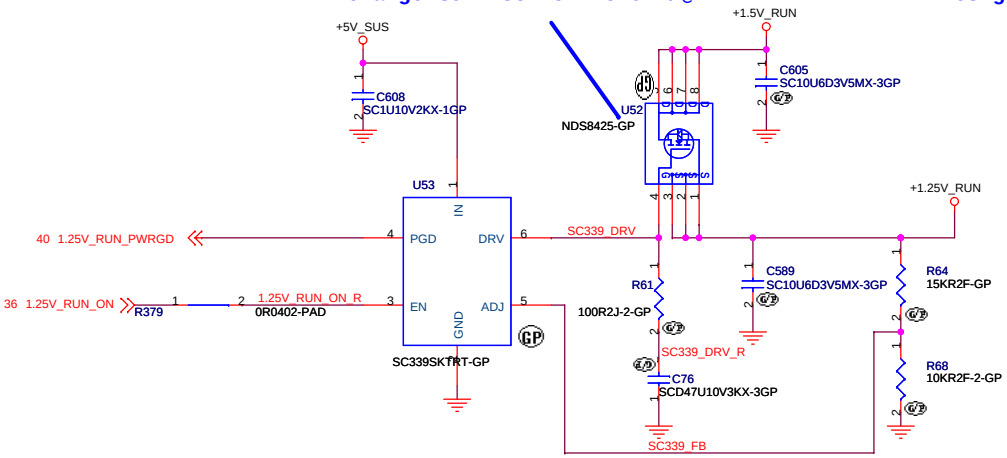
Design Current = 11A
OCP design = 15A
VGA_CORE = 1.0V



I/P cap: 10U 25V K1206 X5R/ 78.10622.52L
Inductor: 1.5UH M MPL73-1R5 Delta 9Arms 18Apeak / 68.1R510.10I
O/P cap: 220U 2V EEFSX0D221ER 9mOhm 3Arms Panasonic/ 79.22719.2PL
H/S & L/S: FDS8884 SO-8/ 30mOhm/ 4.5Vgs/ 84.08884.037
L/S: FDS8896 SO-8/ 7.3mOhm/ 4.5Vgs/ 84.08896.037
Ton = 200KOhm --> 330KHz

Will Change to NDS8425. 28mOhm/@2.7V

Design Current = 3.0A



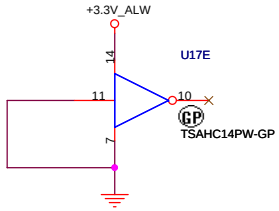
<Variant Name>

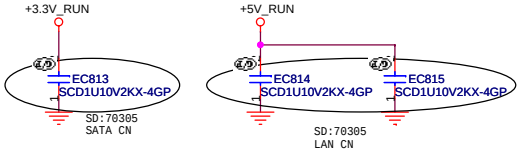
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

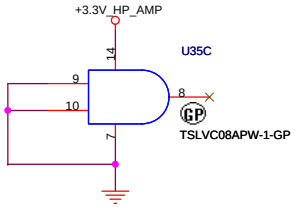
Title: ***Thurman Discrete***

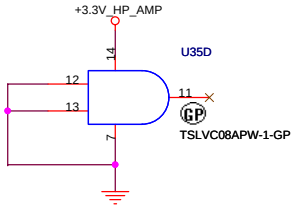
Size	Document Number	Rev
A3	DCDC VGA_Core/1.25V	-1

Date: Thursday, November 22, 2007 Sheet 48 of 50

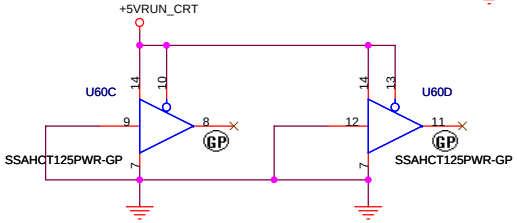


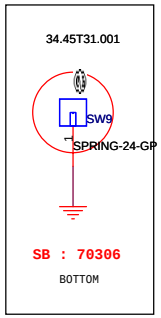


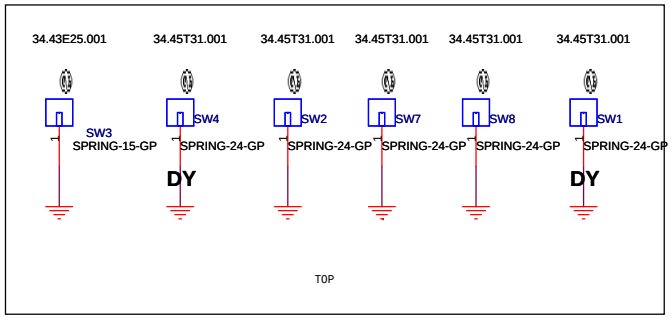


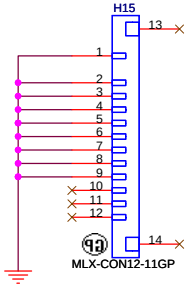


SW3 - 34.43E25.001
SW9 - 34.49Q02.001
SW5 - 34.34T31.001 (Only for UMA)
others-34.45T31.001









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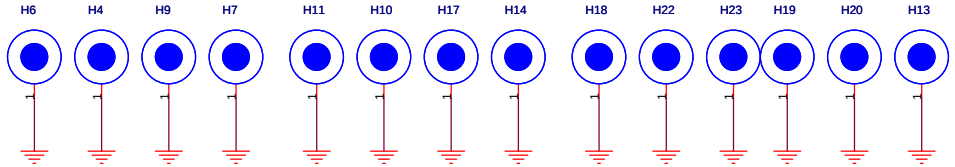

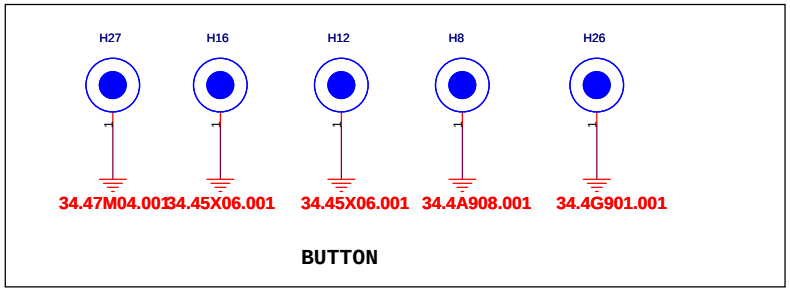

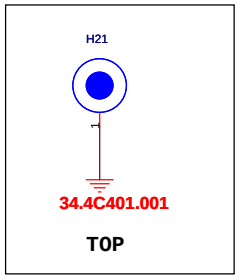

<Variant Name>

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

Title: Thurman Discrete

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DATE	VERSON	ITEM	PAGE	Modify List	Issue Description	OWNER
		1	18	Change R84 to 45.3 ohm and R97 to 24.9	Custormer suggestion	EE
		2	21	Change R356 and R360 to 243 ohm	Custormer suggestion	EE
		3	34	Change R316 to 39.2k	Audio jacket sense issue	EE
		4	34	SWAP ESD1(DY first)	SIM1 function issue	EE
		5	48	R10 change to 38.3k, R11 change to 10k, R12 change8.66k, R332 DY	Support VGA dynaic volatage	EE
		6	42	R618 change to 100 ohm	For CIR function issue	EE
		7	21	Change R359 and R371 to 1.15k, Change R353 and R370 2.66k, Change R369 and R361 to 1.07k	Custormer suggestion	EE
		8	33	Add Q65	For SD issue	EE
		10				
		11	23	add CCD power soft start	For CCD power on issue	EE
		12	33	add sniffer transistor to MB	For sniffer LED issue	EE
		13	26	swap U24	For WLAN SMbus issue	EE
		14	33	change Card1 PN	change to stand type.	EE
			36	delete C801	For alwon issue	EE
2007/01/07	A02	15	39	delete C24	For alwon issue	EE
			42	add L30, C809	For EMI/ESD	EMI/EMC
		16	43	add L70, L71, L72, C811, C810, C812	For EMI/ESD	EMI/EMC
		17	44	add C813	For EMI/ESD	EMI/EMC
		18	47	add L73	For EMI/ESD	EMI/EMC
		19	38	add R90	For Lid function	EE
		20	36	Add R625 and R624	For LCD ESD ISSUE	EE
		22	39	Delete C24	For battery mode power on issue	EE
		23	36	Delete C801	For battery mode power on issue	EE
		24	22	Change L1 L2 L33 to 10 ohm 100Mhz,Delete C514,C515 L34 L35 change to 0 ohm, R433,R432 change to 10 ohm	For CRT EA	EE
		25	36	Delete SPI ROM Data pull up.	For S3 leakage	EE

<Variant Name>

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

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Size: A3 | Document Number: HISTORY | Rev: -1

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