Thurman UMA Schematics Document

uFCPGA Mobile Merom

Intel Crestline-GM + ICH8M

2007-11-19

REV : -1 (DELL:A00)

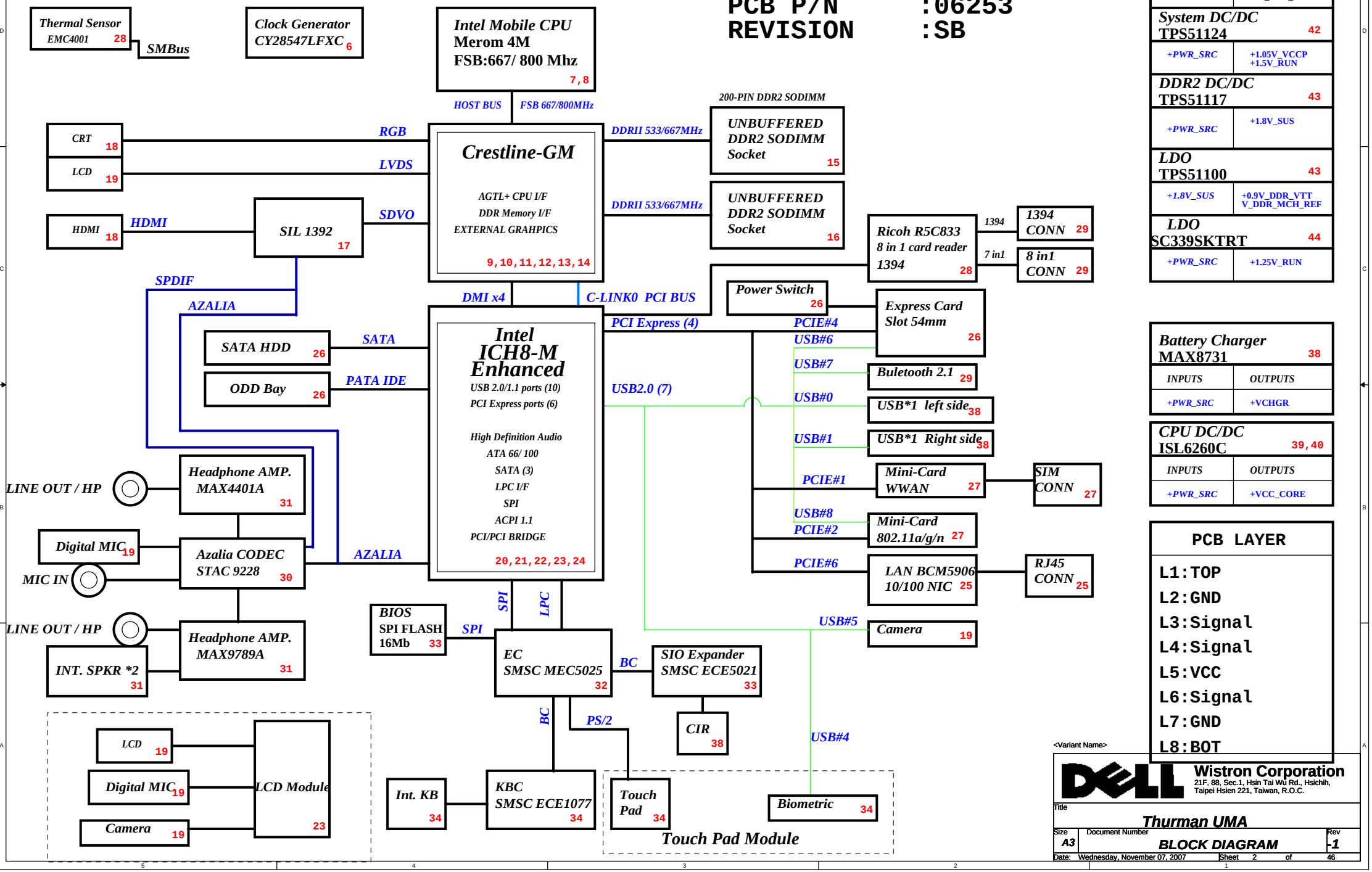
<Variant Name>

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

Title	Thurman UMA	
Size: A3	Document Number: COVER PAGE	Rev: -1
Date: Friday, January 18, 2008	Sheet 1 of 46	

Thurman UMA Block Diagram

Project code:91.4C301.001
PCB P/N :06253
REVISION :SB



System DC/DC TPS51120 41	
INPUTS	OUTPUTS
+PWR_SRC	+5V_ALW +5V_SUS +3.3V_SUS +3.3V_RTC_LDO

System DC/DC TPS51124 42	
+PWR_SRC	+1.05V_VCCP +1.5V_RUN

DDR2 DC/DC TPS51117 43	
+PWR_SRC	+1.8V_SUS

LDO TPS51100 43	
+1.8V_SUS	+0.9V_DDR_VTT V_DDR_MCH_REF

LDO SC339SKTRT 44	
+PWR_SRC	+1.25V_RUN

Battery Charger MAX8731 38	
INPUTS	OUTPUTS
+PWR_SRC	+VCHGR

CPU DC/DC ISL6260C 39,40	
INPUTS	OUTPUTS
+PWR_SRC	+VCC_CORE

PCB LAYER

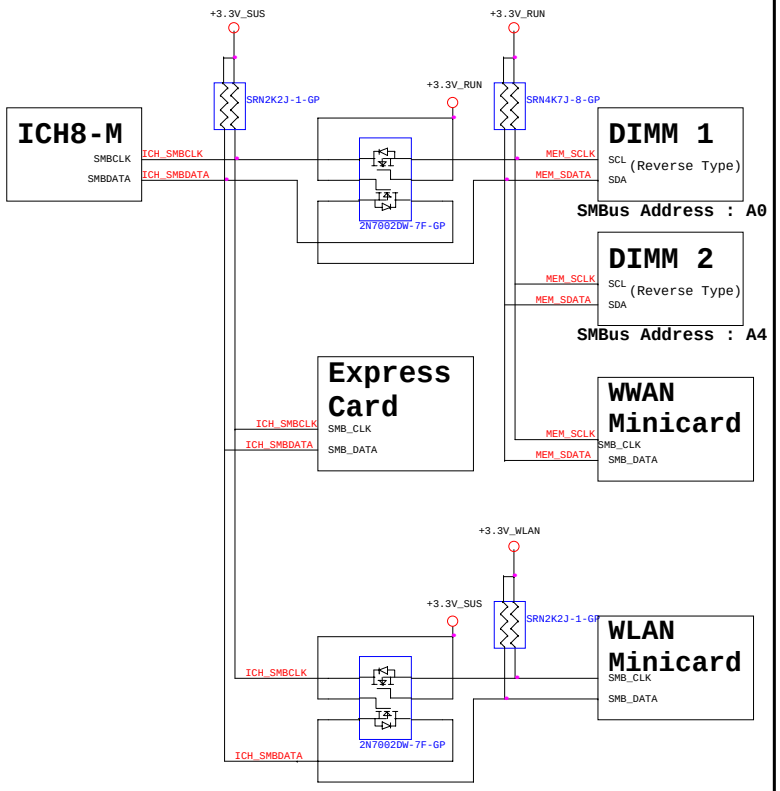
L1:TOP
L2:GND
L3:Signal
L4:Signal
L5:VCC
L6:Signal
L7:GND
L8:BOT

<Variant Name>

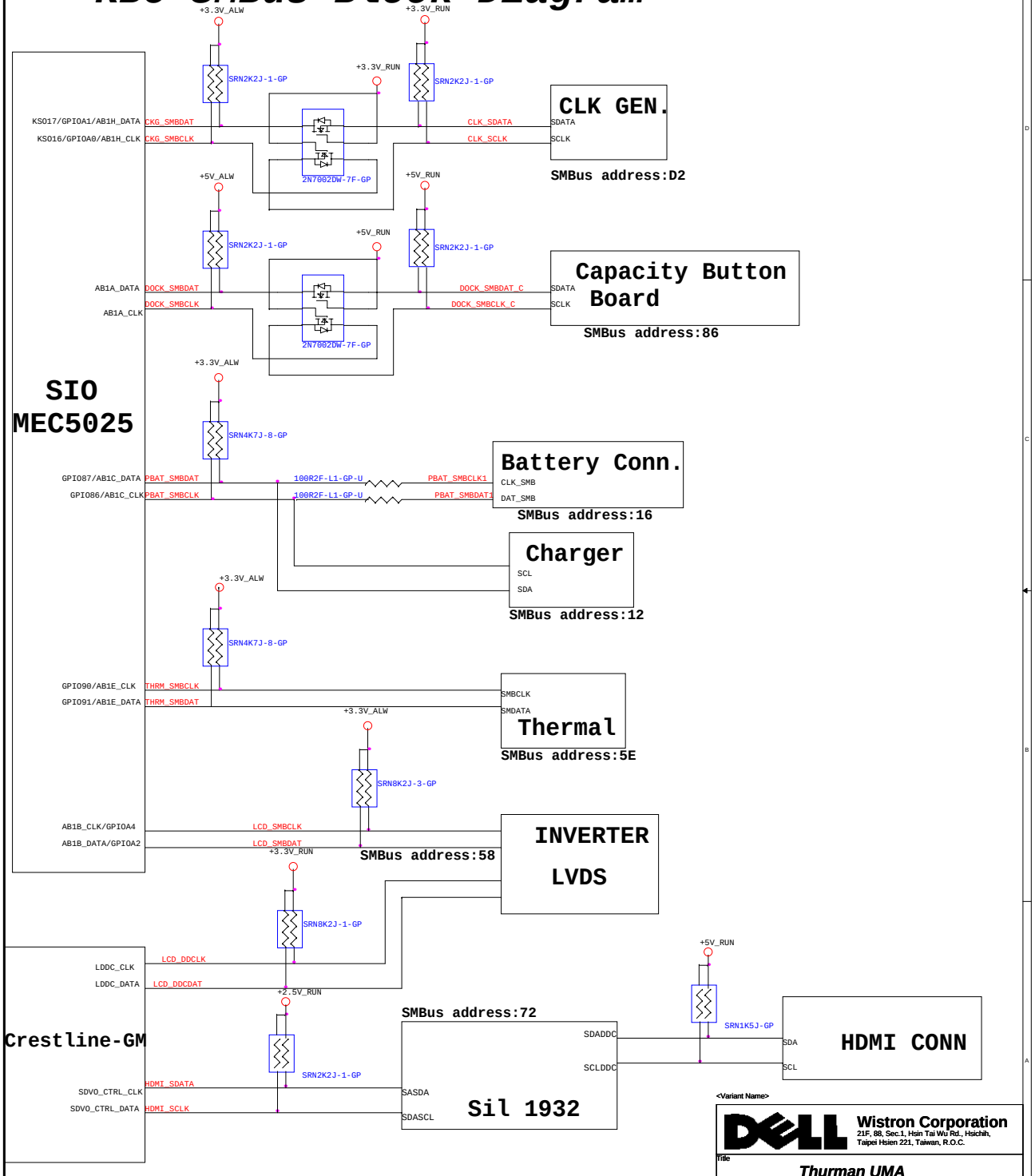
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: Thurman UMA
Size: A3 | Document Number: BLOCK DIAGRAM | Rev: -1
Date: Wednesday, November 07, 2007 | Sheet 2 of 46

ICH8 SMBus Block Diagram



KBC SMBus Block Diagram



<Variant Name>

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

Title: Thurman UMA

Size	Document Number	Rev
C	SMBus Block Diagram	-1

Date: Wednesday, November 07, 2007 Sheet 3 of 46

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

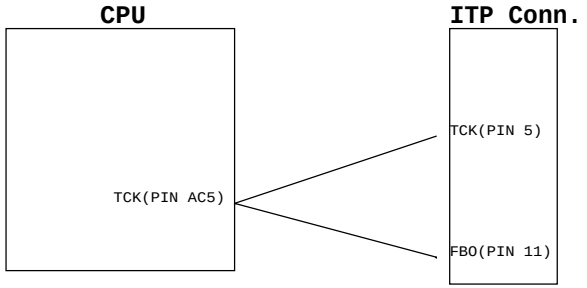
SIGNAL	Resistor Type/Value
HDA_BIT_CLK	PULL-DOWN 20K
HDA_RST#	NONE
HDA_SDIN[3:0]	PULL-DOWN 20K
HDA_SDOUT	PULL-DOWN 20K
HDA_SYNC	PULL-DOWN 20K
GNT[3:0]	PULL-UP 20K
GPIO[20]	PULL-DOWN 20K
LDA[3:0]#/FHW[3:0]#	PULL-UP 20K
LAN_RXD[2:0]	PULL-UP 20K
LDRQ[0]	PULL-UP 20K
LDRQ[1]/GPIO23	PULL-UP 20K
PME#	PULL-UP 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

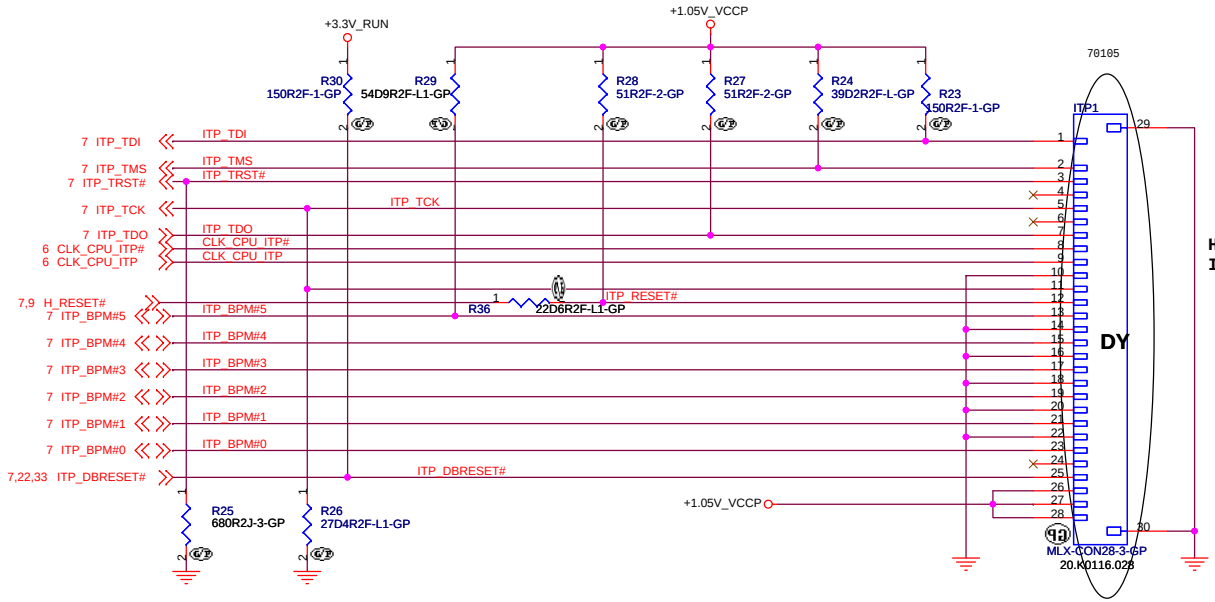
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: Thurman UMA

Size: A3 | Document Number: Table of Content | Rev: -1

Date: Wednesday, November 07, 2007 | Sheet 4 of 46





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

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

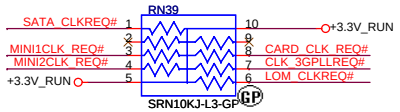
ITP Debug Conn.

<Variant Name>

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

Title	*Thurman UMA*	
Size: *A3*	Document Number: *ITP Debug*	Rev: *-1*
Date: Wednesday, November 07, 2007	Sheet 5 of 46	

CLKREQ PULL HIGH



Place near C10

60ohm 100MHz
3000mA 0.05ohm DC

60ohm 100MHz
3000mA 0.05ohm DC

Pull low to Decide
VTT_PWRGO Low active

Enable ITP

Enable TMP

For wireless performance
Close to CLK GEN

Solder Thermal Pad to
GND add min 4 vias

ICS: 71.09333.A03 ICS9LPR333CKLFT
SB:70216

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)

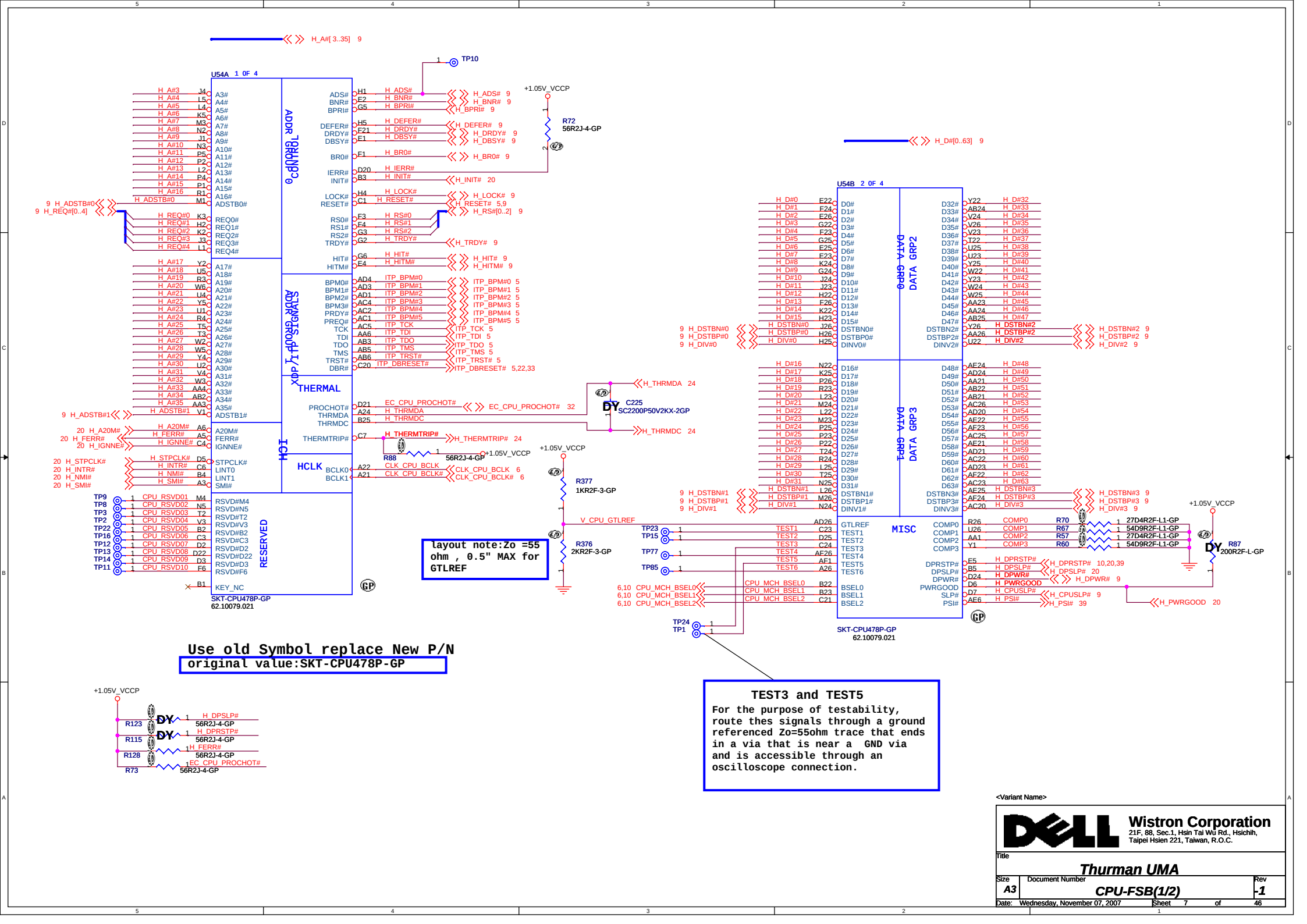
<Variant Name>

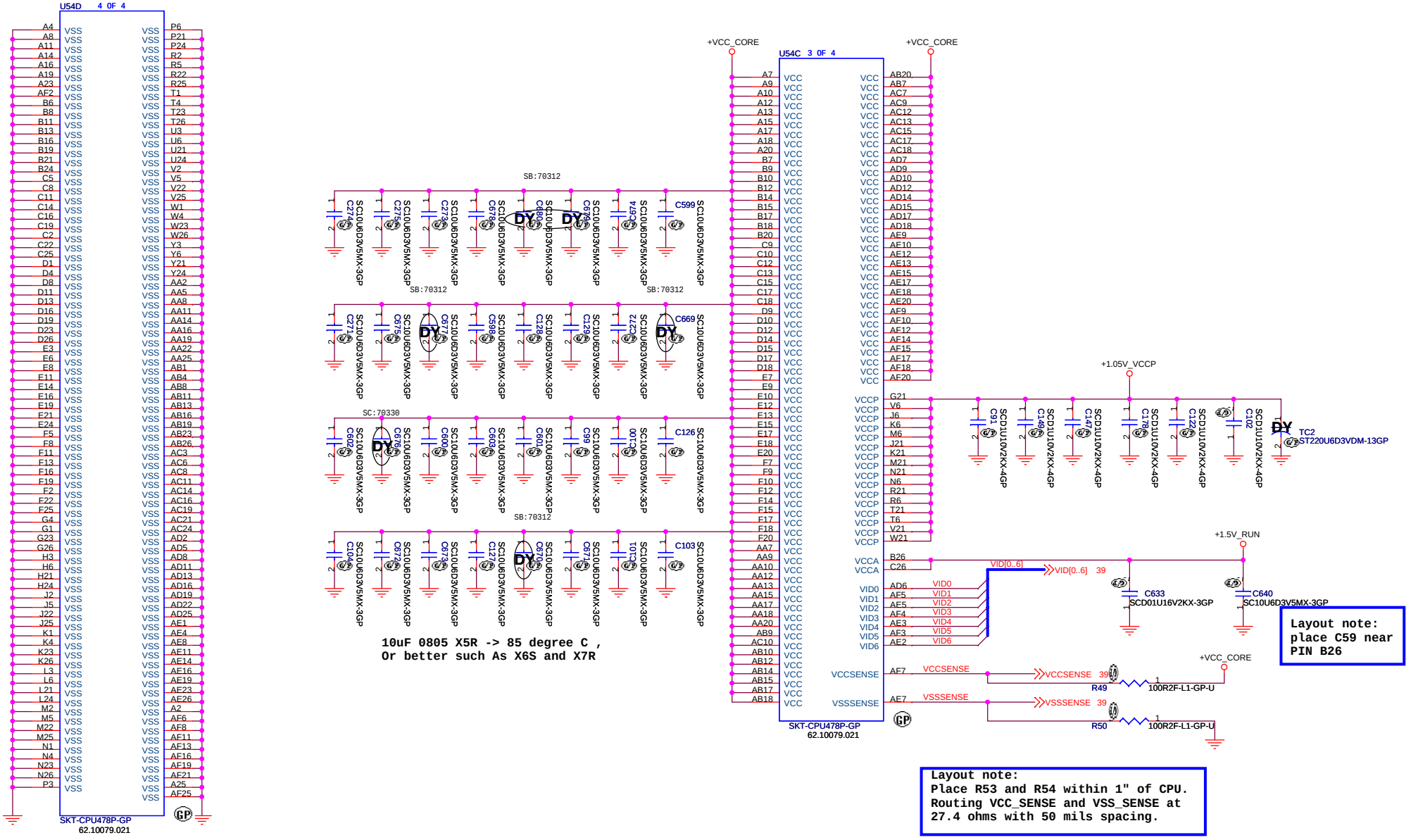
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: Thurman UMA

Size	Document Number	Rev
A3	CLK_GEN CY28547	-1

Date: Wednesday, November 07, 2007 Sheet 6 of 46


H_A#[3..35] 9
TP10
U54A 1 OF 4
ADDR GROUP 0
ADDR GROUP 1
ADSTB0#
ADSTB1#
REQ0#
REQ1#
REQ2#
REQ3#
REQ4#
A20M#
FERR#
IGNNE#
STPCLK#
LINT0
LINT1
SMI#
RSVD#M4
RSVD#N5
RSVD#T2
RSVD#V3
RSVD#B2
RSVD#C3
RSVD#D2
RSVD#D22
RSVD#D3
RSVD#F6
KEY_NC
RESERVED
ADS#
BNR#
BPRI#
DEFER#
DRDY#
DBSY#
BR0#
IERR#
INIT#
LOCK#
RESET#
RS0#
RS1#
RS2#
TRDY#
HIT#
HITM#
BPM0#
BPM1#
BPM2#
BPM3#
PRDY#
PREQ#
TCK
TDI
TDO
TMS
TRST#
DBR#
ADDR GROUP 1
ITP SIGNALS
THERMAL
PROCHOT#
THRMDA
THRMDC
THERMTRIP#
HCLK
BCLK0
BCLK1
ITP
SKT-CPU478P-GP
62.10079.021
+1.05V_VCCP
R72
56R2J-4-GP
R88
56R2J-4-GP
C225
SC2200P50V2KX-2GP
R377
1KR2F-3-GP
R376
2KR2F-3-GP
layout note:Zo =55 ohm , 0.5" MAX for GTLREF
V_CPU_GTLREF
H_D#[0..63] 9
U54B 2 OF 4
DATA GRP0
DATA GRP1
DATA GRP2
DATA GRP3
MISC
D0#
D1#
D2#
D3#
D4#
D5#
D6#
D7#
D8#
D9#
D10#
D11#
D12#
D13#
D14#
D15#
DSTBN0#
DSTBP0#
DINV0#
D16#
D17#
D18#
D19#
D20#
D21#
D22#
D23#
D24#
D25#
D26#
D27#
D28#
D29#
D30#
D31#
DSTBN1#
DSTBP1#
DINV1#
D32#
D33#
D34#
D35#
D36#
D37#
D38#
D39#
D40#
D41#
D42#
D43#
D44#
D45#
D46#
D47#
DSTBN2#
DSTBP2#
DINV2#
D48#
D49#
D50#
D51#
D52#
D53#
D54#
D55#
D56#
D57#
D58#
D59#
D60#
D61#
D62#
D63#
DSTBN3#
DSTBP3#
DINV3#
GTLREF
TEST1
TEST2
TEST3
TEST4
TEST5
TEST6
BSEL0
BSEL1
BSEL2
COMP0
COMP1
COMP2
COMP3
DPRSTP#
DPSLP#
DPWR#
PWRGOOD
SLP#
PSI#
R70 27D4R2F-L1-GP
R67 54D9R2F-L1-GP
R57 27D4R2F-L1-GP
R60 54D9R2F-L1-GP
R87 200R2F-L-GP
H_DPRSTP# 10,20,39
H_DPSLP# 20
H_DPWR# 9
H_CPUSLP# 9
H_PSI# 39
H_PWRGOOD 20
TP23
TP15
TP77
TP85
TP24
TP1
CPU_MCH_BSEL0
CPU_MCH_BSEL1
CPU_MCH_BSEL2
SKT-CPU478P-GP
62.10079.021
Use old Symbol replace New P/N
original value:SKT-CPU478P-GP
TEST3 and TEST5
For the purpose of testability, route thes signals through a ground referenced Zo=55ohm trace that ends in a via that is near a GND via and is accessible through an oscilloscope connection.
R123 H_DPSLP# 56R2J-4-GP
R115 H_DPRSTP# 56R2J-4-GP
R128 H_FERR# 56R2J-4-GP
R73 EC_CPU_PROCHOT# 56R2J-4-GP
<Variant Name>
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Thurman UMA
Size A3
Document Number CPU-FSB(1/2)
Rev -1
Date: Wednesday, November 07, 2007
Sheet 7 of 46



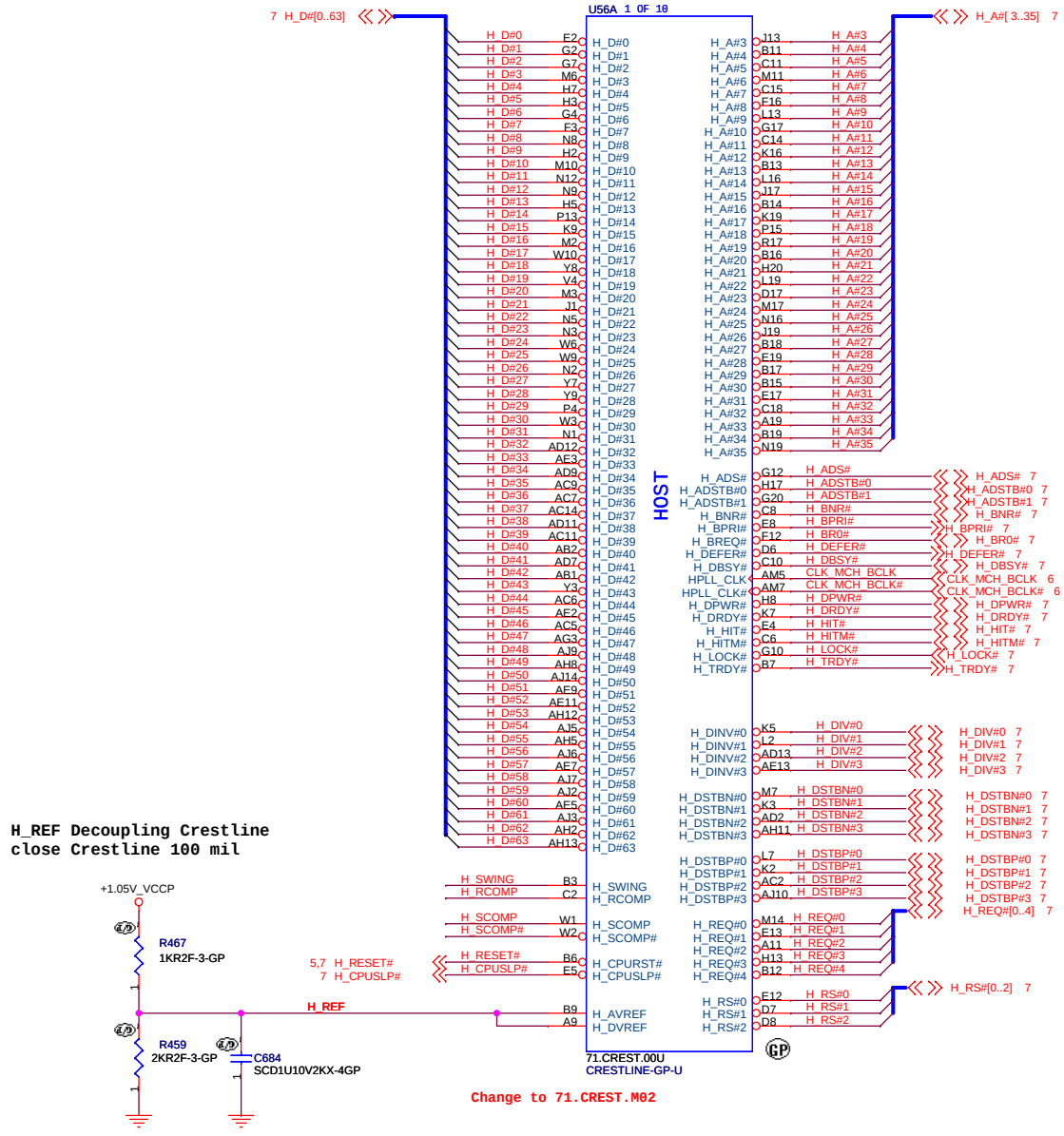
<Variant Name>

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

Title: Thurman UMA

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

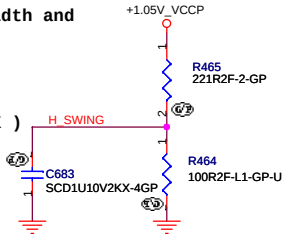
Date: Wednesday, November 07, 2007 Sheet 8 of 46



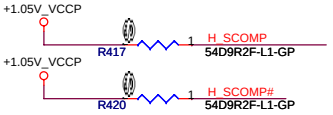
H_SWING routing Trace width and Spacing use 10 / 20 mil

H_SWING Resistors and Capacitors close Caliistoga 500 mil (MAX)

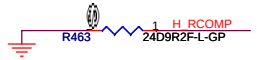
From Schematic Design Checklit v.1201
221 1% pull high 100
1% pull low



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



<Variant Name>

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

Title	Thurman UMA	
Size: A3	Document Number: GMCH-FSB LIBC (1/6)	Rev: -1
Date: Wednesday, November 07, 2007	Sheet 9 of 46	

* 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

CLOSE PIN BL15 BK14

<Variant Name>

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

Title: Thurman UMA

Size: A3 | Document Number: GMCH-DMI/DDR (2/6) | Rev: -1

Date: Wednesday, November 07, 2007 | Sheet 10 of 46

CRESTLINE-GP-U 71.CREST.00U

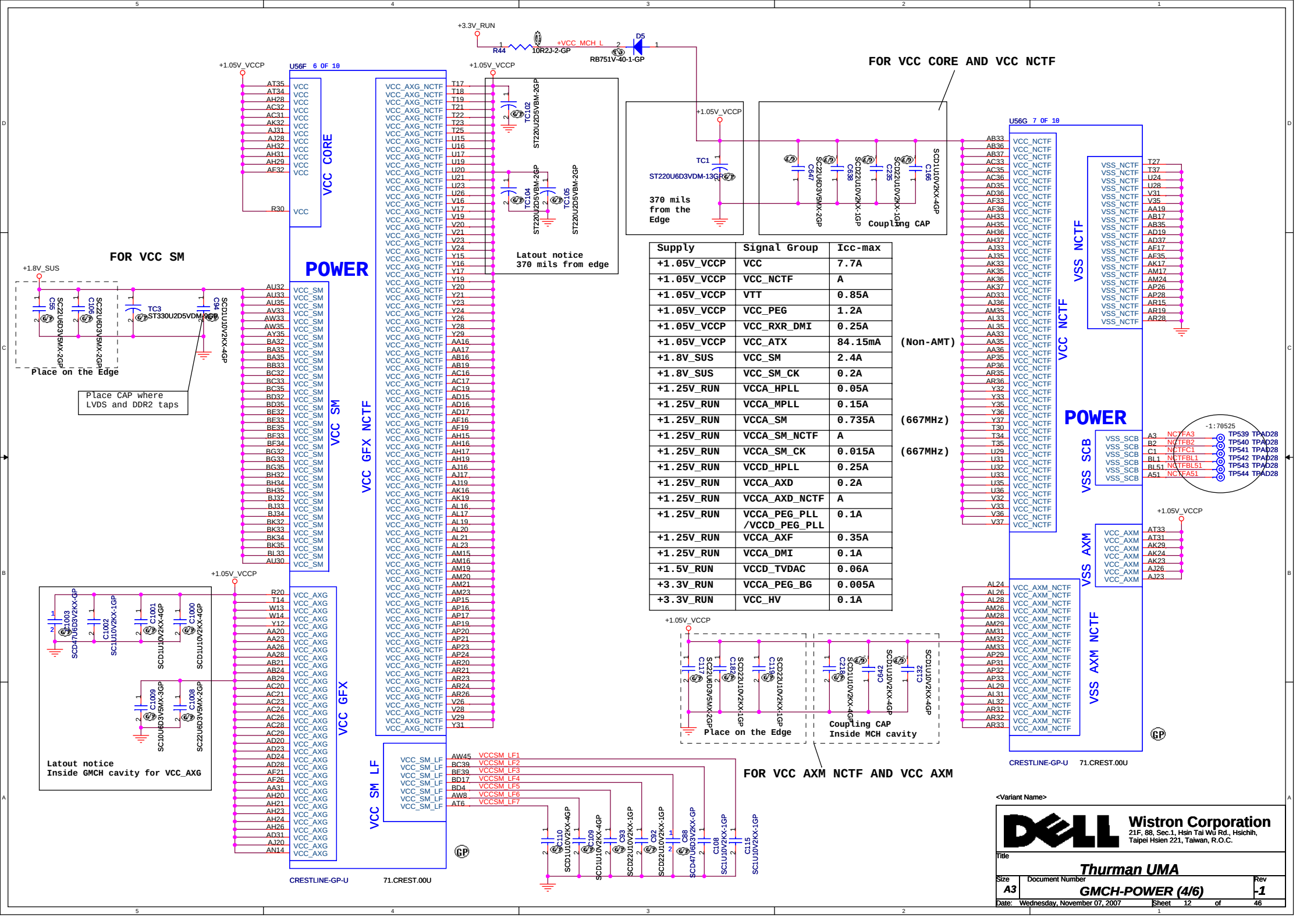
<Variant Name>

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

Title: ***Thurman UMA***

Size	Document Number	Rev
A3	GMCH-DDR (3/6)	-1

Date: Wednesday, November 07, 2007 Sheet 11 of 46



Supply	Signal Group	Icc-max	
+1.05V_VCCP	VCC	7.7A	
+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	

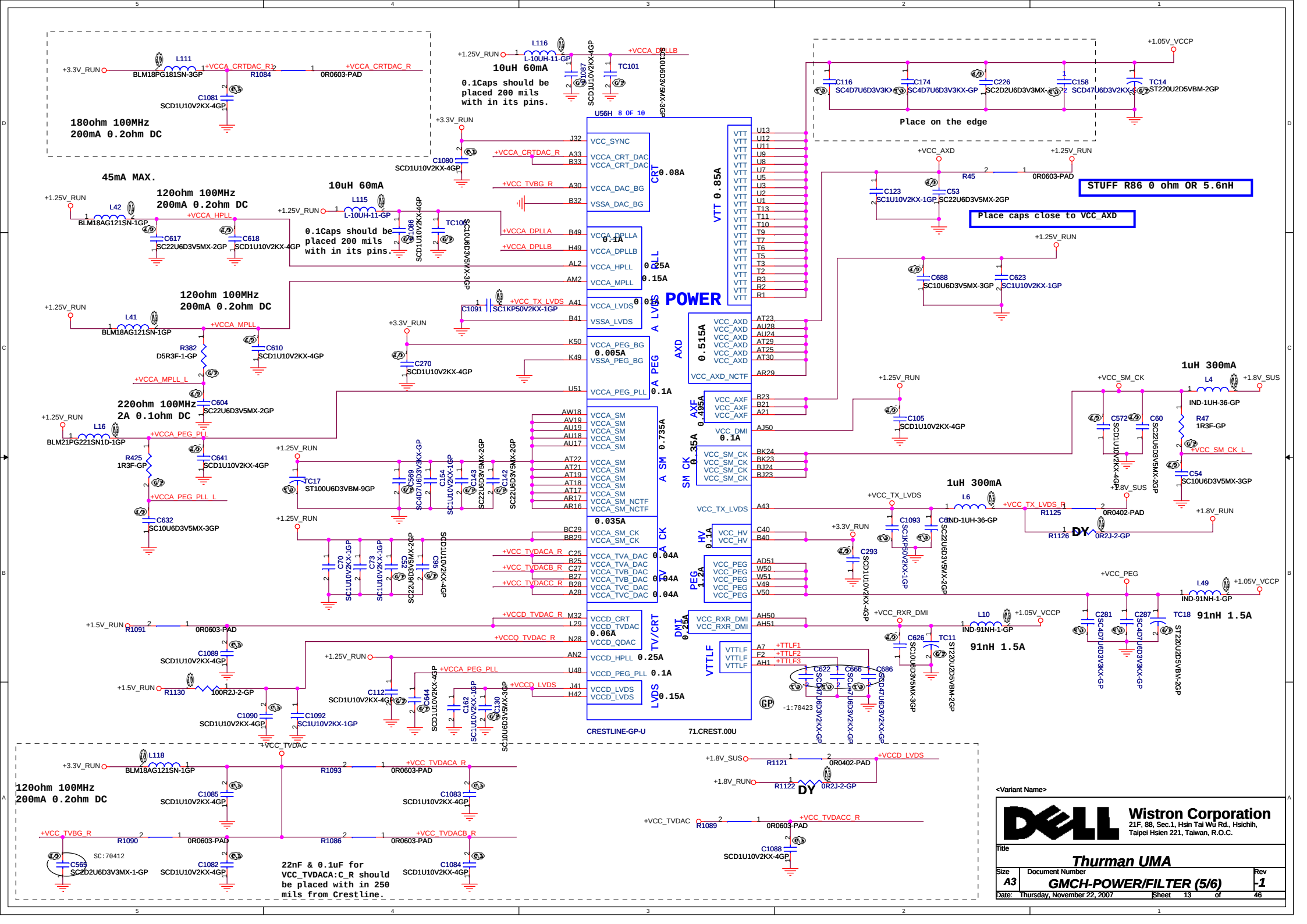
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

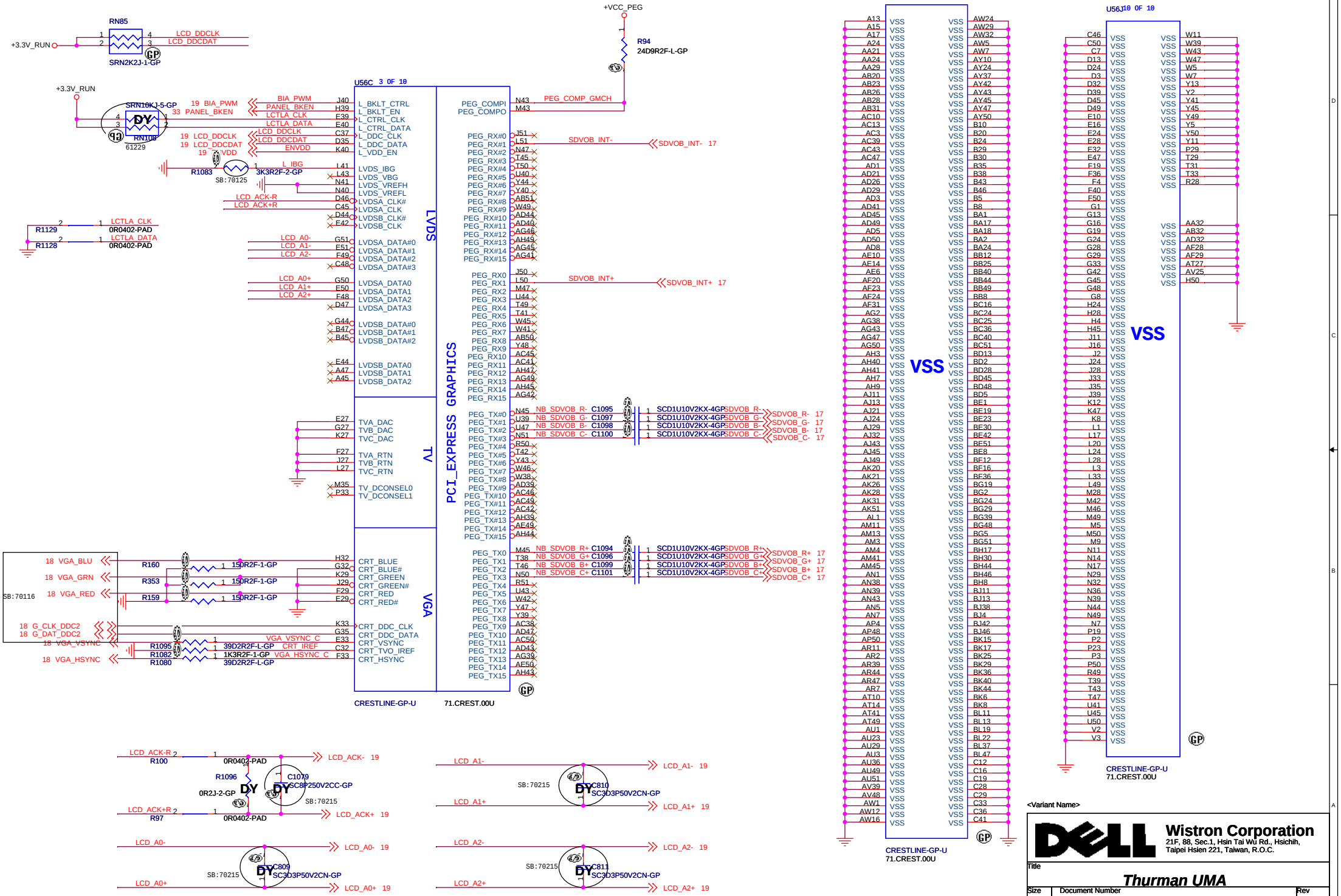
<Variant Name>

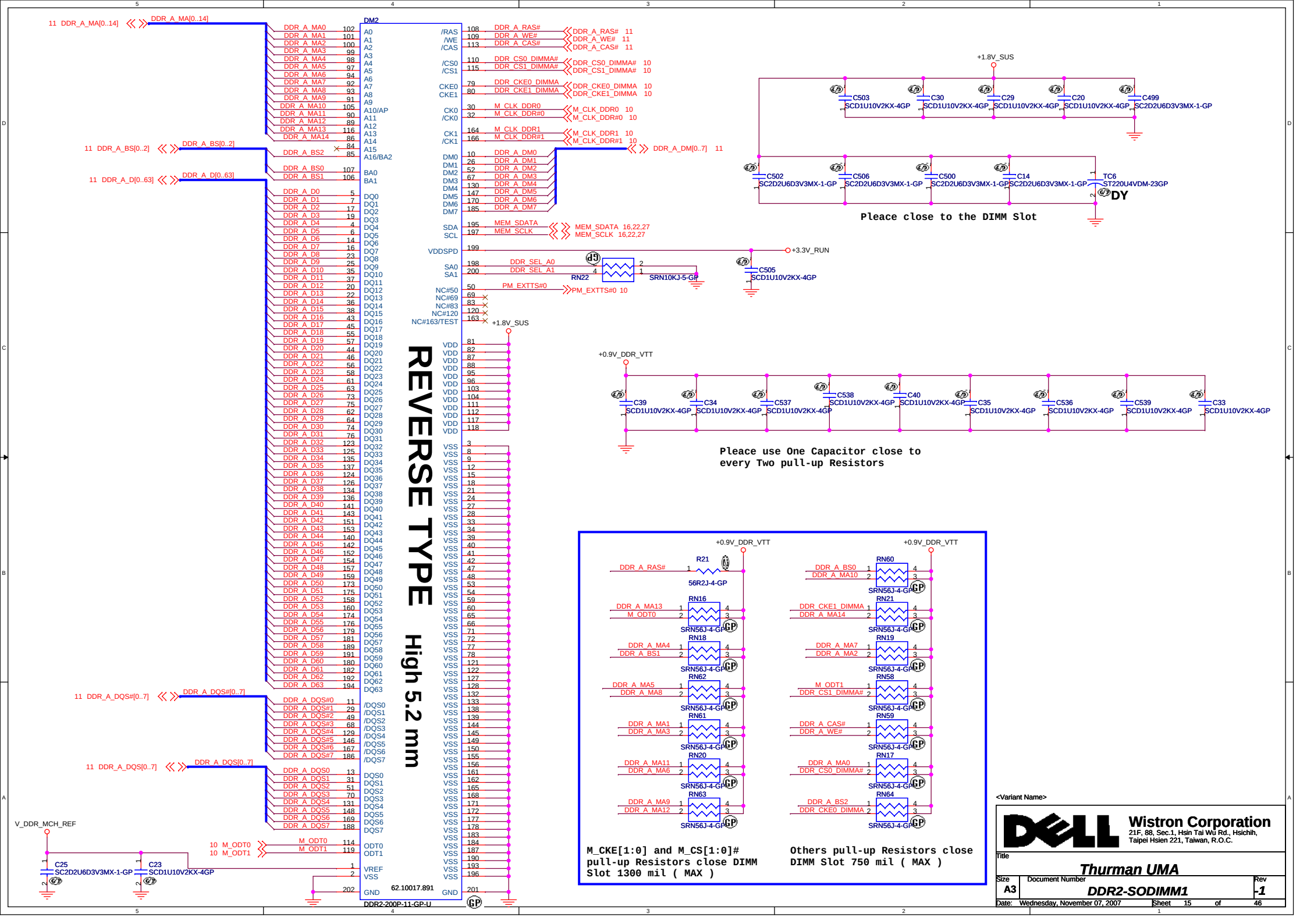
Title: Thurman UMA

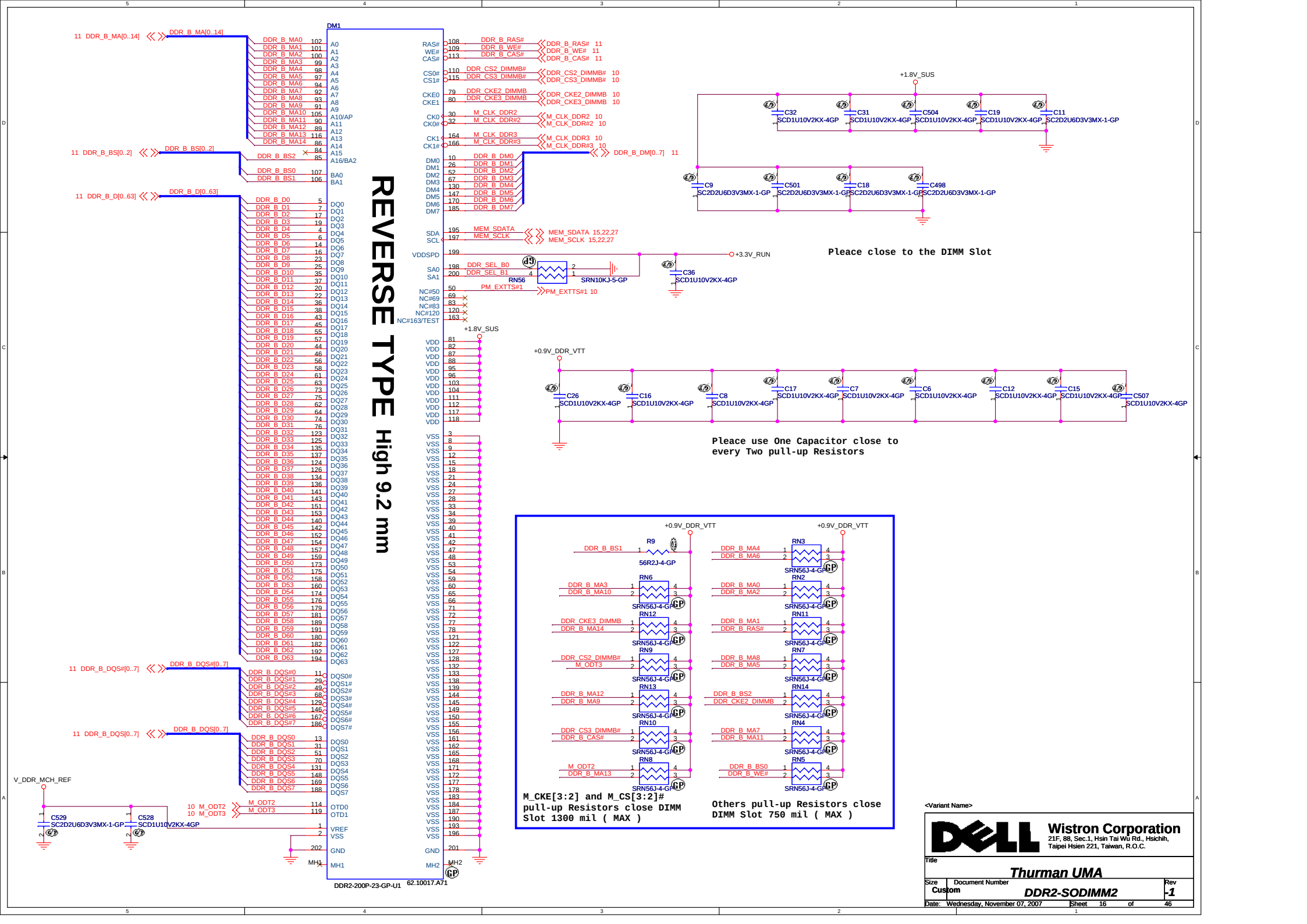
Size: A3 | Document Number: GMCH-POWER (4/6) | Rev: -1

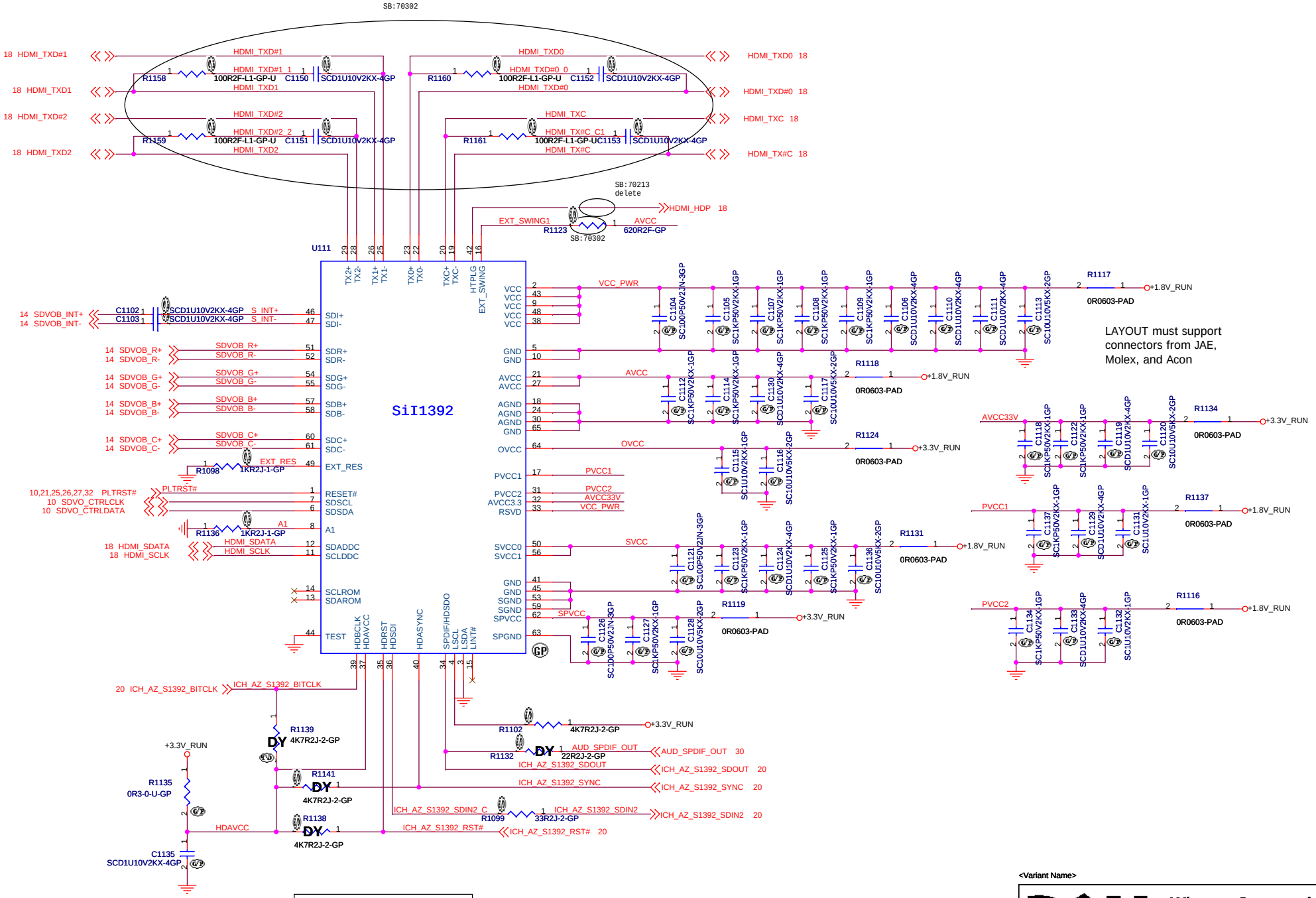
Date: Wednesday, November 07, 2007 | Sheet 12 of 46


180ohm 100MHz
200mA 0.2ohm DC
45mA MAX.
120ohm 100MHz
200mA 0.2ohm DC
10uH 60mA
0.1Caps should be placed 200 mils with in its pins.
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
DY
POWER
CRESTLINE-GP-U
71.CREST.00U
22nF & 0.1uF for VCC_TVDACA:C_R should be placed with in 250 mils from Crestline.
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
Thurman UMA
GMCH-POWER/FILTER (5/6)
Thursday, November 22, 2007


RN85
SRN2K2J-1-GP
+3.3V_RUN
LCD_DDCLK
LCD_DDCDAT
+VCC_PEG
R94
24D9R2F-L-GP
U56C 3 OF 10
LVDS
PCI_EXPRESS GRAPHICS
TV
VGA
CRESTLINE-GP-U
71.CREST.00U
U56I 9 OF 10
U56J 10 OF 10
VSS
CRESTLINE-GP-U
71.CREST.00U
SRN10KJ-5-GP
RN108
61229
R1083
3K3R2F-2-GP
SB:70125
R1129
R1128
0R0402-PAD
R160
R353
R159
150R2F-1-GP
SB:70116
R1095
R1082
R1080
39D2R2F-L-GP
1K3R2F-1-GP
R100
R97
R1096
0R2J-2-GP
C1079
SC8P250V2CC-GP
SB:70215
C809
C810
C811
SC3D3P50V2CN-GP
<Variant Name>
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Thurman UMA
Size A3
Document Number
GMCH-GND/LVDA/VGA (6/6)
Rev -1
Date: Wednesday, November 07, 2007
Sheet 14 of 46


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
C505
SCD1U10V2KX-4GP
C503
C30
C29
C20
C499
SC2D2U6D3V3MX-1-GP
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
C25
C23
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 UMA
Size
A3
Document Number
DDR2-SODIMM1
Rev
-1
Date: Wednesday, November 07, 2007
Sheet 15 of 46


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
MEM_SDATA 15,22,27
MEM_SCLK 15,22,27
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
RN6 SRN56J-4-GP
RN12 SRN56J-4-GP
RN9 SRN56J-4-GP
RN13 SRN56J-4-GP
RN10 SRN56J-4-GP
RN8 SRN56J-4-GP
RN3 SRN56J-4-GP
RN2 SRN56J-4-GP
RN11 SRN56J-4-GP
RN7 SRN56J-4-GP
RN14 SRN56J-4-GP
RN4 SRN56J-4-GP
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 UMA
Size Custom
Document Number DDR2-SODIMM2
Rev -1
Date: Wednesday, November 07, 2007
Sheet 16 of 46



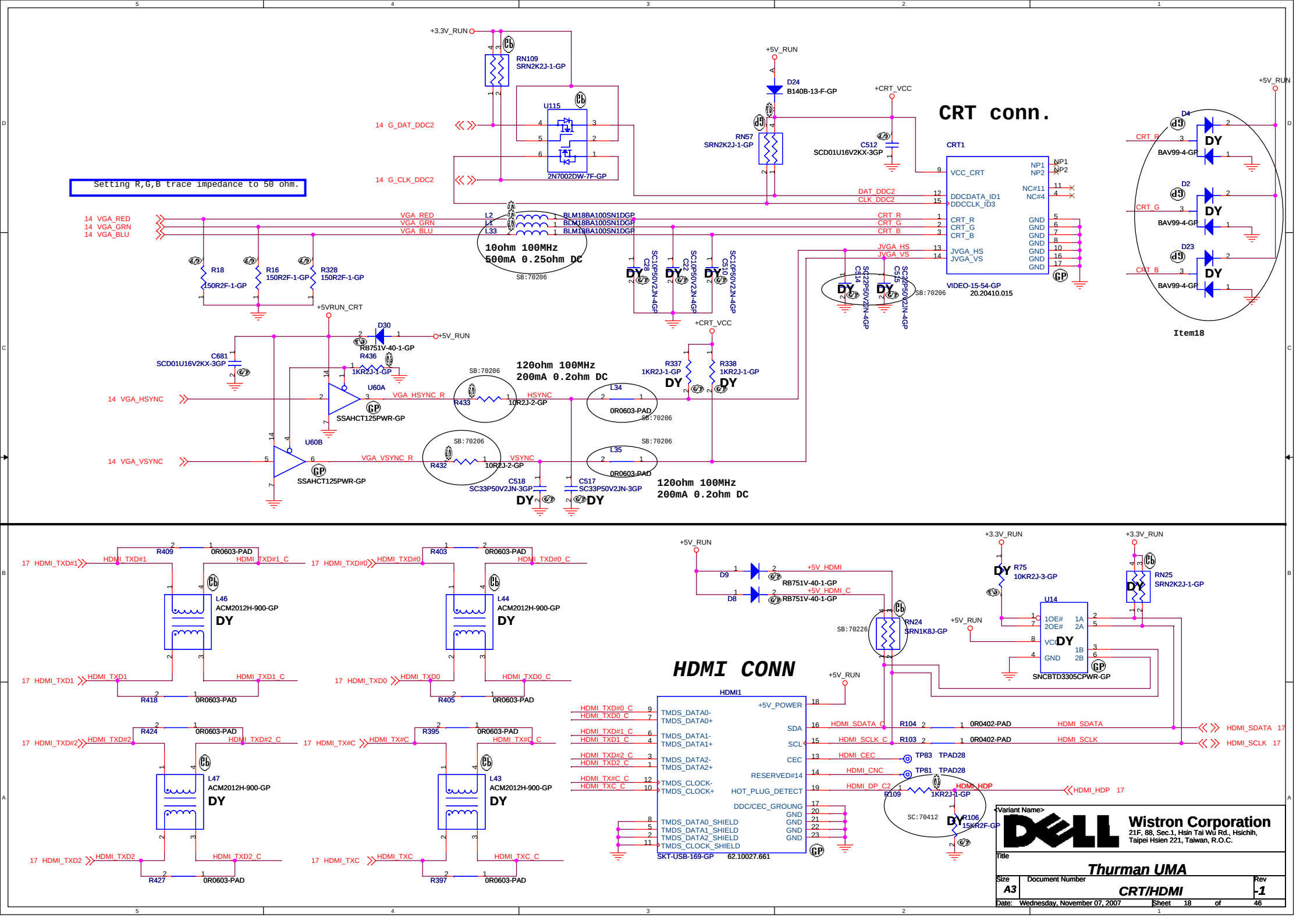
<Variant Name>

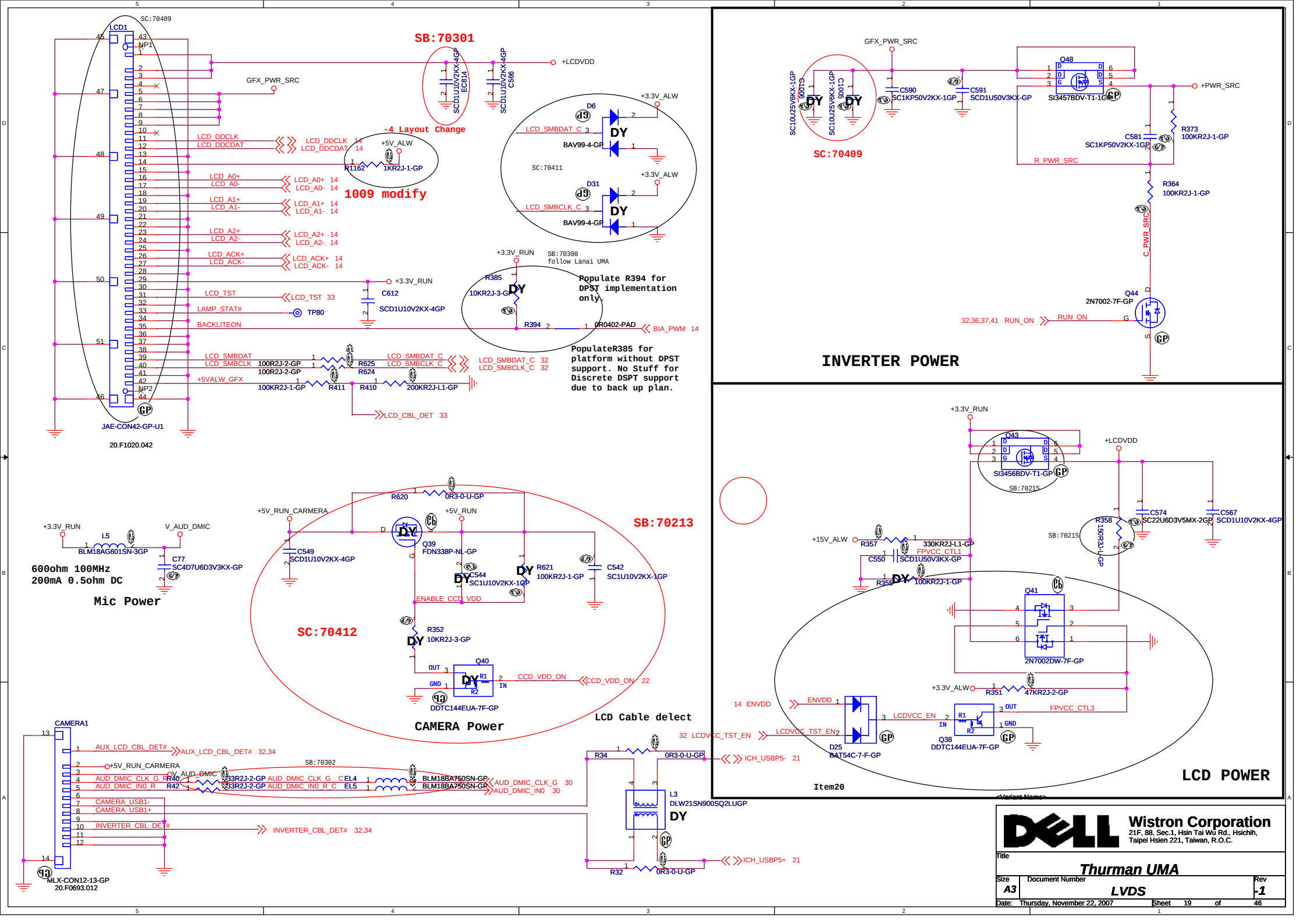
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: Thurman UMA

Size: A3 | Document Number: Sil 1932 | Rev: -1

Date: Wednesday, November 07, 2007 | Sheet 17 of 46


CRT conn.
HDMI CONN
Setting R,G,B trace impedance to 50 ohm.
10ohm 100MHz
500mA 0.25ohm DC
120ohm 100MHz
200mA 0.2ohm DC
120ohm 100MHz
200mA 0.2ohm DC
Item18
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Thurman UMA
CRT/HDMI
Size A3
Rev -1
Date: Wednesday, November 07, 2007
Sheet 18 of 46

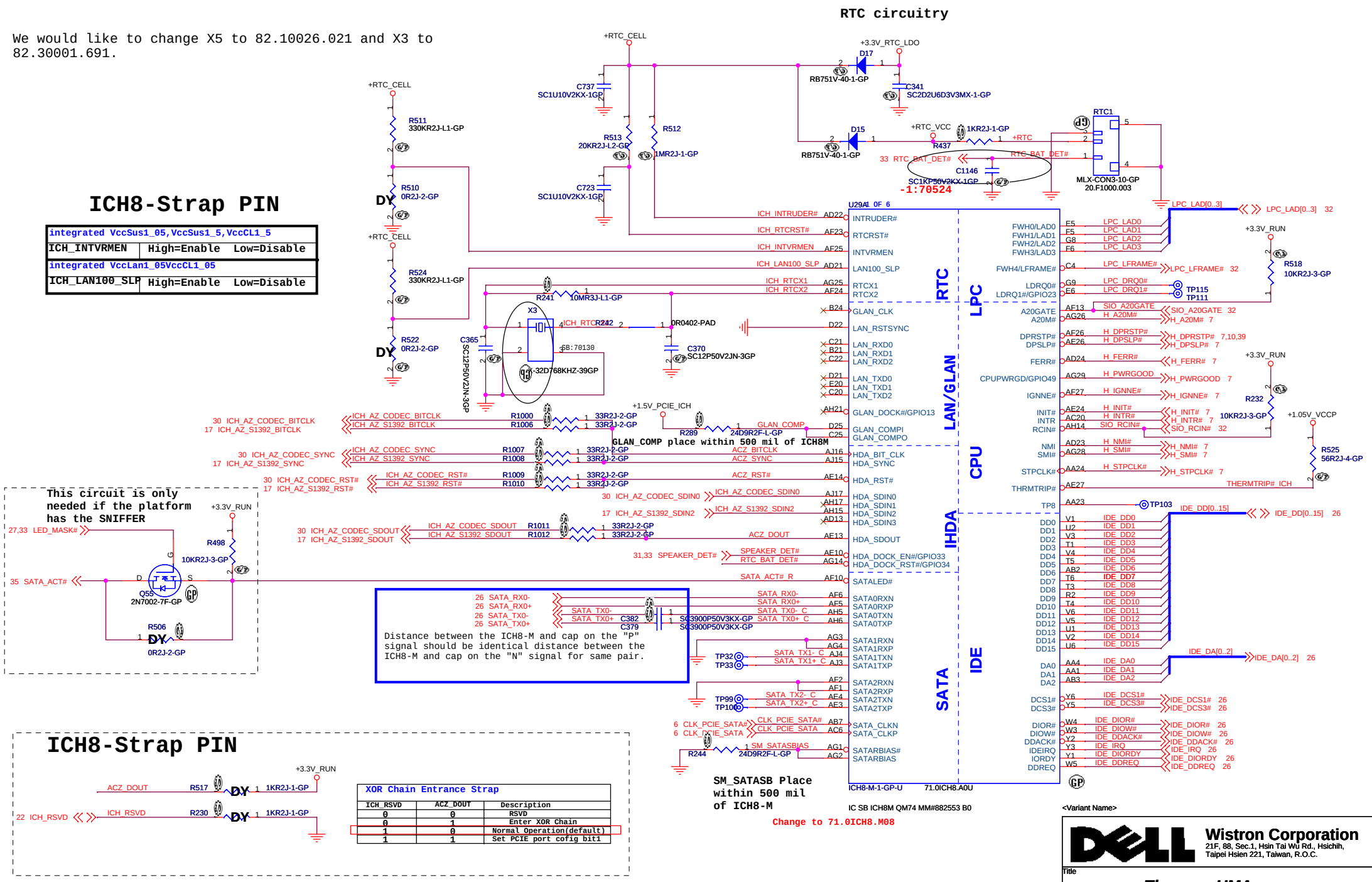

SB:70301
SC:70409
LCD1
JAE-CON42-GP-U1
20.F1020.042
GFX_PWR_SRC
+LCDVDD
SCD1U10V2KX-4GP
EC814
C566
-4 Layout Change
LCD_DDCLK
LCD_DDCDAT
+5V_ALW
R1162
1KR2J-1-GP
1009 modify
LCD_A0+
LCD_A0-
LCD_A1+
LCD_A1-
LCD_A2+
LCD_A2-
LCD_ACK+
LCD_ACK-
LCD_TST
LAMP_STAT#
TP80
BACKLITEON
+3.3V_RUN
C612
SCD1U10V2KX-4GP
+3.3V_ALW
D6
BAV99-4-GP
LCD_SMBDAT_C
D31
LCD_SMBCLK_C
SC:70411
SB:70308
follow Lanai UMA
R385
10KR2J-3-GP
R394
0R0402-PAD
BIA_PWM
Populate R394 for DPST implementation only.
PopulateR385 for platform without DPST support. No Stuff for Discrete DSPT support due to back up plan.
LCD_SMBDAT
LCD_SMBCLK
100R2J-2-GP
R625
R624
R411
R410
200KR2J-L1-GP
+5VALW_GFX
LCD_CBL_DET
SC:70409
C590
SC1KP50V2KX-1GP
C591
SCD1U50V3KX-GP
Q48
SI3457BDV-T1-1GP
+PWR_SRC
C581
SC1KP50V2KX-1GP
R373
100KR2J-1-GP
R_PWR_SRC
R364
100KR2J-1-GP
C_PWR_SRC
Q44
2N7002-7F-GP
RUN_ON
INVERTER POWER
SB:70213
+5V_RUN_CARMERA
+5V_RUN
R620
0R3-0-U-GP
Q39
FDN338P-NL-GP
C549
SCD1U10V2KX-4GP
C544
SC1U10V2KX-1GP
R621
100KR2J-1-GP
C542
SC1U10V2KX-1GP
ENABLE_CCD_VDD
R352
10KR2J-3-GP
Q40
DDTC144EUA-7F-GP
CCD_VDD_ON
SC:70412
CAMERA Power
+3.3V_RUN
L5
BLM18AG601SN-3GP
V_AUD_DMIC
C77
SC4D7U6D3V3KX-GP
600ohm 100MHz
200mA 0.5ohm DC
Mic Power
SB:70215
Q43
SI3456BDV-T1-GP
C574
SC22U6D3V5MX-2GP
C567
SCD1U10V2KX-4GP
R358
150R3-U-GP
+15V_ALW
R357
330KR2J-L1-GP
FPVCC_CTL1
C550
SCD1U50V3KX-GP
R355
100KR2J-1-GP
Q41
2N7002DW-7F-GP
R351
47KR2J-2-GP
FPVCC_CTL3
14 ENVDD
D25
BAT54C-7-F-GP
LCDVCC_EN
LCDVCC_TST_EN
Q38
DDTC144EUA-7F-GP
32 LCDVCC_TST_EN
LCD POWER
Item20
LCD Cable delect
CAMERA1
MLX-CON12-13-GP
20.F0693.012
AUX_LCD_CBL_DET#
AUX_LCD_CBL_DET# 32,34
AUD_DMIC_CLK_G
AUD_DMIC_IN0_R
SB:70302
BLM18BA750SN-GP
AUD_DMIC_CLK_G 30
AUD_DMIC_IN0 30
CAMERA_USB1-
CAMERA_USB1+
INVERTER_CBL_DET#
INVERTER_CBL_DET# 32,34
R34
0R3-0-U-GP
ICH_USBP5-
ICH_USBP5+
L3
DLW21SN900SQ2LUGP
R32
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Thurman UMA
Size
A3
Document Number
LVDS
Rev
-1
Date: Thursday, November 22, 2007
Sheet 19 of 46

We would like to change X5 to 82.10026.021 and X3 to 82.30001.691.

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



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

Title: Thurman UMA

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

Date: Thursday, November 22, 2007 | Sheet 20 of 46

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

PCI I/F PULL HIGH

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

RP5 SRN8K2J-2-GP-U
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#
22 USB_IDE#

BIOS should not enable the internal GPIO pull up

+3.3V_RUN
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

R611 15R2J-GP ICH_SPI_CS0#
+3.3V_ALW
U80 74LVC1G08GW-1-GP
R612 DY 15R2J-GP SPI_CS0# R
33 SPI_CS0#
R597 0R0402-PAD
SIO_SPI_CS# 32
32 ICH_EC_SPI_CLK R291 15R2J-GP ICH_EC_SPI_CLK_R
ICH_SPI_CS# B23
ICH_SPI_CS1# R F22
32 ICH_EC_SPI_DO R290 15R2J-GP ICH_EC_SPI_DO_R D23
32 ICH_EC_SPI_DIN ICH_EC_SPI_DIN F21

38 USB_OC0# USB_OC0# AJ19
38 USB_OC1# USB_OC1# AG16
USB_OC2# AG15
USB_OC3# AE15
USB_OC4# AF15
USB_OC5# AG17
USB_OC6# AD12
USB_OC7# AJ18
USB_OC8# AD14
USB_OC9# AH18

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

+3.3V_SUS
RN67 SRN10KJ-5-GP: USB_OC5#, USB_OC4#
RP1 SRN10KJ-L3-GP
USB_OC6# 1 10 USB_OC1#
USB_OC9# 2 9 USB_OC2#
USB_OC7# 3 8 USB_OC3#
USB_OC0# 4 7 USB_OC8#
+3.3V_SUS 5 6

PCI Interface Routing	IDSEL	INT	REQ	GNT
1394/ MediaCard	AD17	C D	1	1

Add Buffers as need for Loading and Fanout concerns

28 PCI_AD[0..31] PCI_AD[0..31]
U29C 3 OF 6 PCI
PCI_AD0 D20 AD0
PCI_AD1 E19 AD1
PCI_AD2 D19 AD2
PCI_AD3 A20 AD3
PCI_AD4 D17 AD4
PCI_AD5 A21 AD5
PCI_AD6 A19 AD6
PCI_AD7 C19 AD7
PCI_AD8 A18 AD8
PCI_AD9 B16 AD9
PCI_AD10 A12 AD10
PCI_AD11 E16 AD11
PCI_AD12 A14 AD12
PCI_AD13 G16 AD13
PCI_AD14 A15 AD14
PCI_AD15 B6 AD15
PCI_AD16 C11 AD16
PCI_AD17 A9 AD17
PCI_AD18 D11 AD18
PCI_AD19 B12 AD19
PCI_AD20 C12 AD20
PCI_AD21 D10 AD21
PCI_AD22 C7 AD22
PCI_AD23 F13 AD23
PCI_AD24 E11 AD24
PCI_AD25 E13 AD25
PCI_AD26 E12 AD26
PCI_AD27 D8 AD27
PCI_AD28 A6 AD28
PCI_AD29 E8 AD29
PCI_AD30 D6 AD30
PCI_AD31 A3 AD31

REQ0# A4 PCI_REQ#0
GNT0# D7 PCI_GNT#0
REQ1#/GPIO50 E18 PCI_REQ#1 — PCI_REQ#1 28
GNT1#/GPIO51 C18 PCI_GNT#1 — PCI_GNT#1 28
REQ2#/GPIO52 B19 SB_WWAN_PCIE_RST# — SB_WWAN_PCIE_RST# 27
GNT2#/GPIO53 F18 PCI_GNT#2 — TP114
GNT3#/GPIO55 C10 PCI_GNT#3
REQ3#/GPIO54 A11 SB_LOM_PCIE_RST# — SB_LOM_PCIE_RST# 25

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] 28

IRDY# C8 PCI_IRDY# — PCI_IRDY# 28
PAR D9 PCI_PAR — PCI_PAR 28
PCIRST# G6 PCI_RST# G — R281 33R2J-GP — PCI_RST# 28
DEVSEL# D16 PCI_DEVSEL# — PCI_DEVSEL# 28
PERR# A7 PCI_PERR# — PCI_PERR# 28
FRAME# A17 PCI_FRAME# — PCI_FRAME# 28
PLOCK# B7 PCI_PLOCK# — TP124
SERR# F10 PCI_SERR# — PCI_SERR# 28
STOP# C16 PCI_STOP# — PCI_STOP# 28
TRDY# C9 PCI_TRDY# — PCI_TRDY# 28

PLTRST# AG24 PCI_PLTRST#
PCICLK B10 CLK_PCI_ICH — CLK_PCI_ICH 6
PME# G7 ICH_PME# — ICH_PME# 33

U28 SNLVC1G08DCKRG4-GP
16mA
+3.3V_SUS
C404 SCD1U10V2KX-4GP
R260 33R2J-2-GP — PLT_RST# S — PLTRST# 10,17,25,26,27,32
R261 DY 0R2J-2-GP

Interrupt I/F
SB:70302
PCI_PIRQA# F9 PIRQA# — PIRQE#/GPIO2 F8 SB_WPAN_PCIE_RST# — SB_WPAN_PCIE_RST# 27
PCI_PIRQB# B5 PIRQB# — PIRQF#/GPIO3 G11 SB_WLAN_PCIE_RST# — SB_WLAN_PCIE_RST# 27
28 PCI_PIRQC# PCI_PIRQC# C5 PIRQC# — PIRQG#/GPIO4 F12 SB_NB_PCIE_RST# — SB_NB_PCIE_RST# 10
28 PCI_PIRQD# PCI_PIRQD# A10 PIRQD# — PIRQH#/GPIO5 R3 PCIE_MCARD2_DET# — PCIE_MCARD2_DET# 27
GP
ICH8-M-1-GP-U 71.0ICH8.A0U
IC SB ICH8M QM74 MM#882553 B0

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

MiniCard WLAN
27 PCIE_RX2- PCIE_RX2- M27 PERN2
27 PCIE_RX2+ PCIE_RX2+ M26 PERP2
27 PCIE_TX2- PCIE_TX2- C416 SCD1U10V2KX-4GP PCIE_TXN2_C L29 PETN2
27 PCIE_TX2+ PCIE_TX2+ C414 SCD1U10V2KX-4GP PCIE_TXP2_C L28 PETP2

Express Card
26 PCIE_RX4- PCIE_RX4- H27 PERN4
26 PCIE_RX4+ PCIE_RX4+ H26 PERP4
26 PCIE_TX4- PCIE_TX4- C429 SCD1U10V2KX-4GP PCIE_TXN3_C G29 PETN4
26 PCIE_TX4+ PCIE_TX4+ C425 SCD1U10V2KX-4GP PCIE_TXP3_C G28 PETP4

LAN
25 PCIE_RX6- PCIE_RX6- D27 PERN6/GLAN_RXN
25 PCIE_RX6+ PCIE_RX6+ D26 PERP6/GLAN_RXP
25 PCIE_TX6- PCIE_TX6- C433 SCD1U10V2KX-4GP PCIE_TXN4_C C29 PETN6/GLAN_TXN
25 PCIE_TX6+ PCIE_TX6+ C432 SCD1U10V2KX-4GP PCIE_TXP4_C C28 PETP6/GLAN_TXP

U29B 2 OF 6
PCI-Express
Direct Media Interface
SPI
USB

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
DMI_IRCOMP
DMI_COMP Y23 — R246 24D9R2F-L-GP — +1.5V_PCIE_ICH
Y24

USBP0N G3 ICH_USBP0- — ICH_USBP0- 38
USBP0P G2 ICH_USBP0+ — ICH_USBP0+ 38
USBP1N H5 ICH_USBP1- — ICH_USBP1- 38
USBP1P H4 ICH_USBP1+ — ICH_USBP1+ 38
USBP2N H2
USBP2P H1
USBP3N J3
USBP3P J2
USBP4N K5 ICH_USBP4- — ICH_USBP4- 34
USBP4P K4 ICH_USBP4+ — ICH_USBP4+ 34
USBP5N K2 ICH_USBP5- — ICH_USBP5- 19
USBP5P K1 ICH_USBP5+ — ICH_USBP5+ 19
USBP6N L3 ICH_USBP6- — ICH_USBP6- 26
USBP6P L2 ICH_USBP6+ — ICH_USBP6+ 26
USBP7N M5 ICH_USBP7- — ICH_USBP7- 29
USBP7P M4 ICH_USBP7+ — ICH_USBP7+ 29
USBP8N M2
USBP8P M1
USBP9N N3 ICH_USBP9- — ICH_USBP9- 27
USBP9P N2 ICH_USBP9+ — ICH_USBP9+ 27
USBRBIAS F2 USBRBIAS — R272 22D6R2F-L1-GP
USBRBIAS# F3

SPI_CLK
SPI_CS0#
SPI_CS1#
SPI_MOSI
SPI_MISO

OC0#
OC1#/GPIO40
OC2#/GPIO41
OC3#/GPIO42
OC4#/GPIO43
OC5#/GPIO29
OC6#/GPIO30
OC7#/GPIO31
OC8#
OC9#

ICH8-M-1-GP-U 71.0ICH8.A0U
IC SB ICH8M QM74 MM#882553 B0

DMI_COMP R158 place within 500 mil of ICH8M

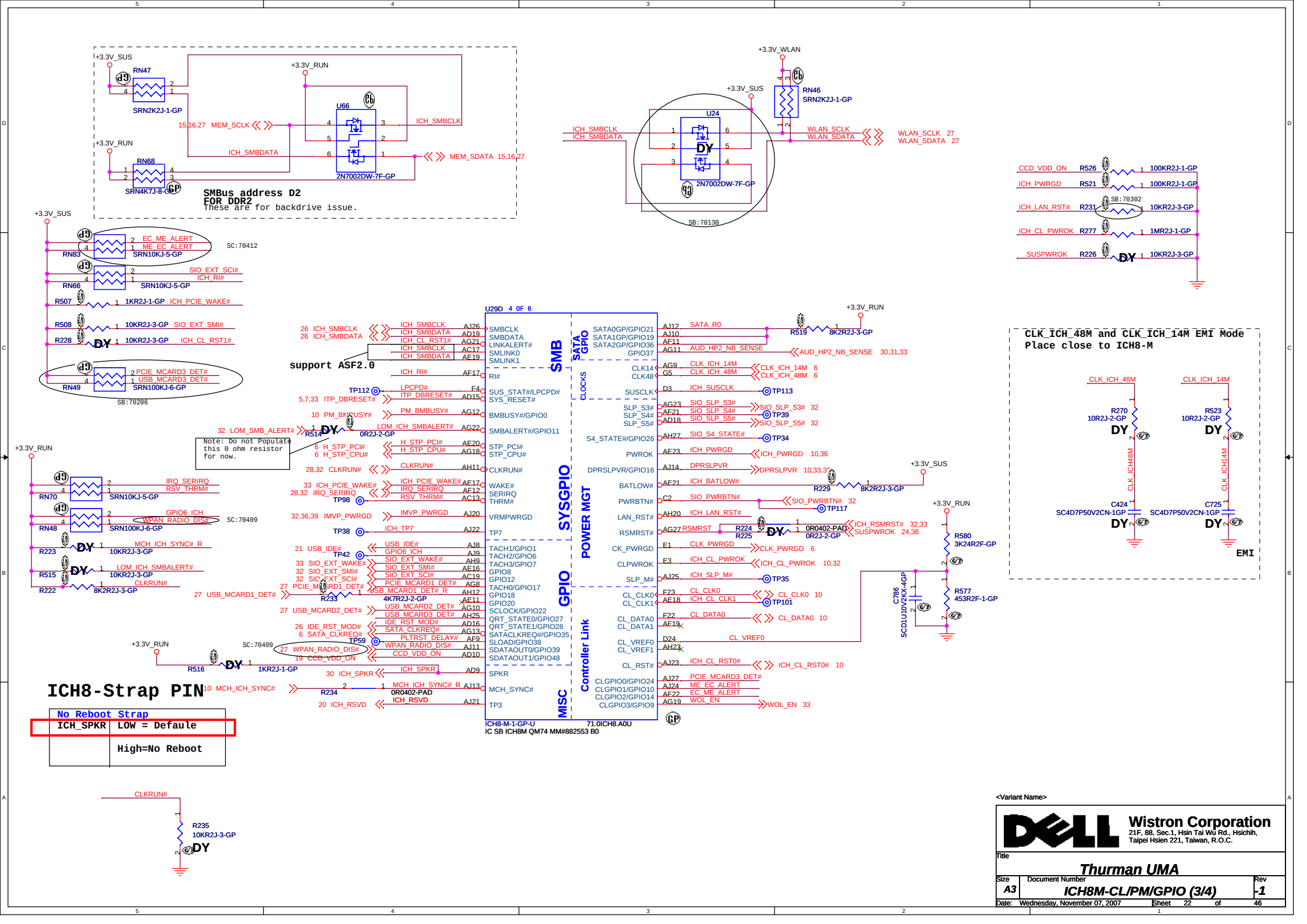
USBRBIAS close to ICH8M 500 mils and Trace impedance should be 60 ohm +/- 15%

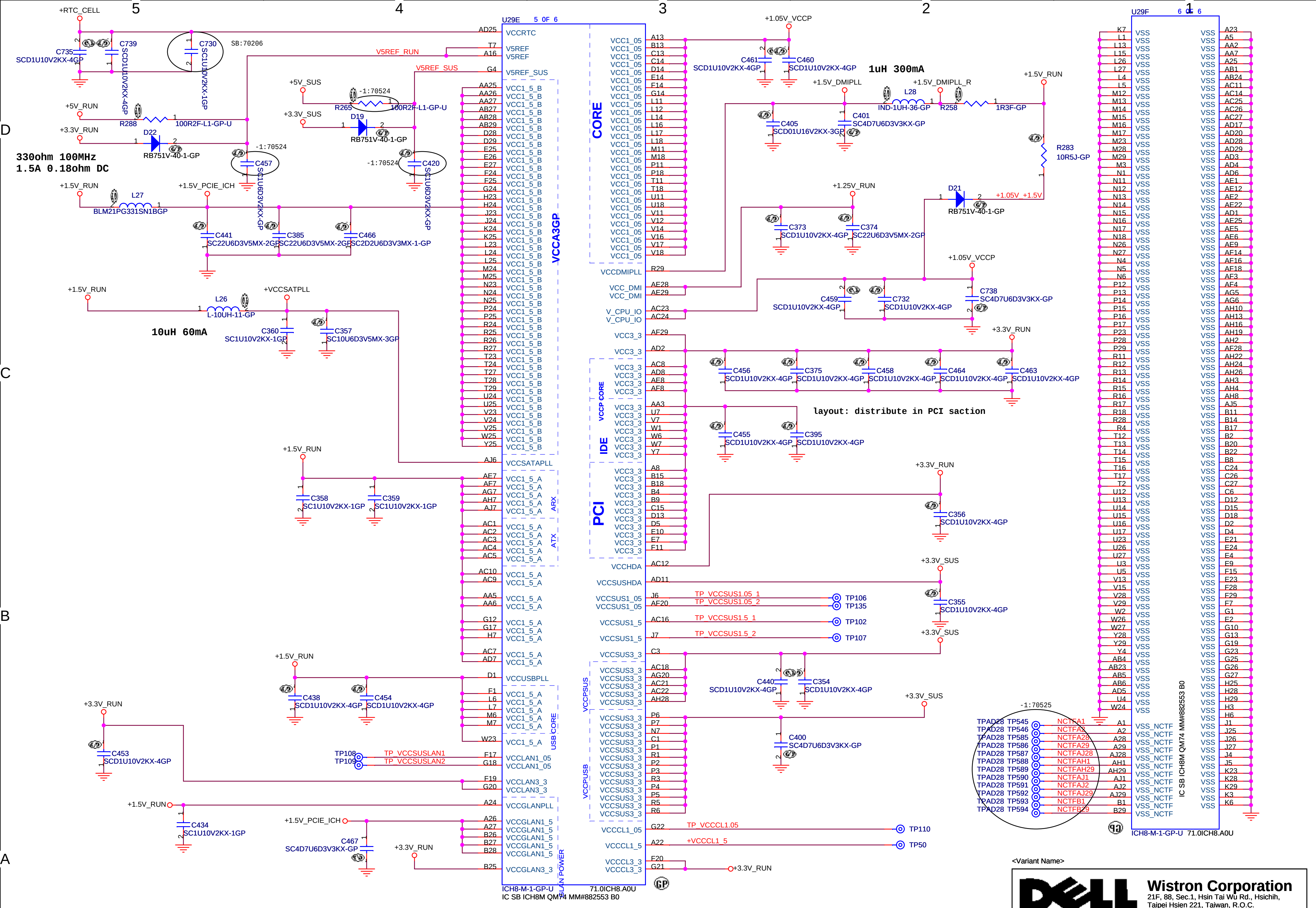
USB0	USB1
USB1	USB2
USB2	
USB3	
USB4	Biometric
USB5	Camera
USB6	Express Card
USB7	BT
USB8	MINI Card WLAN
USB9	

<Variant Name>

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

Title: Thurman UMA
Size: A3 | Document Number: ICH8M-PCIE/USB/SPI/DMI (2/4) | Rev: -1
Date: Thursday, November 22, 2007 | Sheet 21 of 46


SMBus address D2
FOR DDR2
These are for backdrive issue.
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
ICH8-Strap PIN
No Reboot Strap
ICH_SPKR LOW = Defaule
High=No Reboot
ICH8-M-1-GP-U
IC SB ICH8M QM74 MM#882553 B0
71.0ICH8.A0U
SMB
SATA GPIO
CLOCKS
SYSGPIO
POWER MGT
GPIO
Controller Link
MISC
EMI
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
Thurman UMA
ICH8M-CL/PM/GPIO (3/4)
Wednesday, November 07, 2007



<Variant Name>

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

Title: **Thurman UMA**

Size	Document Number	Rev
Custom	ICH8M-POWER (4/4)	-1

Date: Wednesday, November 07, 2007 Sheet 23 of 46

SSID = THERMAL

C276 Please Close to Guardian

Place near the bottom SODIMM CONN

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

Place inside CPU socket

C300 Please close to Guardian

Close to Pin5, Pin6

Close to Pin9

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

C295 Please close to Guardian

C260 Please Close to Guardian

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

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

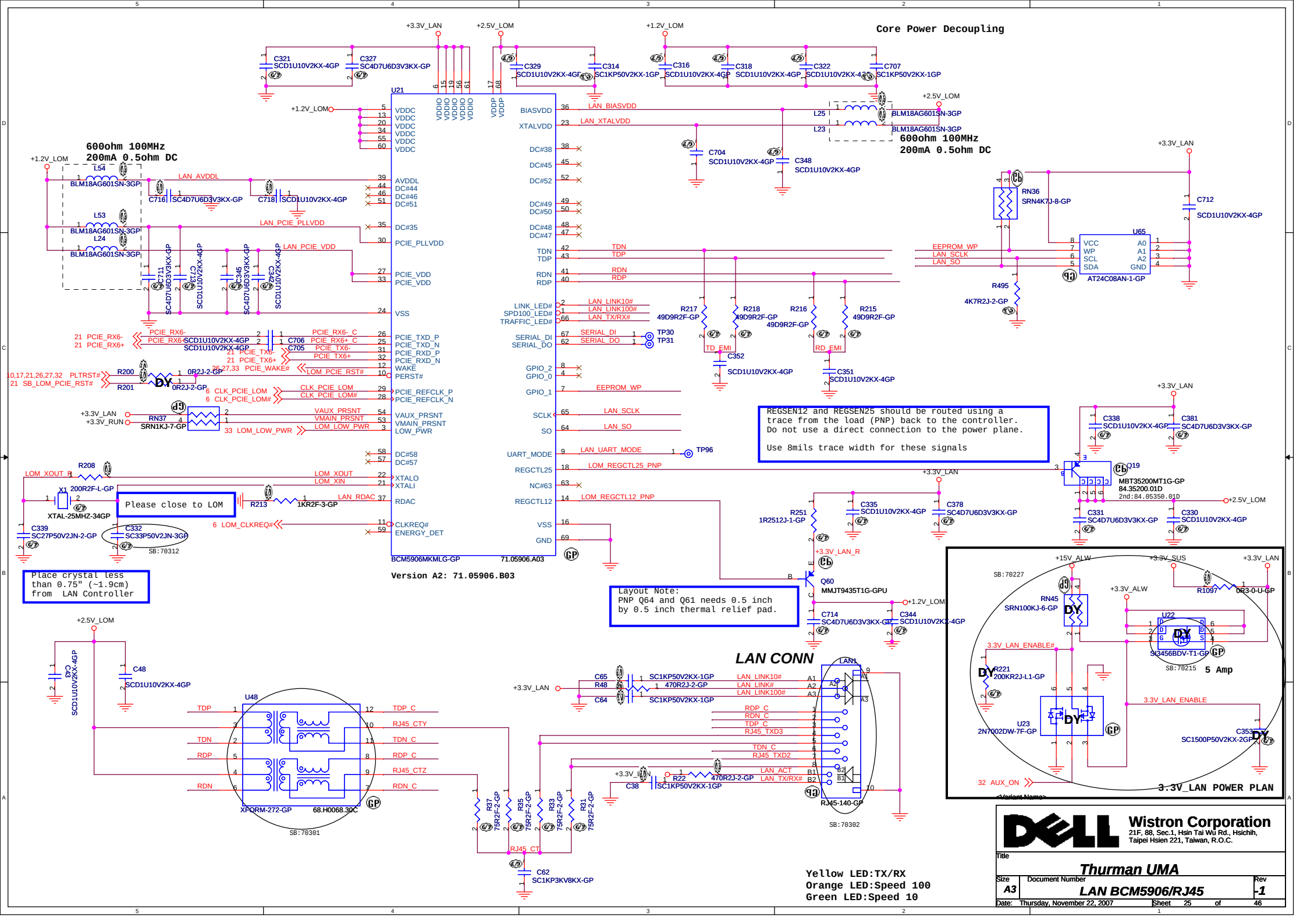
CPU THERMALTRIP

MCH THERMALTRIP

<Variant Name>

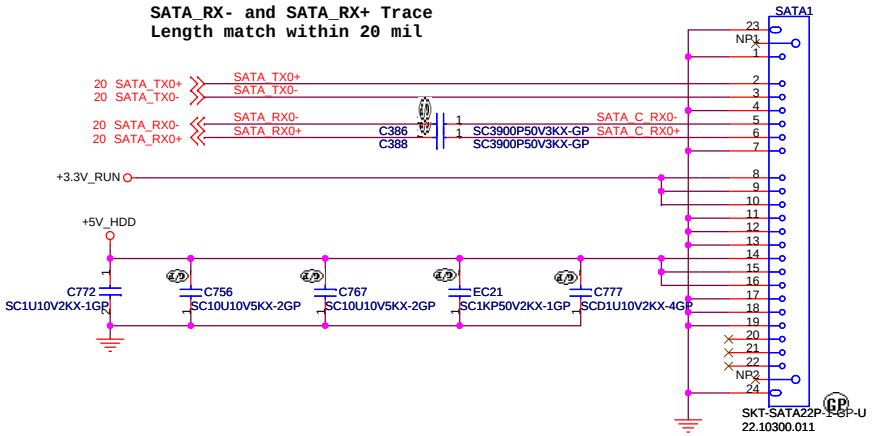
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: Thurman UMA		
Size: A3	Document Number: FAN/EMC4001	Rev: -1
Date: Wednesday, November 07, 2007	Sheet 24 of 46	

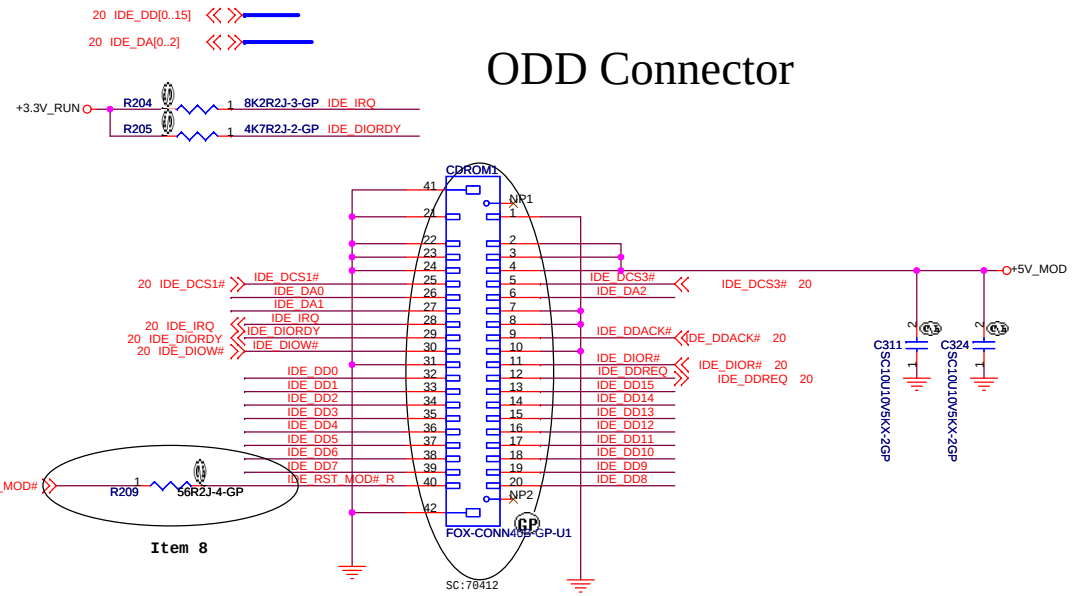

Core Power Decoupling
600ohm 100MHz
200mA 0.5ohm DC
600ohm 100MHz
200mA 0.5ohm DC
U21
BCM5906MKMLG-GP
71.05906.A03
Version A2: 71.05906.B03
REGSEN12 and REGSEN25 should be routed using a trace from the load (PNP) back to the controller. Do not use a direct connection to the power plane.
Use 8mils trace width for these signals
Please close to LOM
Place crystal less than 0.75" (~1.9cm) from LAN Controller
Layout Note: PNP Q64 and Q61 needs 0.5 inch by 0.5 inch thermal relief pad.
LAN CONN
U48
XFORM-272-GP
68.H0068.30C
RJ45-140-GP
3.3V_LAN POWER PLAN
5 Amp
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 UMA
LAN BCM5906/RJ45
Size A3
Rev -1
Date: Thursday, November 22, 2007
Sheet 25 of 46

SSID = IDE & SATA

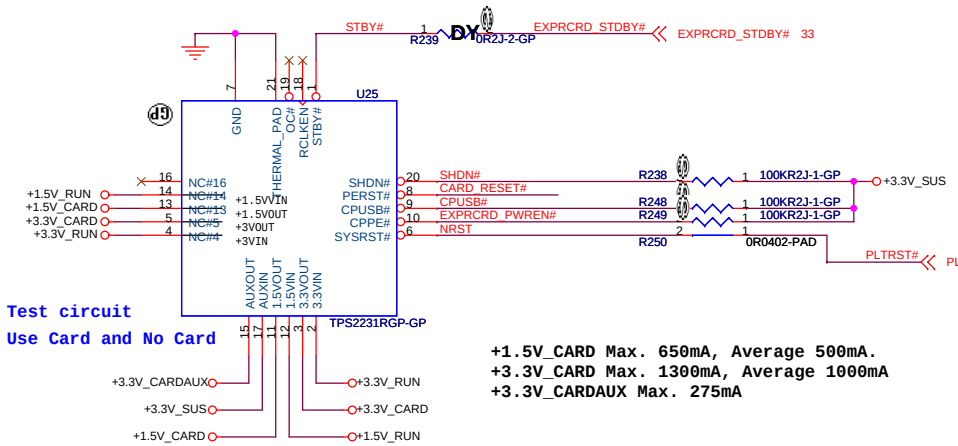
SATA HDD Connector

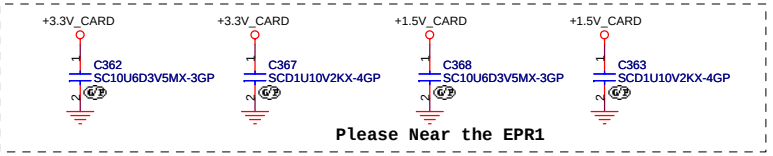


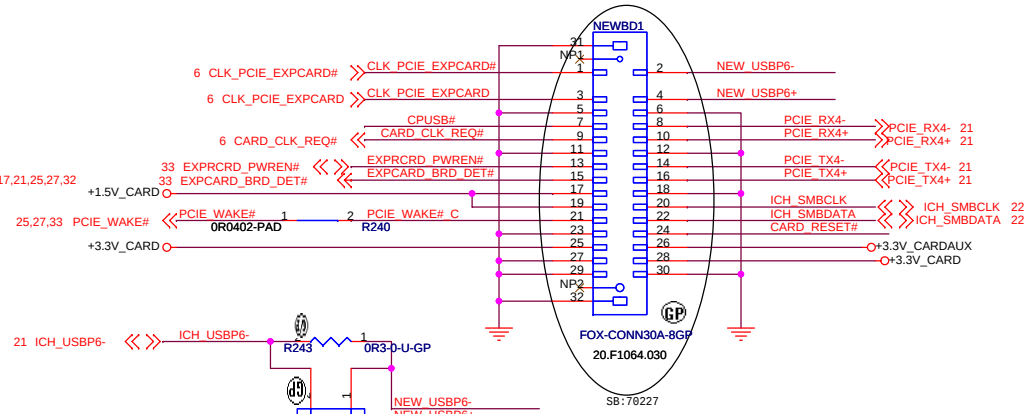
ODD Connector

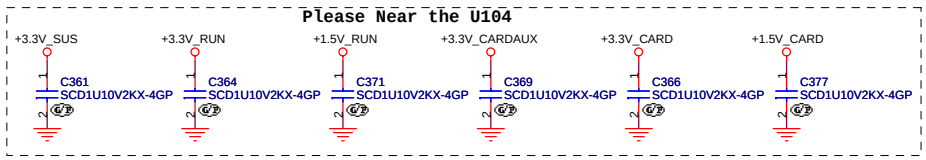


Express Card









<Variant Name>

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

Title: ***Thurman UMA***

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

Date: Wednesday, November 07, 2007 Sheet 26 of 46

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

MiniCard WWAN connector

Prevent backdrive when WoW is enabled.

C587 Please Near the MINICARD1/Pin24

C337 Please Near the MINICARD2/Pin24

This circuit is only needed if the platform has the SNIFFER

SB:070301

For Debug card used only.

Close WLAN1

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

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

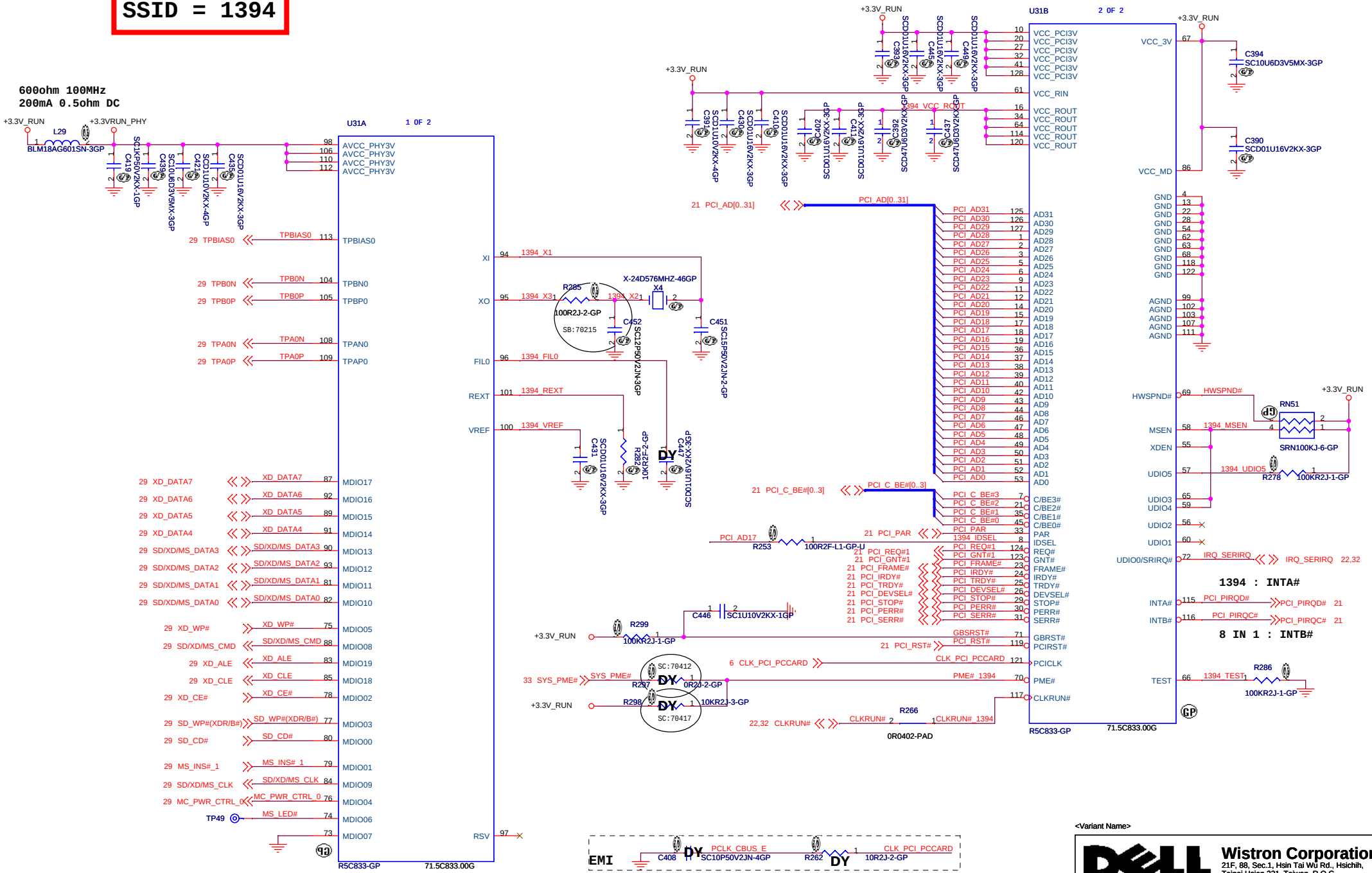
SC:70330 need close to SIM CN pin

SC:70409

Wistron Corporation	21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.
Title	Thurman UMA
Size	A3
Document Number	MINICARD/WLAN/WWAN
Rev	-1
Date:	Wednesday, November 07, 2007
Sheet	27 of 46

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.

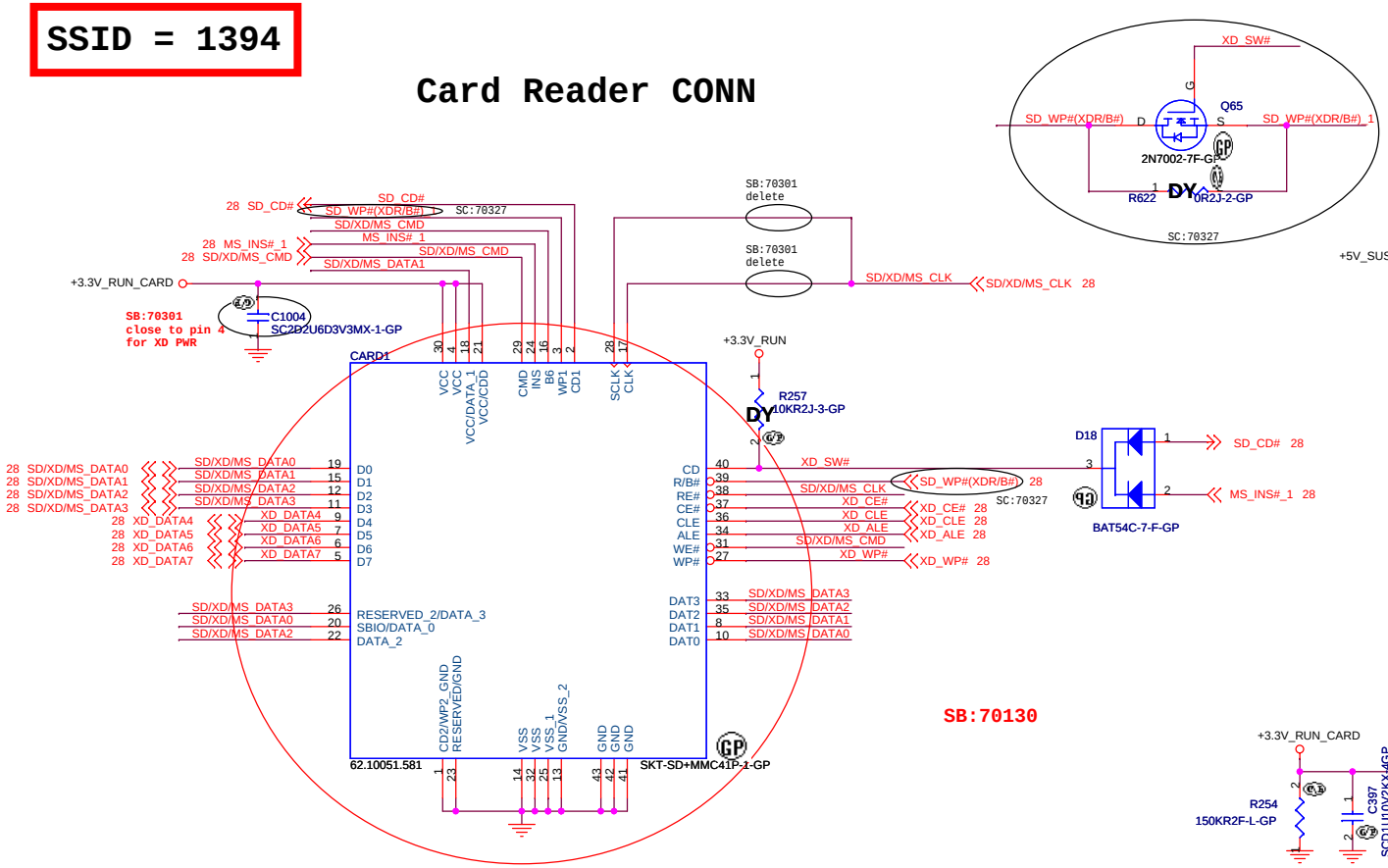
Title: *Thurman UMA*

Size	Document Number	Rev
A3	*1394 R5C833*	-1

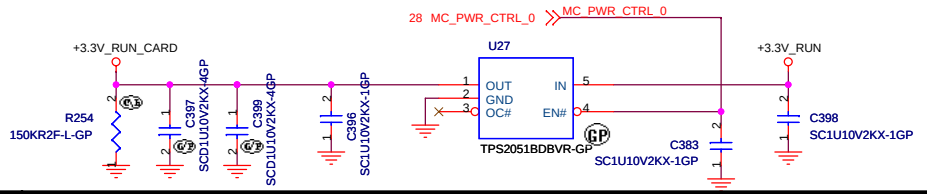
Date: Wednesday, November 07, 2007 Sheet 28 of 46

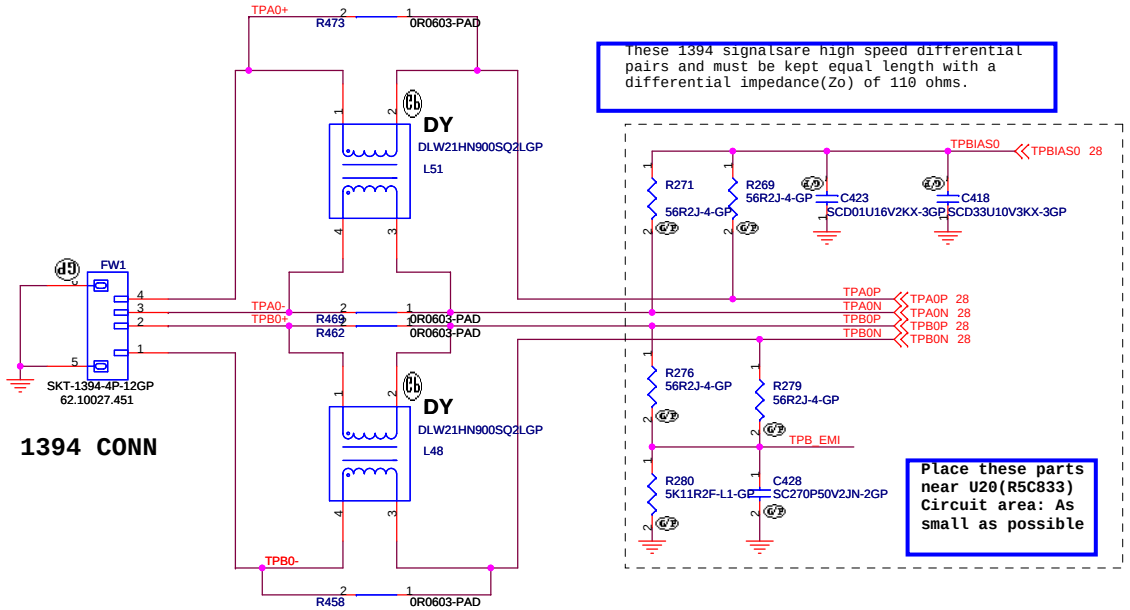
SSID = 1394

Card Reader CONN

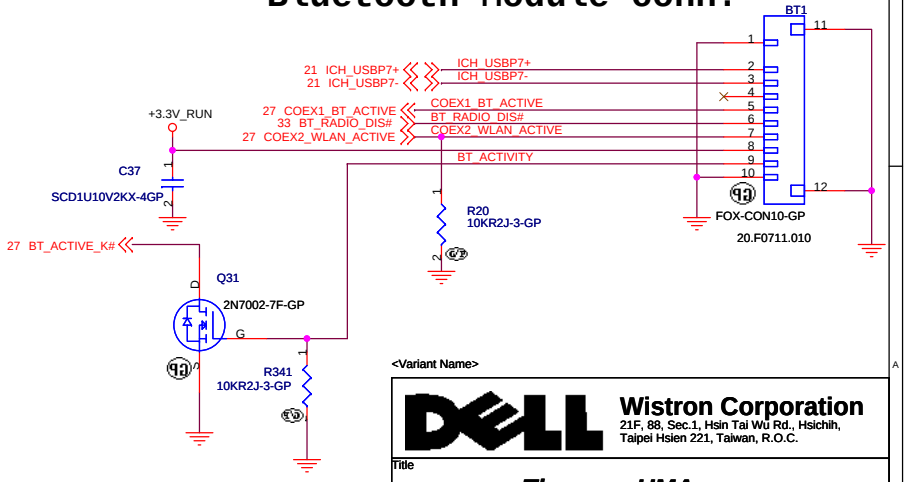


SNIFFER BOARD CONN





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 UMA

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

Date: Wednesday, November 07, 2007 Sheet 29 of 46

60ohm 100MHz
3000mA 0.05ohm DC

+3.3V_RUN
L60
BLM21PG600SN1-GP
+3V_RUN_DVDD_CORE
C783 SCD1U10V2KX-4GP
C450 SCD1U10V2KX-4GP
C791 SC1U10V2KX-1GP

U76
STAC9228X5TAEB4X-GP

DVDD_CORE
DVDD_CORE
DVDD
R284 100KR2J-1-GP
+3V_RUN_DVDD_CORE3
C448 SC1KP50V2KX-1GP

BIT_CLK
SDATA_IN
SDATA_OUT
SYNC
RESET#
20 ICH_AZ_CODEC_BITCLK
20 ICH_AZ_CODEC_SDIN0
20 ICH_AZ_CODEC_SDOUT
20 ICH_AZ_CODEC_SYNC
20 ICH_AZ_CODEC_RST#
R583 33R2J-2-GP
SB_AZ_CODEC_SDIN0_R

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

19 AUD_DMIC_IN0
31 AUD_EAPD#
AUD_DMIC_IN0
AUD_EAPD#
VOLUME UP/DMIC_0/GPIO1
VOLUME DN/DMIC_1/GPIO2
R584 4K7R2J-2-GP
11/06
17 AUD_SPDIF_OUT
AUD_SPDIF_OUT
SPDIF_IN/GPIO0/DMIC_CLK
SPDIF_OUT
DVSS1
DVSS2

+VDDA
C770 SCD1U10V2KX-4GP
C436 SC1U10V2KX-1GP
AVDD1
AVDD2
SENSE_A
SENSE_B
AUD_SENSE_A
AUD_SENSE_B

PORT_A_L
PORT_A_R
VREFOUT_A
AUD_HP1_OUT_L
AUD_HP1_OUT_R
AUD_HP1_OUT_L 31
AUD_HP1_OUT_R 31
TO Audio OP

PORT_B_L
PORT_B_R
VREFOUT_B

PORT_C_L
PORT_C_R
VREFOUT_C
TO Audio OP

PORT_D_L
PORT_D_R
VREFOUT_D
AUD_LINE_OUT_L
AUD_LINE_OUT_R
AUD_LINE_OUT_L 31
AUD_LINE_OUT_R 31

PORTE_L
PORTE_R
VREFOUT_E
AUD_EXT_MIC_L
AUD_EXT_MIC_R
AUD_VREFOUT_B

PORTF_L
PORTF_R
VREFOUT_F
AUD_HP2_OUT_L 31
AUD_HP2_OUT_R 31

PORTG_L
PORTG_R

PORTH_L
PORTH_R

CD_L
CD_GND
CD_R

PC_BEEP
AUD_PC_BEEP

CAP2
VREFFILT
AUD_CAP2
AUD_VREFFLT
C760 SC10U10V5KX-2GP
C761 SC10U10V5KX-2GP

AVSS1
AVSS2

PC BEEP

C780 SCD1U10V2KX-4GP
AUD_BEEP
R302 20KR2J-L2-GP
AUD_SYS_BEEP
R587 10KR2J-3-GP
SB:70302

+VDDA
U33
74AHC1G86GW-GP
From SB
ICH_SPKR 22
BEEP 32
From EC

XOR gate

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 31,33
R300 5K1R2F-2-GP
R316 39K2R2F-L-GP
SB:70106
R313 20KR2J-L2-GP
C758 SC1KP50V2KX-1GP
MIC_SWITCH
AUD_HP2_NB_SENSE 22,31,33
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

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

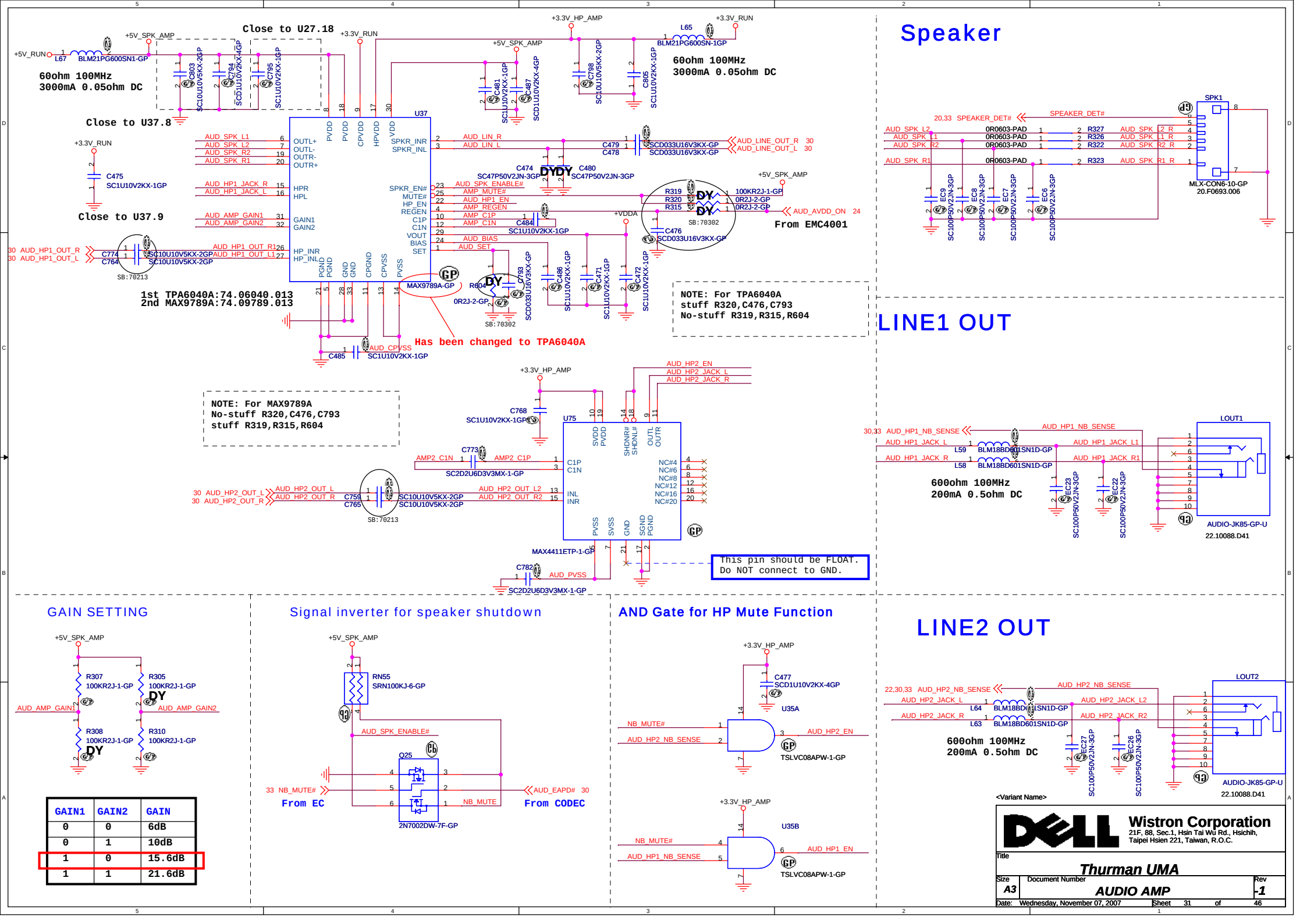
+3.3V_RUN
R602 100KR2J-1-GP
AUD_MIC_SWITCH
AUD_VREFOUT_B
R576 4K7R2J-2-GP
R599 4K7R2J-2-GP
C790 SC10U10V5KX-2GP
AUD_EXT_MIC_L
AUD_EXT_MIC_R
C785 SC1U6D3V3KX-1GP
C789 SC1U6D3V3KX-1GP
MIC_IN_L_2
MIC_IN_R_2
R586
R594
-1:70524
MIC_IN_L_3
MIC_IN_R_3
0R0402-PAD
L62 BLM18BD601SN1D-GP
L61 BLM18BD601SN1D-GP
MIC_IN_L_C
MIC_IN_R_C
EC25 SC100P50V2JN-3GP
EC24 SC100P50V2JN-3GP
MIC1
AUDIO-JK85-GP-U
22.10088.D41

600ohm 100MHz
200mA 0.5ohm DC

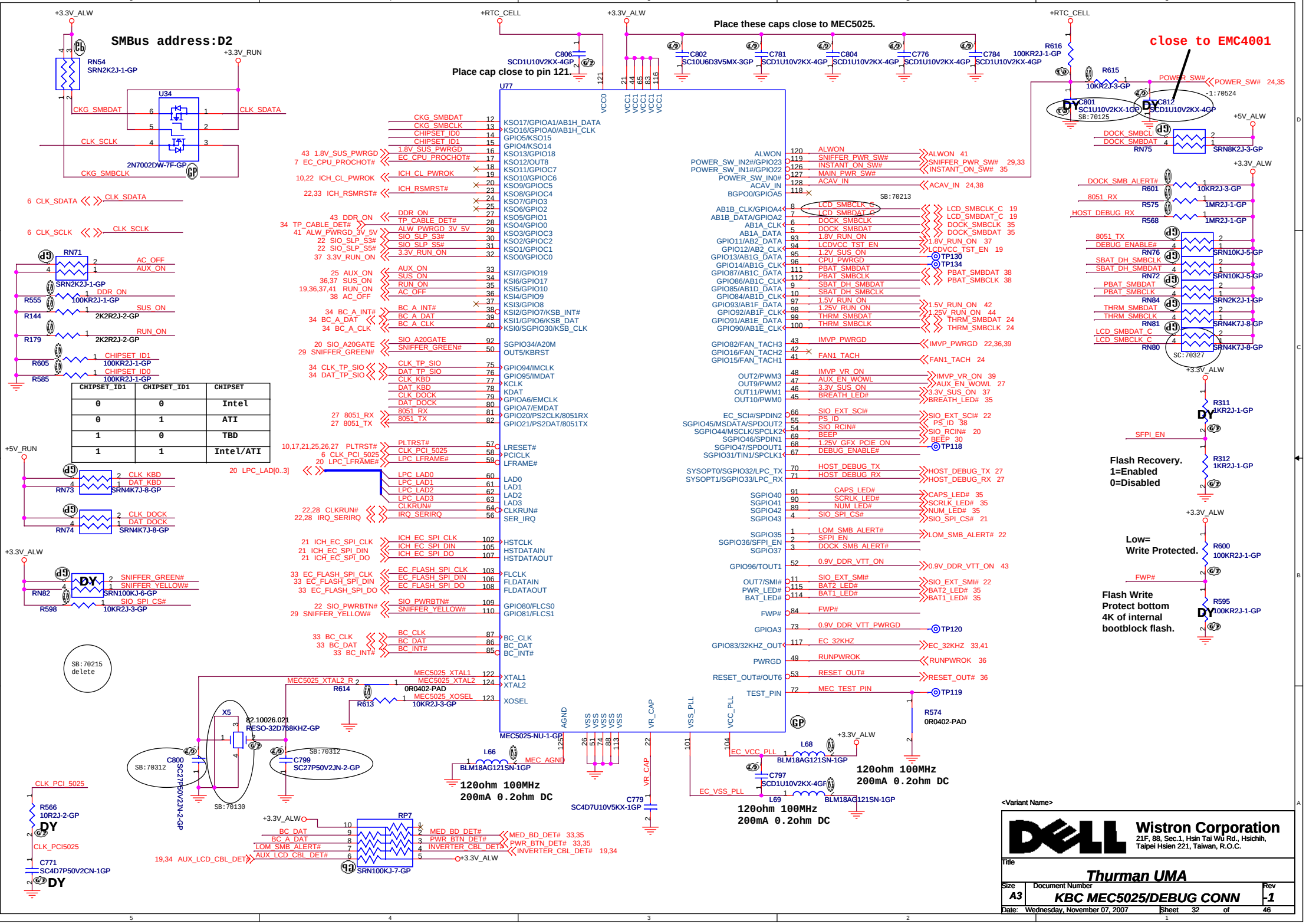
<Variant Name>

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

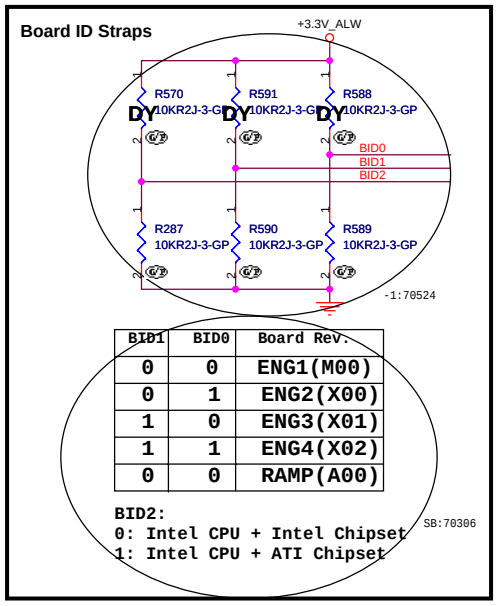
Title: Thurman UMA
Size: A3
Document Number: CODEC STAC9228
Rev: -1
Date: Thursday, November 22, 2007
Sheet 30 of 46

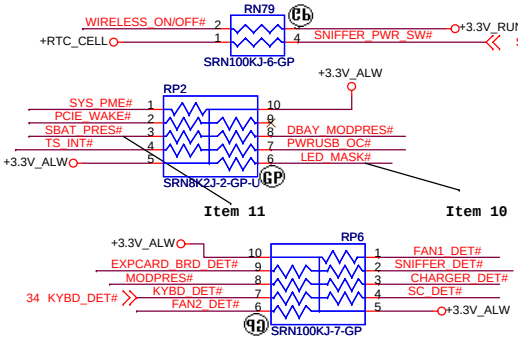


GAIN1	GAIN2	GAIN
0	0	6dB
0	1	10dB
1	0	15.6dB
1	1	21.6dB

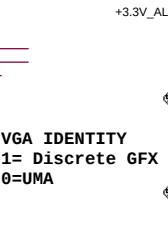


CHIPSET_ID1	CHIPSET_ID1	CHIPSET
0	0	Intel
0	1	ATI
1	0	TBD
1	1	Intel/ATI

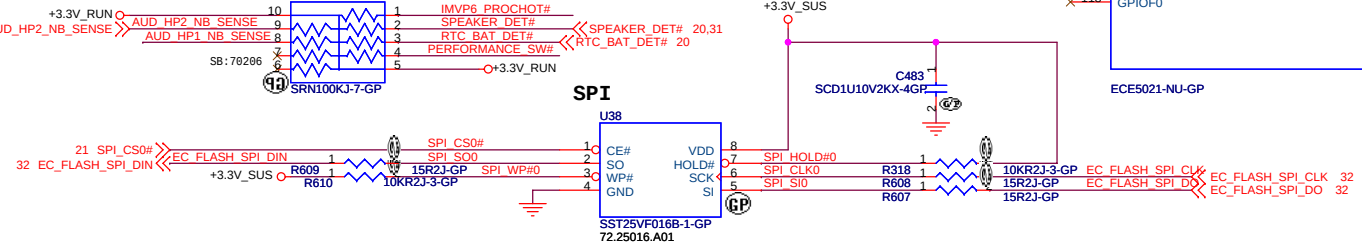


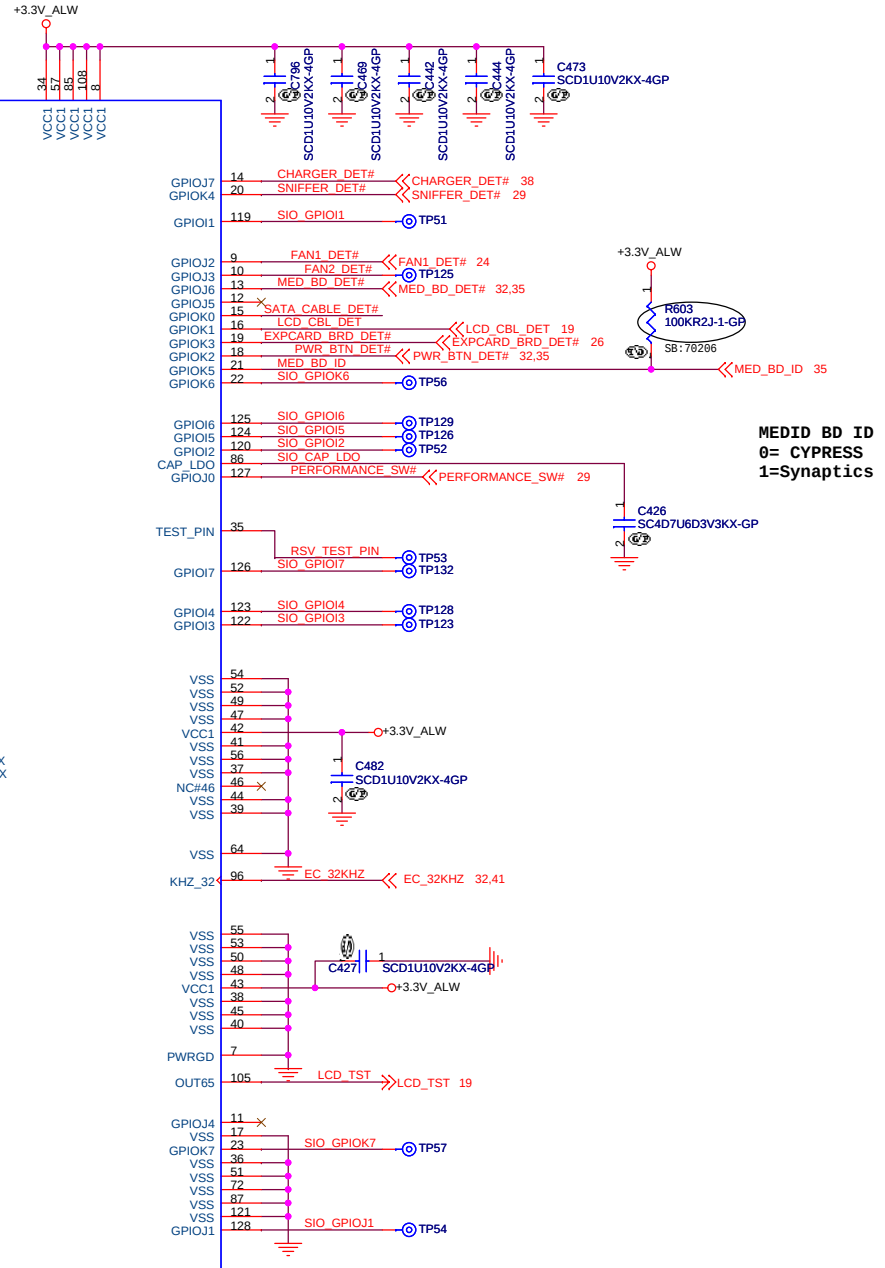


VGA IDENTITY
1= Discrete GFX
0=UMA



SPI





MEDID BD ID
0= CYPRESS
1=Synaptics

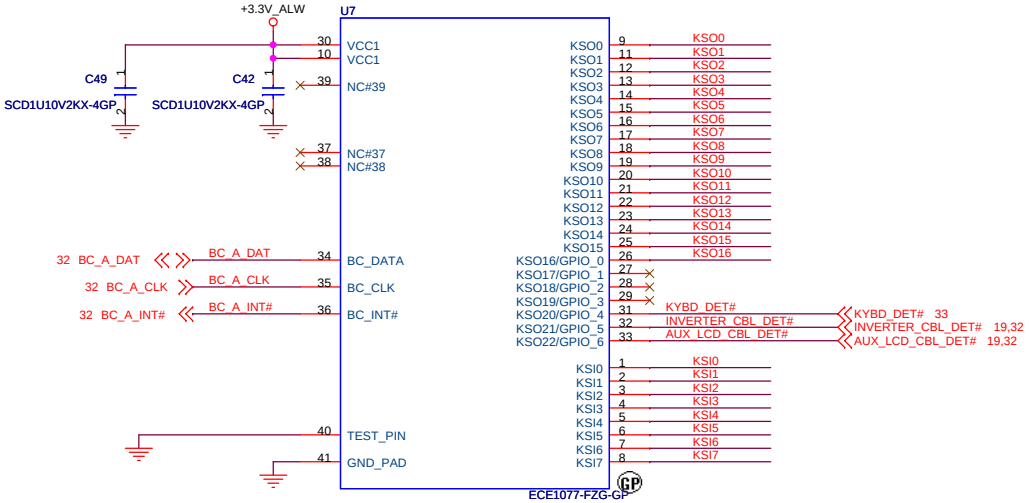
<Variant Name>

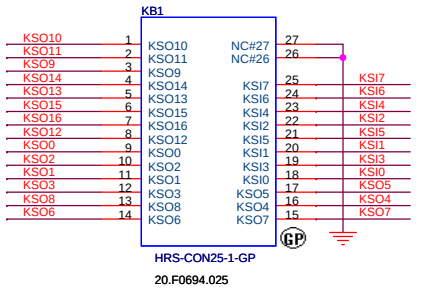
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

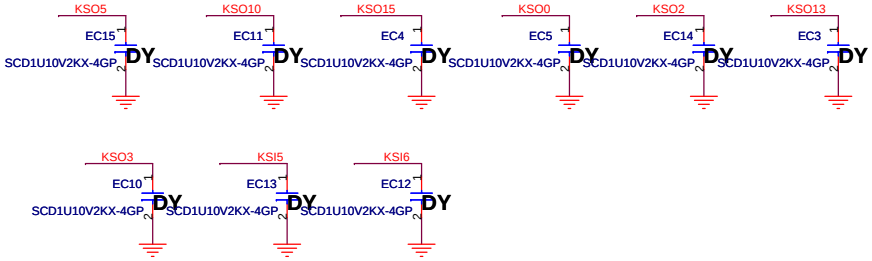
Title: Thurman UMA

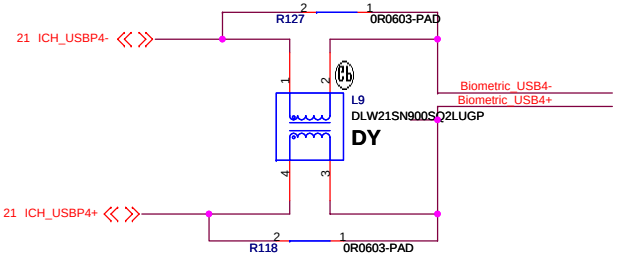
Size	Document Number	Rev
A3	SIO ECE5011/SPI ROM	-1

Date: Wednesday, November 07, 2007 Sheet 33 of 46

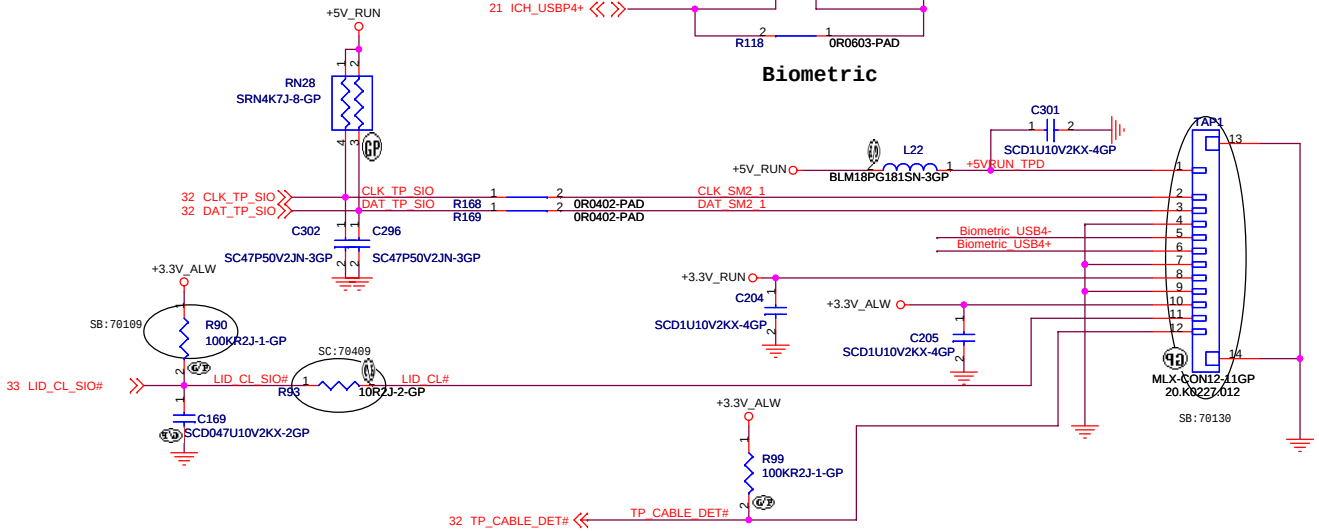








Biometric



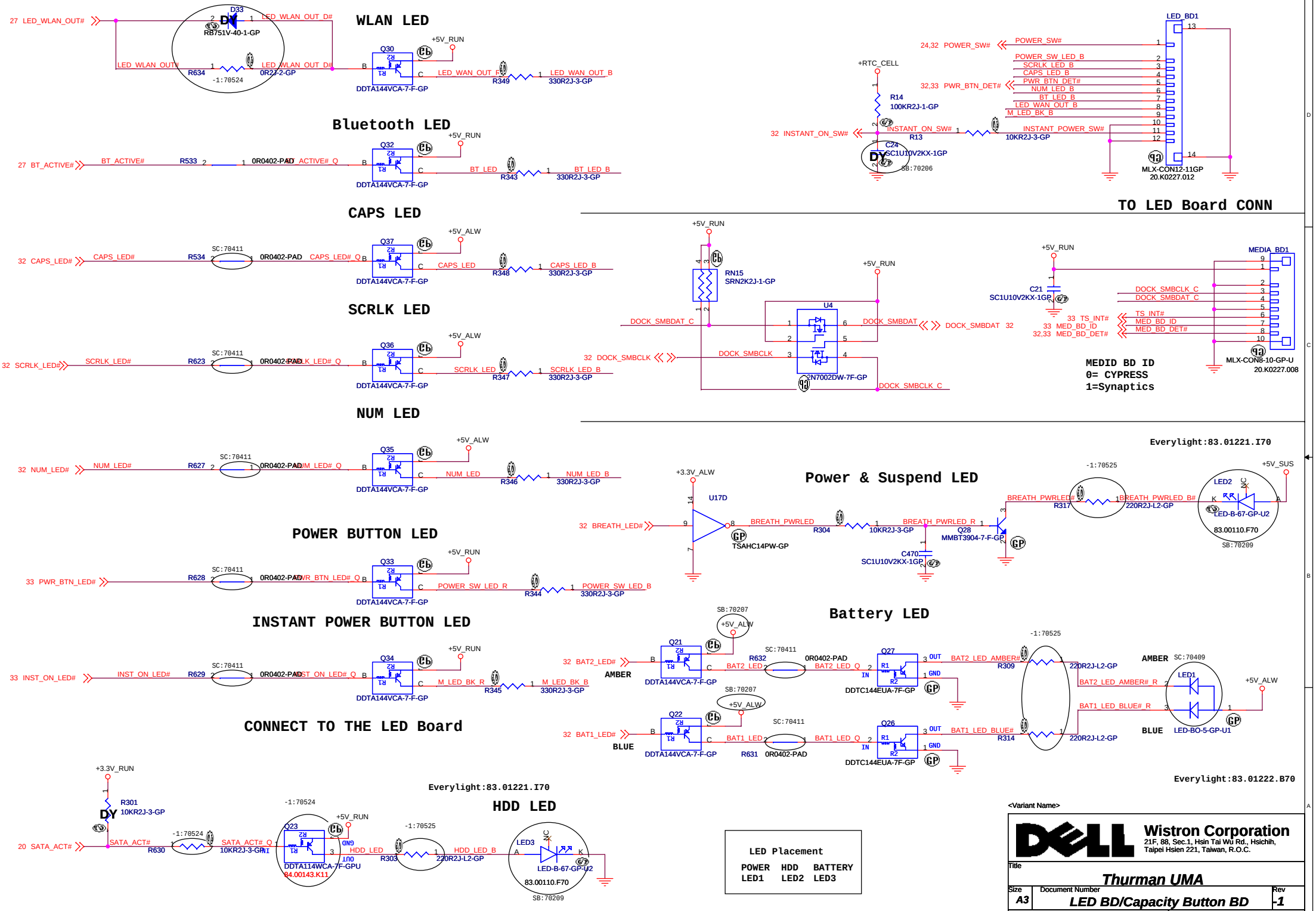
<Variant Name>

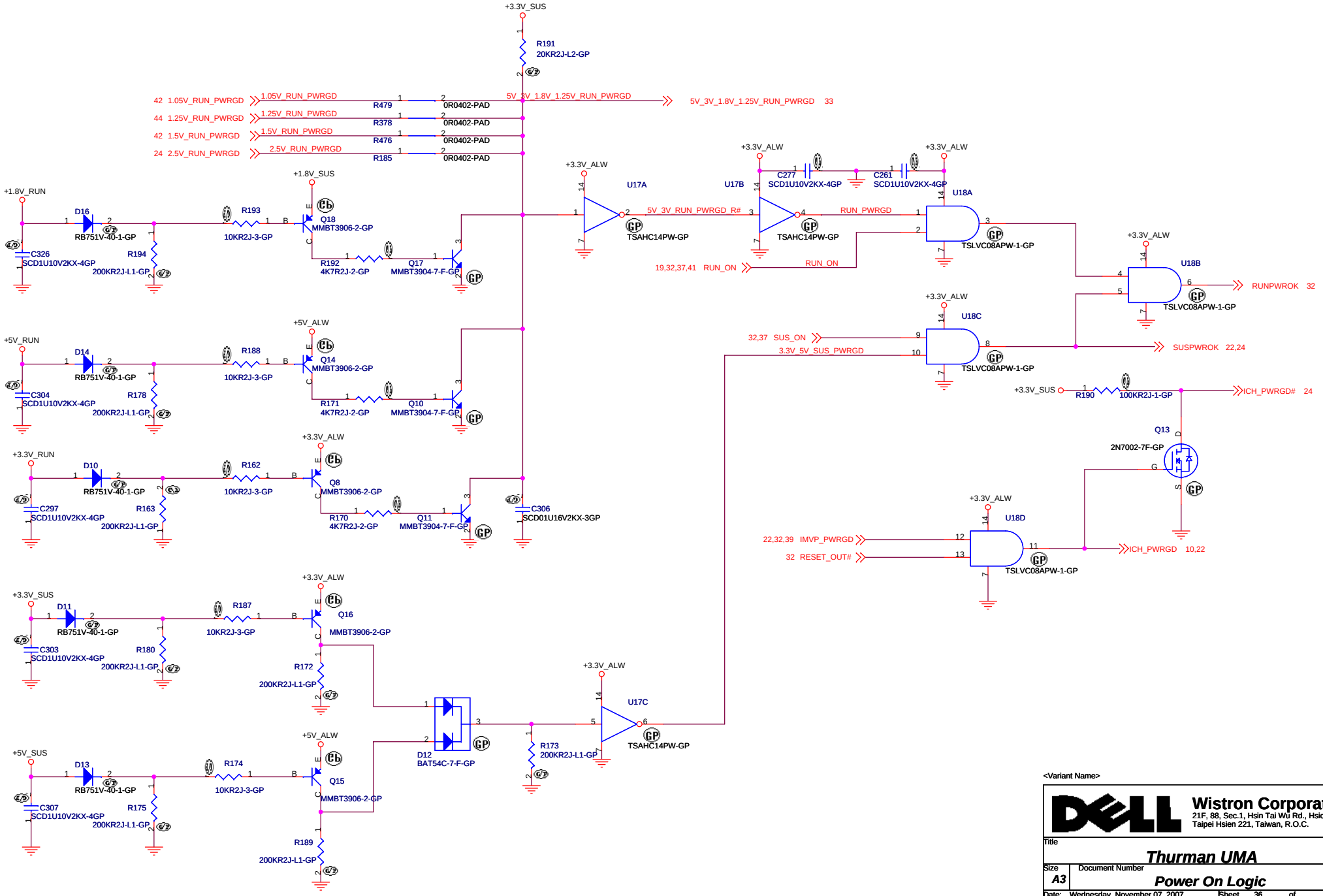
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: **Thurman UMA**

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

Date: Wednesday, November 07, 2007 Sheet 34 of 46


WLAN LED
Bluetooth LED
CAPS LED
SCRLK LED
NUM LED
POWER BUTTON LED
INSTANT POWER BUTTON LED
CONNECT TO THE LED Board
HDD LED
TO LED Board CONN
Power & Suspend LED
Battery LED
MEDID BD ID
0= CYPRESS
1=Synaptics
Everylight:83.01221.I70
Everylight:83.01222.B70
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.
Thurman UMA
LED BD/Capacity Button BD
Date: Wednesday, November 07, 2007
Sheet 35 of 46



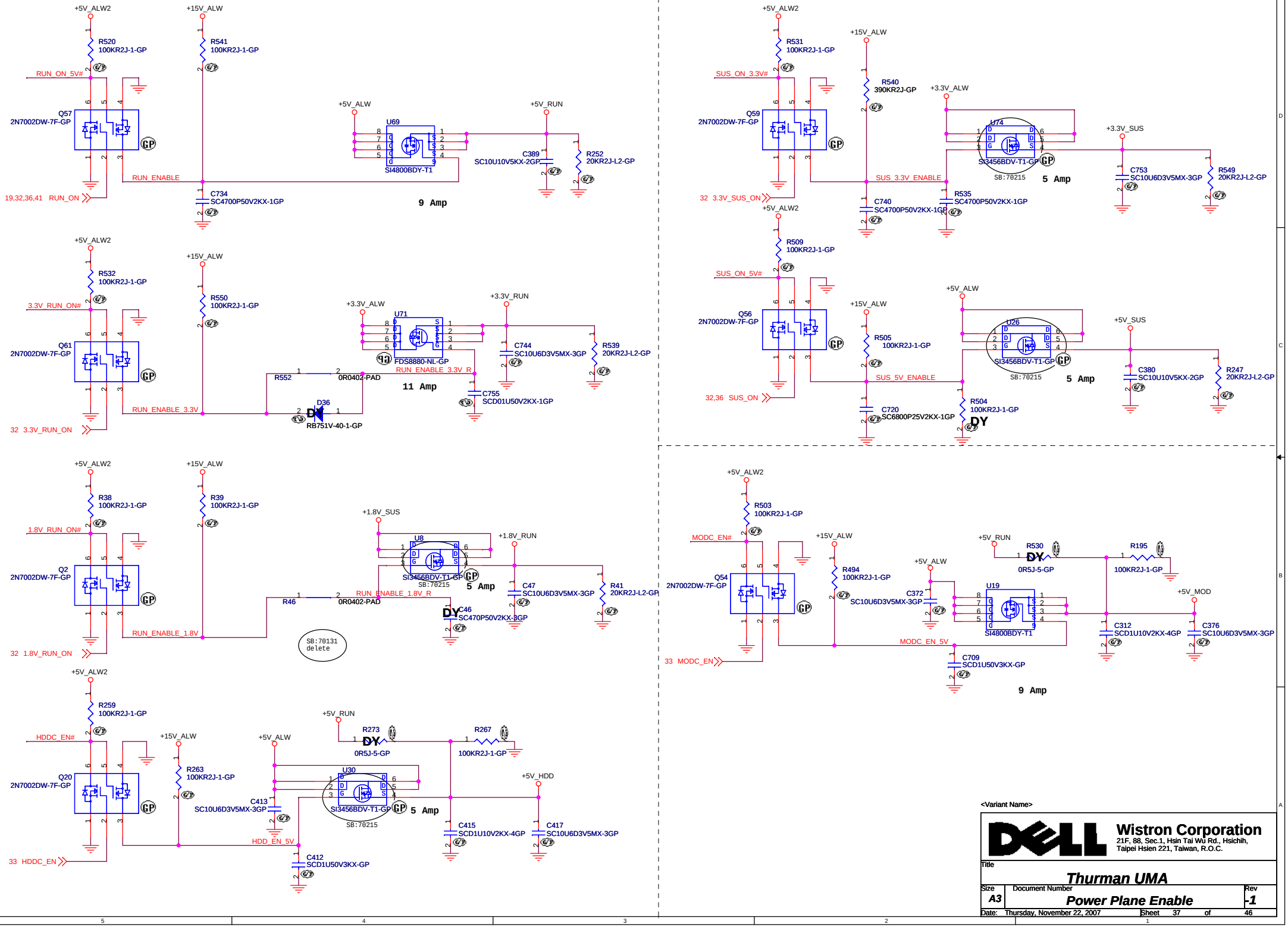
<Variant Name>

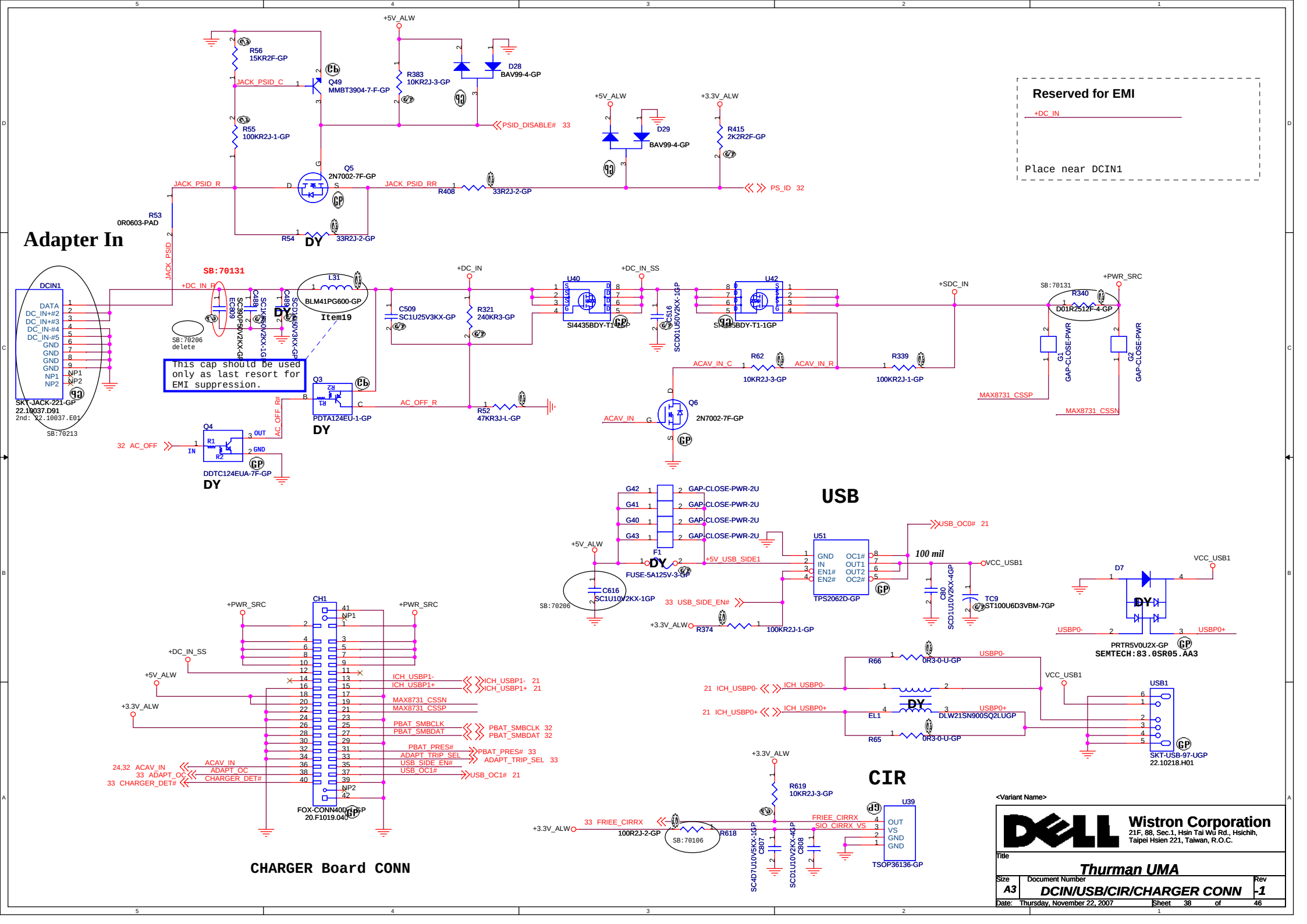
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: Thurman UMA

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

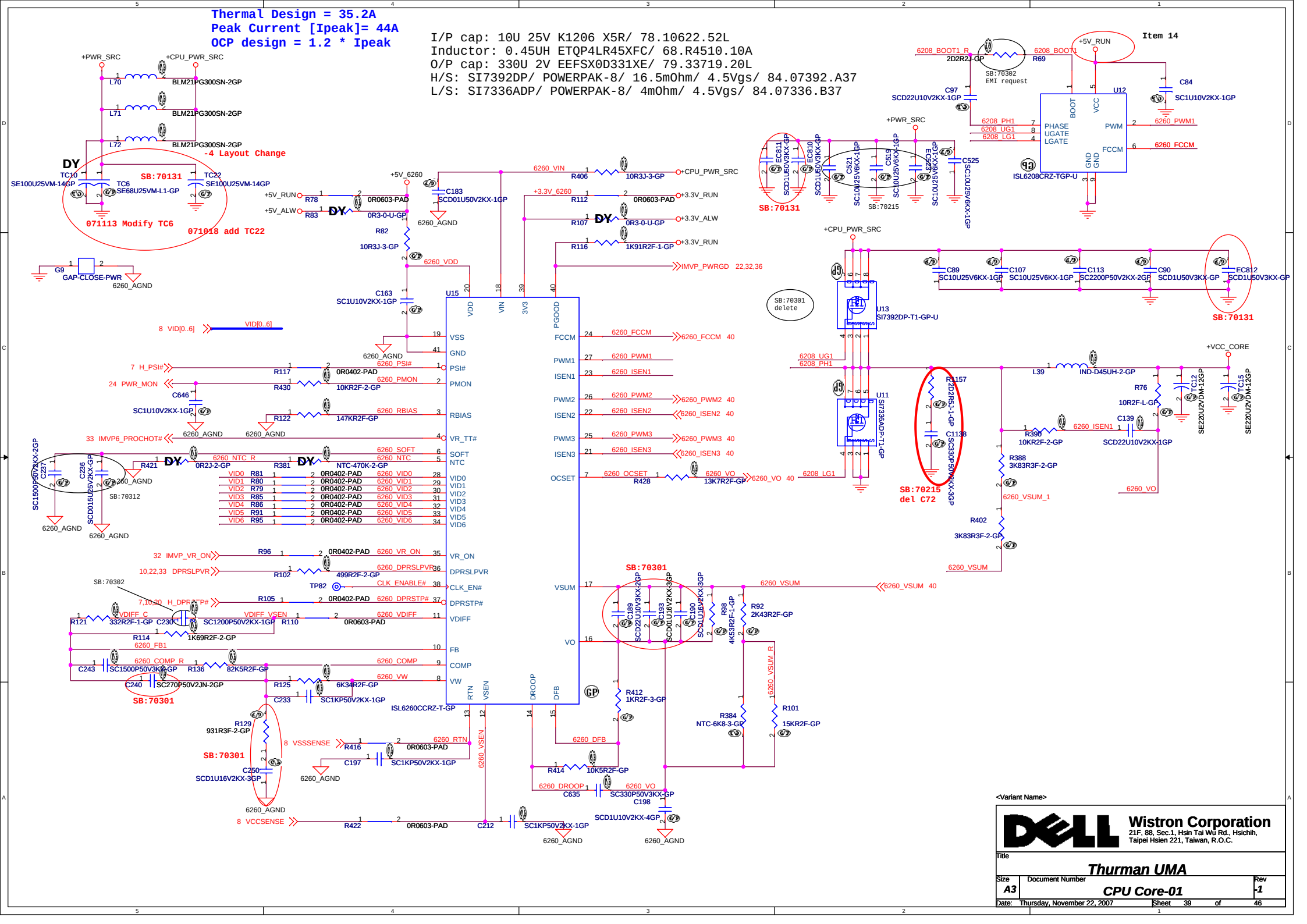
Date: Wednesday, November 07, 2007 | Sheet 36 of 46


+5V_ALW2
+15V_ALW
R520
100KR2J-1-GP
R541
100KR2J-1-GP
RUN_ON_5V#
Q57
2N7002DW-7F-GP
RUN_ENABLE
19,32,36,41 RUN_ON
C734
SC4700P50V2KX-1GP
+5V_ALW
U69
SI4800BDY-T1
+5V_RUN
C389
SC10U10V5KX-2GP
R252
20KR2J-L2-GP
9 Amp
+5V_ALW2
+15V_ALW
R532
100KR2J-1-GP
R550
100KR2J-1-GP
3.3V_RUN_ON#
Q61
2N7002DW-7F-GP
RUN_ENABLE_3.3V
32 3.3V_RUN_ON
+3.3V_ALW
U71
FDS8880-NL-GP
+3.3V_RUN
C744
SC10U6D3V5MX-3GP
R539
20KR2J-L2-GP
R552
0R0402-PAD
RUN_ENABLE_3.3V_R
C755
SCD01U50V2KX-1GP
D36
RB751V-40-1-GP
11 Amp
+5V_ALW2
+15V_ALW
R38
100KR2J-1-GP
R39
100KR2J-1-GP
1.8V_RUN_ON#
Q2
2N7002DW-7F-GP
RUN_ENABLE_1.8V
32 1.8V_RUN_ON
+1.8V_SUS
U8
SI3456BDV-T1-GP
SB:70215
+1.8V_RUN
C47
SC10U6D3V5MX-3GP
R41
20KR2J-L2-GP
R46
0R0402-PAD
RUN_ENABLE_1.8V_R
C46
SC470P50V2KX-3GP
5 Amp
SB:70131
delete
+5V_ALW2
+15V_ALW
R259
100KR2J-1-GP
R263
100KR2J-1-GP
HDDC_EN#
Q20
2N7002DW-7F-GP
33 HDDC_EN
HDD_EN_5V
C412
SCD1U50V3KX-GP
+5V_RUN
R273
0R5J-5-GP
R267
100KR2J-1-GP
+5V_ALW
U30
SI3456BDV-T1-GP
SB:70215
5 Amp
C413
SC10U6D3V5MX-3GP
+5V_HDD
C415
SCD1U10V2KX-4GP
C417
SC10U6D3V5MX-3GP
+5V_ALW2
+15V_ALW
R531
100KR2J-1-GP
R540
390KR2J-GP
SUS_ON_3.3V#
Q59
2N7002DW-7F-GP
SUS_3.3V_ENABLE
32 3.3V_SUS_ON
+3.3V_ALW
U74
SI3456BDV-T1-GP
SB:70215
5 Amp
+3.3V_SUS
C753
SC10U6D3V5MX-3GP
R549
20KR2J-L2-GP
C740
SC4700P50V2KX-1GP
R535
SC4700P50V2KX-1GP
+5V_ALW2
+15V_ALW
R509
100KR2J-1-GP
R505
100KR2J-1-GP
SUS_ON_5V#
Q56
2N7002DW-7F-GP
SUS_5V_ENABLE
32,36 SUS_ON
+5V_ALW
U26
SI3456BDV-T1-GP
SB:70215
5 Amp
+5V_SUS
C380
SC10U10V5KX-2GP
R247
20KR2J-L2-GP
C720
SC6800P25V2KX-1GP
R504
100KR2J-1-GP
+5V_ALW2
R503
100KR2J-1-GP
MODC_EN#
Q54
2N7002DW-7F-GP
33 MODC_EN
+15V_ALW
R494
100KR2J-1-GP
+5V_ALW
C372
SC10U6D3V5MX-3GP
+5V_RUN
R530
0R5J-5-GP
R195
100KR2J-1-GP
U19
SI4800BDY-T1
+5V_MOD
C312
SCD1U10V2KX-4GP
C376
SC10U6D3V5MX-3GP
MODC_EN_5V
C709
SCD1U50V3KX-GP
9 Amp
<Variant Name>
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Thurman UMA
Size
A3
Document Number
Power Plane Enable
Rev
-1
Date: Thursday, November 22, 2007
Sheet 37 of 46


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
JACK_PSID_C
JACK_PSID_R
JACK_PSID_RR
PSID_DISABLE# 33
PS_ID 32
+5V_ALW
+3.3V_ALW
DY
SB:70131
DCIN1
SKT-JACK-221-GP
22.10037.D91
2nd: 22.10037.E01
SB:70213
SB:70206 delete
EC809
C488
C489
L31 BLM41PG600-GP
Item19
This cap should be used only as last resort for EMI suppression.
C509 SC1U25V3KX-GP
R321 240KR3-GP
U40
U42
SI4435BDY-T1-GP
C516 SCD01U50V2KX-1GP
+DC_IN_SS
+SDC_IN
+PWR_SRC
R340 D01R2512F-4-GP
GAP-CLOSE-PWR
ACAV_IN_C
ACAV_IN_R
ACAV_IN
R62 10KR2J-3-GP
R339 100KR2J-1-GP
Q6 2N7002-7F-GP
MAX8731_CSSP
MAX8731_CSSN
Q3 PDTA124EU-1-GP
R52 47KR3J-L-GP
AC_OFF_R
Q4 DDTC124EUA-7F-GP
32 AC_OFF
USB
G42
G41
G40
G43
GAP-CLOSE-PWR-2U
F1 FUSE-5A125V-3-GP
C616 SC1U10V2KX-1GP
+5V_USB_SIDE1
U51 TPS2062D-GP
USB_OC0# 21
100 mil
VCC_USB1
C80 SCD1U10V2KX-4GP
TC9 ST100U6D3VBM-7GP
33 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
USB1 SKT-USB-97-UGP
22.10218.H01
21 ICH_USBP0-
21 ICH_USBP0+
ICH_USBP0-
ICH_USBP0+
CH1
FOX-CONN40D-GP
20.F1019.040
ICH_USBP1- 21
ICH_USBP1+ 21
MAX8731_CSSN
MAX8731_CSSP
PBAT_SMBCLK
PBAT_SMBDAT
PBAT_SMBCLK 32
PBAT_SMBDAT 32
PBAT_PRES#
ADAPT_TRIP_SEL
PBAT_PRES# 33
ADAPT_TRIP_SEL 33
USB_SIDE_EN#
USB_OC1#
USB_OC1# 21
24,32 ACAV_IN
33 ADAPT_OC
33 CHARGER_DET#
ACAV_IN
ADAPT_OC
CHARGER_DET#
CHARGER Board CONN
CIR
R619 10KR2J-3-GP
R618 100R2J-2-GP
U39 TSOP36136-GP
33 FRIEE_CIRRX
FRIEE_CIRRX
SIO_CIRRX_VS
SC4D7U10V5KX-1GP C807
SCD1U10V2KX-4GP C808
<Variant Name>
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Thurman UMA
Size A3
Document Number DCIN/USB/CIR/CHARGER CONN
Rev -1
Date: Thursday, November 22, 2007
Sheet 38 of 46

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



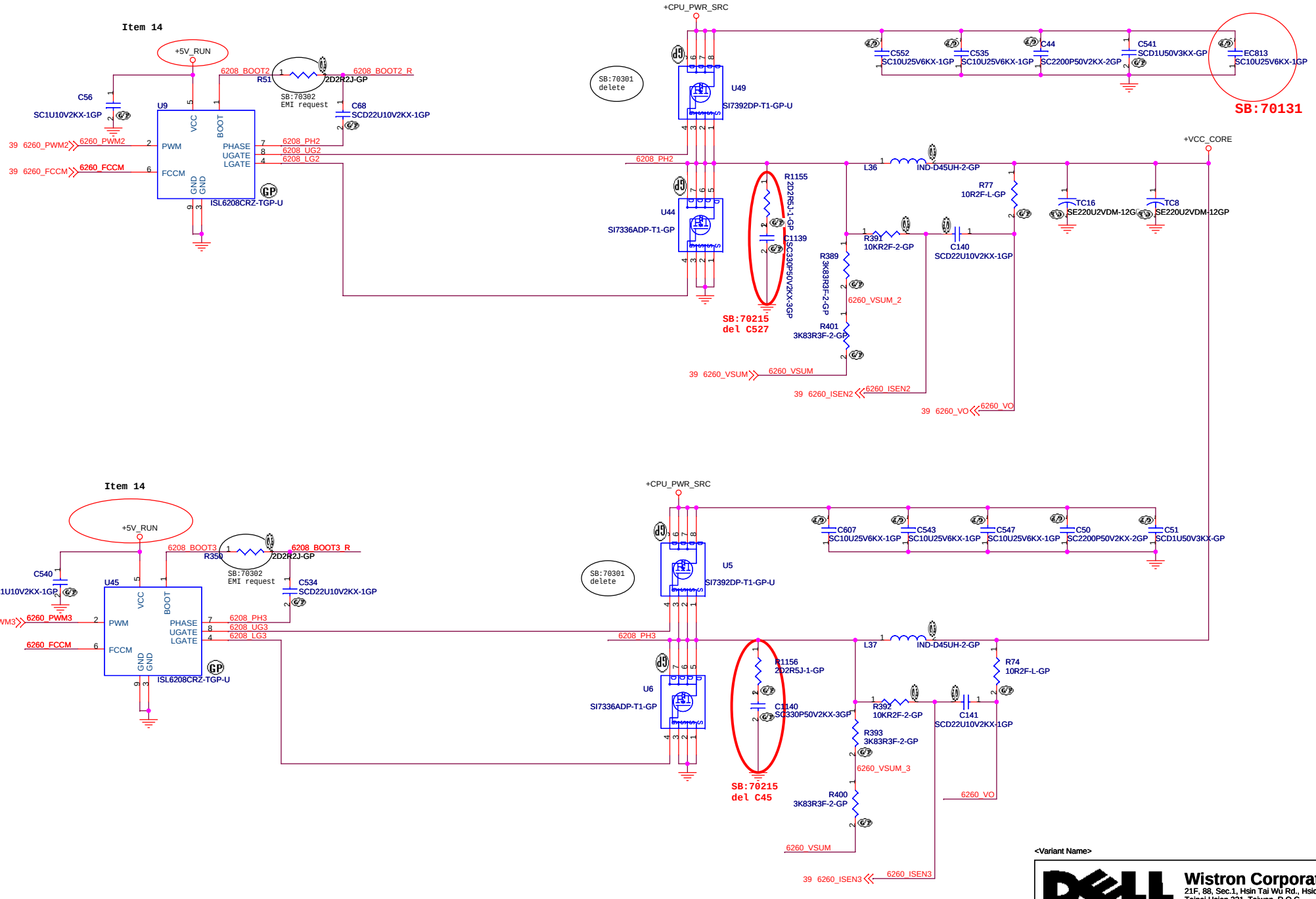
<Variant Name>

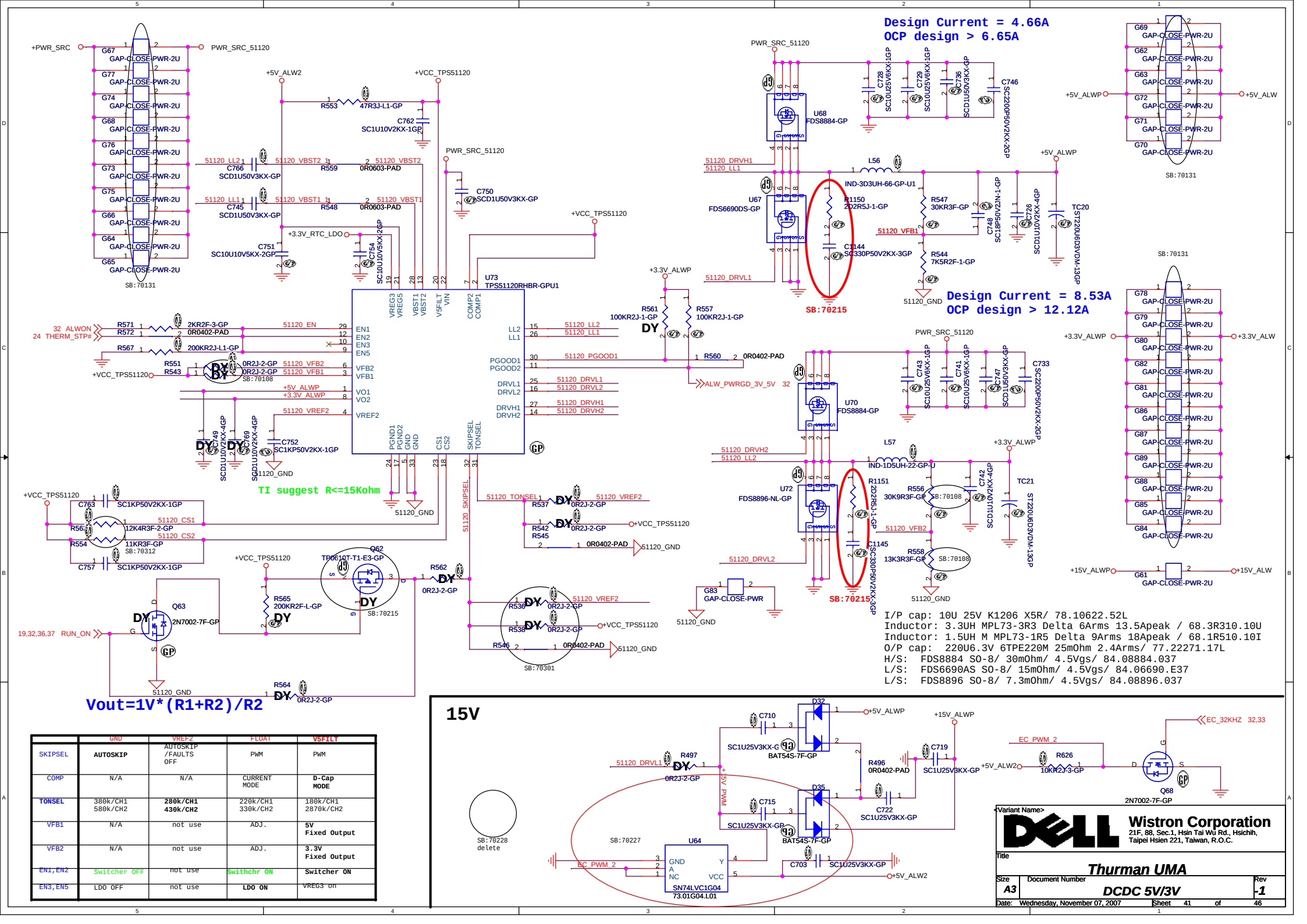
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: Thurman UMA

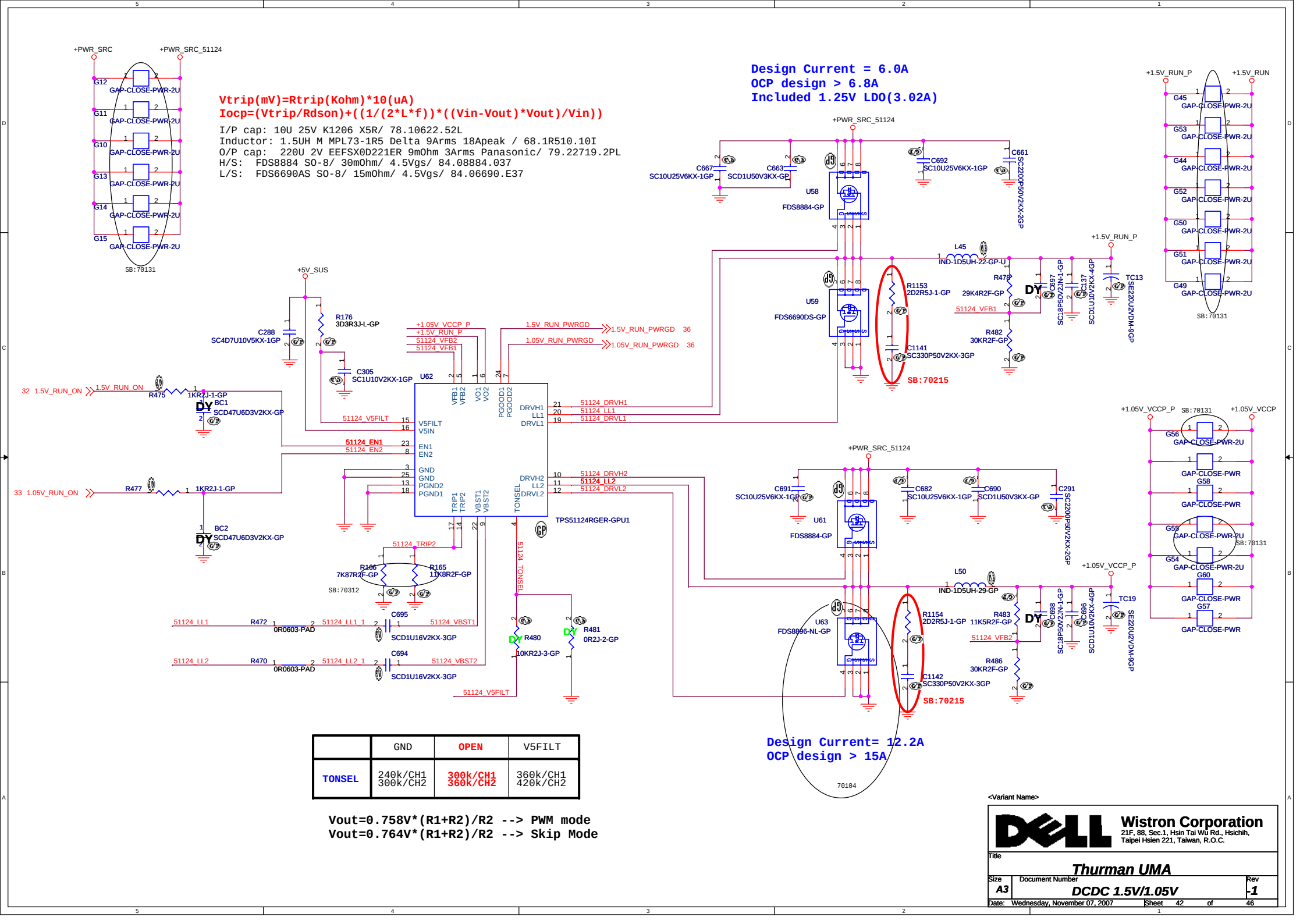
Size	Document Number	Rev
A3	CPU Core-01	-1

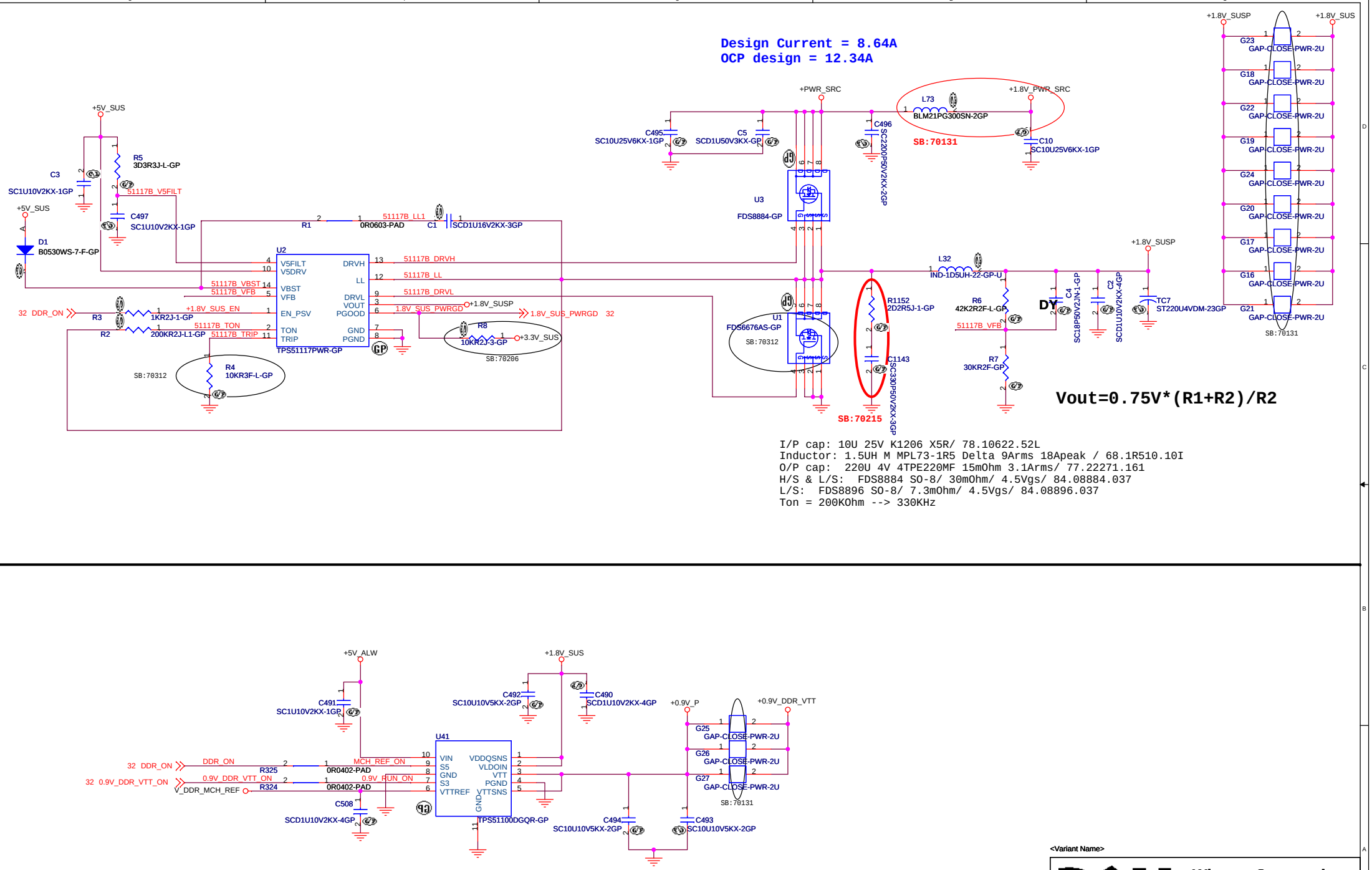
Date: Thursday, November 22, 2007 Sheet 39 of 46


Item 14
+5V_RUN
6208_BOOT2
R51
2D2R2J-GP
6208_BOOT2_R
SB:70302
EMI request
C56
SC1U10V2KX-1GP
C68
SCD22U10V2KX-1GP
U9
VCC
BOOT
PWM
PHASE
UGATE
LGATE
FCCM
GND
GND
ISL6208CRZ-TGP-U
39 6260_PWM2
6260_PWM2
39 6260_FCCM
6260_FCCM
6208_PH2
6208_UG2
6208_LG2
+CPU_PWR_SRC
SB:70301
delete
U49
SI7392DP-T1-GP-U
C552
SC10U25V6KX-1GP
C535
SC10U25V6KX-1GP
C44
SC2200P50V2KX-2GP
C541
SCD1U50V3KX-GP
EC813
SC10U25V6KX-1GP
SB:70131
+VCC_CORE
L36
IND-D45UH-2-GP
R77
10R2F-L-GP
TC16
SE220U2VDM-12GP
TC8
SE220U2VDM-12GP
U44
SI7336ADP-T1-GP
R1155
2D2R5J-1-GP
C1139
SC330P50V2KX-3GP
SB:70215
del C527
R391
10KR2F-2-GP
C140
SCD22U10V2KX-1GP
R389
3K83R3F-2-GP
6260_VSUM_2
R401
3K83R3F-2-GP
39 6260_VSUM
6260_VSUM
39 6260_ISEN2
6260_ISEN2
39 6260_VO
6260_VO
Item 14
+5V_RUN
6208_BOOT3
R350
2D2R2J-GP
6208_BOOT3_R
SB:70302
EMI request
C540
SC1U10V2KX-1GP
C534
SCD22U10V2KX-1GP
U45
VCC
BOOT
PWM
PHASE
UGATE
LGATE
FCCM
GND
GND
ISL6208CRZ-TGP-U
39 6260_PWM3
6260_PWM3
6260_FCCM
6208_PH3
6208_UG3
6208_LG3
+CPU_PWR_SRC
SB:70301
delete
U5
SI7392DP-T1-GP-U
C607
SC10U25V6KX-1GP
C543
SC10U25V6KX-1GP
C547
SC10U25V6KX-1GP
C50
SC2200P50V2KX-2GP
C51
SCD1U50V3KX-GP
U6
SI7336ADP-T1-GP
R1156
2D2R5J-1-GP
C1140
SC330P50V2KX-3GP
SB:70215
del C45
L37
IND-D45UH-2-GP
R74
10R2F-L-GP
R392
10KR2F-2-GP
C141
SCD22U10V2KX-1GP
R393
3K83R3F-2-GP
6260_VSUM_3
R400
3K83R3F-2-GP
6260_VO
6260_VSUM
39 6260_ISEN3
6260_ISEN3
<Variant Name>
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
Thurman UMA
Size
A3
Document Number
CPU Core-02
Rev
-1
Date: Wednesday, November 07, 2007
Sheet 40 of 46



	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


+PWR_SRC
+PWR_SRC_51124
G12 GAP-CLOSE-PWR-2U
G11 GAP-CLOSE-PWR-2U
G10 GAP-CLOSE-PWR-2U
G13 GAP-CLOSE-PWR-2U
G14 GAP-CLOSE-PWR-2U
G15 GAP-CLOSE-PWR-2U
SB:70131
Vtrip(mV)=Rtrip(Kohm)*10(uA)
Iocp=(Vtrip/Rdson)+((1/(2*L*f))*((Vin-Vout)*Vout)/Vin))
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: FDS8884 SO-8/ 30mOhm/ 4.5Vgs/ 84.08884.037
L/S: FDS6690AS SO-8/ 15mOhm/ 4.5Vgs/ 84.06690.E37
Design Current = 6.0A
OCP design > 6.8A
Included 1.25V LDO(3.02A)
+PWR_SRC_51124
C667 SC10U25V6KX-1GP
C663 SCD1U50V3KX-GP
U58 FDS8884-GP
C692 SC10U25V6KX-1GP
C661 SC220P50V2KX-2GP
+1.5V_RUN_P
+1.5V_RUN
G45 GAP-CLOSE-PWR-2U
G53 GAP-CLOSE-PWR-2U
G44 GAP-CLOSE-PWR-2U
G52 GAP-CLOSE-PWR-2U
G50 GAP-CLOSE-PWR-2U
G51 GAP-CLOSE-PWR-2U
G49 GAP-CLOSE-PWR-2U
SB:70131
L45 IND-1D5UH-22-GP-U
R478 29K4R2F-GP
DY
C698 SC18P50V2JN-1-GP
C137 SCD1U10V2KX-4GP
TC13 SE220U2VDM-9GP
U59 FDS6690DS-GP
R1153 2D2R5J-1-GP
C1141 SC330P50V2KX-3GP
SB:70215
R482 30KR2F-GP
51124_VFB1
+5V_SUS
R176 3D3R3J-L-GP
C288 SC4D7U10V5KX-1GP
C305 SC1U10V2KX-1GP
U62
+1.05V_VCCP_P
+1.5V_RUN_P
51124_VFB2
51124_VFB1
1.5V_RUN_PWRGD
1.05V_RUN_PWRGD
1.5V_RUN_PWRGD 36
1.05V_RUN_PWRGD 36
32 1.5V_RUN_ON
1.5V_RUN_ON
R475 1KR2J-1-GP
DY
BC1 SCD47U6D3V2KX-GP
51124_V5FILT
51124_EN1
51124_EN2
33 1.05V_RUN_ON
R477 1KR2J-1-GP
BC2 SCD47U6D3V2KX-GP
VFB1 VFB2 VO1 VO2 PGOOD1 PGOOD2
V5FILT VSIN EN1 EN2 GND GND PGND2 PGND1 TRIP1 TRIP2 VBST1 VBST2 TONSEL
DRVH1 LL1 DRVL1 DRVH2 LL2 DRVL2
51124_DRVH1
51124_LL1
51124_DRVL1
51124_DRVH2
51124_LL2
51124_DRVL2
TPS51124RGER-GPU1
51124_TRIP2
R166 7K87R2F-GP
R165 11K8R2F-GP
SB:70312
C695 SCD1U16V2KX-3GP
C694 SCD1U16V2KX-3GP
51124_LL1
R472 0R0603-PAD
51124_LL1_1
51124_VBST1
51124_LL2
R470 0R0603-PAD
51124_LL2_1
51124_VBST2
51124_TONSEL
R480 10KR2J-3-GP
R481 0R2J-2-GP
51124_V5FILT
+PWR_SRC_51124
C691 SC10U25V6KX-1GP
C682 SC10U25V6KX-1GP
C690 SCD1U50V3KX-GP
C291 SC220P50V2KX-2GP
U61 FDS8884-GP
+1.05V_VCCP_P
+1.05V_VCCP
G56 GAP-CLOSE-PWR-2U
G58 GAP-CLOSE-PWR
G55 GAP-CLOSE-PWR-2U
G54 GAP-CLOSE-PWR-2U
G60 GAP-CLOSE-PWR
G57 GAP-CLOSE-PWR
SB:70131
L50 IND-1D5UH-29-GP
R483 11K5R2F-GP
C698 SC18P50V2JN-1-GP
C696 SCD1U10V2KX-4GP
TC19 SE220U2VDM-9GP
U63 FDS8896-NL-GP
R1154 2D2R5J-1-GP
C1142 SC330P50V2KX-3GP
SB:70215
R486 30KR2F-GP
51124_VFB2
Design Current= 12.2A
OCP design > 15A
70104
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 UMA
Size A3
Document Number
DCDC 1.5V/1.05V
Rev -1
Date: Wednesday, November 07, 2007
Sheet 42 of 46



<variant_name>

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

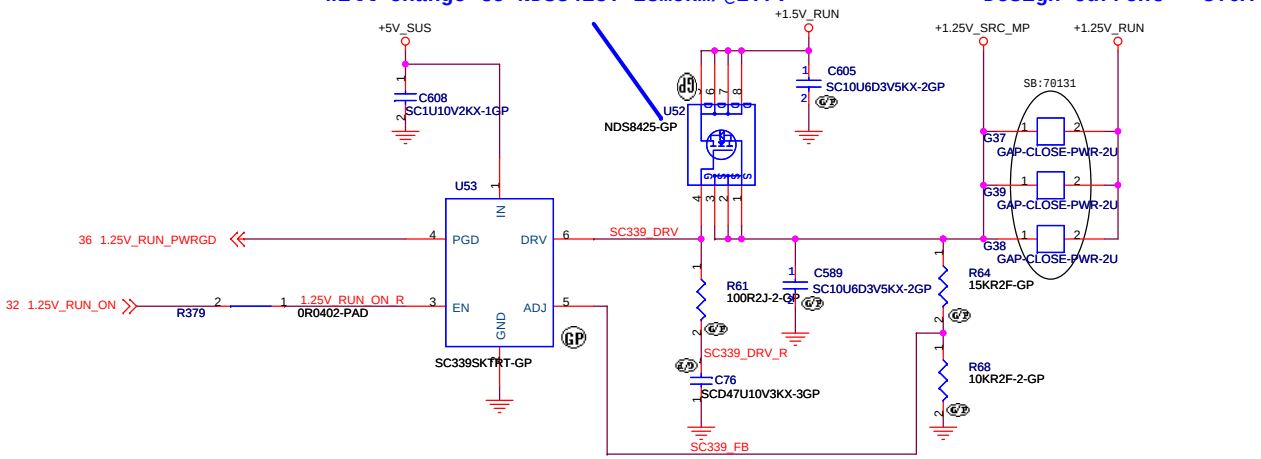
Title: Thurman UMA

Size	Document Number	Rev
A3	DCDC 1.8V/0.9V	-1

Date: Wednesday, November 07, 2007 Sheet 43 of 46

Will Change to NDS8425. 28mOhm/@2.7V

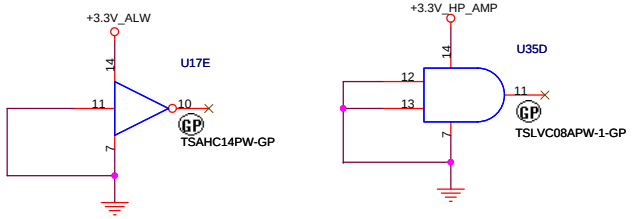
Design Current = 3.0A

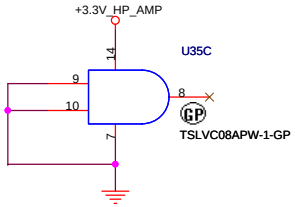


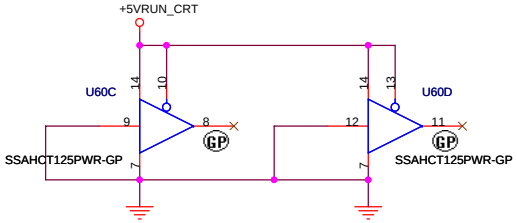
<Variant Name>

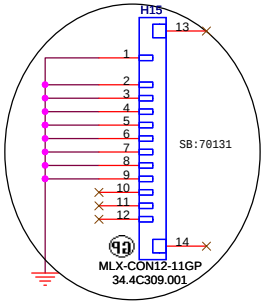
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

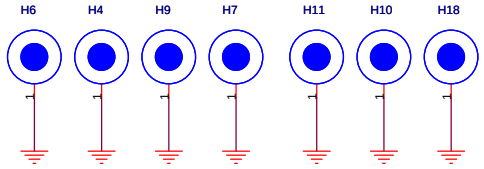
Title	***Thurman UMA***	
Size: ***A3***	Document Number: ***DCDC 1.25V***	Rev: ***-1***
Date: Wednesday, November 07, 2007	Sheet 44 of 46	

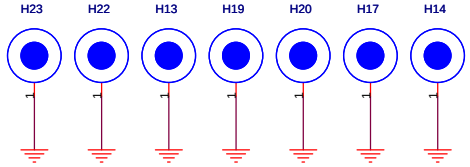


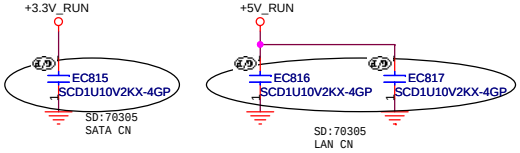




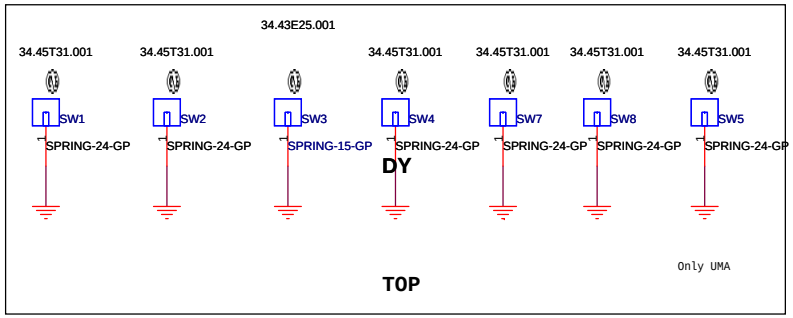


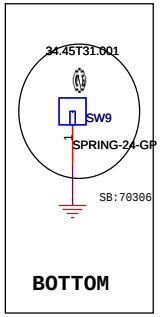




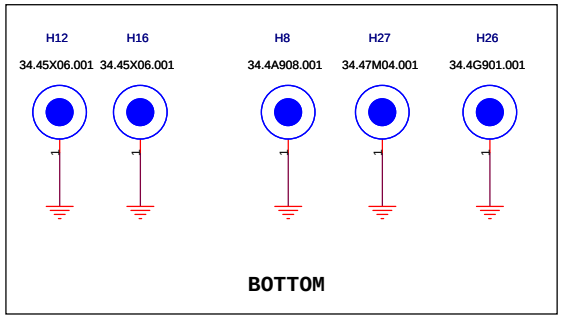


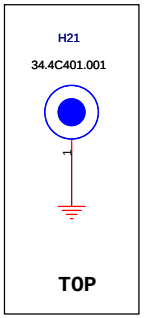
SW3 - 34.43E25.001
SW9 - 34.49Q02.001
SW5 - 34.34T31.001 (Only for UMA)
others-34.45T31.001





H12, H16: 34.45X06.001
H8: 34.4A908.001
H27: 34.47M04.001
H26: 34.4G901.001
H21: 34.4C401.001





<Variant Name>

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

Title: Thurman UMA

Size	Document Number	Rev
A3	EMI&MISC	-1

Date: Thursday, November 22, 2007 Sheet 45 of 46

DATE	VERSON	ITEM	PAGE	Modify List	Issue Description	OWNER
2006/11/24		1				EE
		2				EE
		3				EE
		4				EE
		5				EE
		6				EE
		7				EE
		8				EE
		9				EE
		10				EE
		11				EE
		12				EE
		13				EE
		14				EE
		15				EE
		16				Power team
		17				EE
		18				EE
		19				EE
		20				EE
		22				
		23				
		24				
		25				
		26				

<Variant Name>

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

Title: *Thurman UMA*

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

Date: Wednesday, November 07, 2007 | Sheet 46 of 46