MODEL : 8889

Revision 02

Contexts

DRAW	DESIGN	CHECK	ISSUED

POWER STATES

STATE / SIGNAL	VOTAGE	POWER ON	STR (S3)	STD (S4)	MEC-OFF (S5)	REMARK
SUSB#	-	HIGH	LOW	LOW	LOW	
SUSC#	-	HIGH	HIGH	LOW	LOW	
ADP	+19V	O	O	O	O	
BATTERY	+12V	O	O	O	O	
+5VA	+5V	O	O	O	O	
+3VA	+3.3V	O	O	O	O	
+5VSB	+5V	O	O	O	X	
+3VSB	+3.3V	O	O	O	X	
+5V	+5V	O	O	X	X	
+3V	+3.3V	O	O	X	X	
+2.5V	+2.5V	O	O	X	X	
+1.25V	+1.25V	O	O	X	X	
+5VS	+5V	O	X	X	X	
+3VS	+3.3V	O	X	X	X	
+2.5VS	+2.5V	O	X	X	X	
+2.5VDDA	+2.5V	O	X	X	X	
+1.5VS	+1.5V	O	X	X	X	
+1.2VLDTA	+1.2V	O	X	X	X	
+CPU_CORE	+1.2V	O	X	X	X	

IDSEL

IDSEL	CHIP
AD20	CardBus
AD21	MiniPCI

I2C / SMB Address

DEVICE	WRITE ADDRESS	READ ADDRESS
CLK GEN	D2	D3
DIMM0	A0	A1
DIMM1	A2	A3
G781	98	99

BUS MASTER

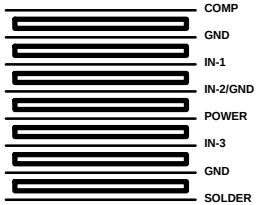
REQ/GNT	CHIP
-REQ0/-GNT0	CardBus
-REQ1/-GNT1	
-REQ2/-GNT2	MINI PCI
-REQ3/-GNT3	

PCIINT

PCIINT	CHIP
INTA#	VGA
INTB#	CardBus
INTC#	MiniPCI
INTD#	MiniPCI
INTE#	

+3VA	VT8235 W83L950D	5uA 20mA
+CPU_CORE	CPU	30A
+5V	USB PORT * 4 MIMIPCI	2A 300mA
+5VS	CP2211 CRT HDD ODD MINIPCI MDC TPA0212 ALC655	1A 1A 1.5A 1.8A 100mA 500mA 1A 50mA
+3VSB	VT8235	160mA
+3V	CB1410 VT6103L MIMIPCI	200mA 130mA 380mA
+3VS	CP2211 K8N800 CLK_GEN LCDVCC VT8235 CB1410 ALC655 LPC BIOS ROM VT6103L MIMIPCI W83L950D	1A 400mA 360mA 1A 15mA 15mA 200mA 15mA 10mA 430mA 20mA
+2.5VSB	VT8235	6mA
+2.5V	CPU DDR_DIMM	3A 4A
+2.5VS	VT8235 VT1634	400mA 44mA
+1.5VS	K8N800	1A
+1.25V	DDR_DIMM	1A
+1.2VLDT	K8N800 CPU	200mA 500mA

Board Stackup-up



MiTAC

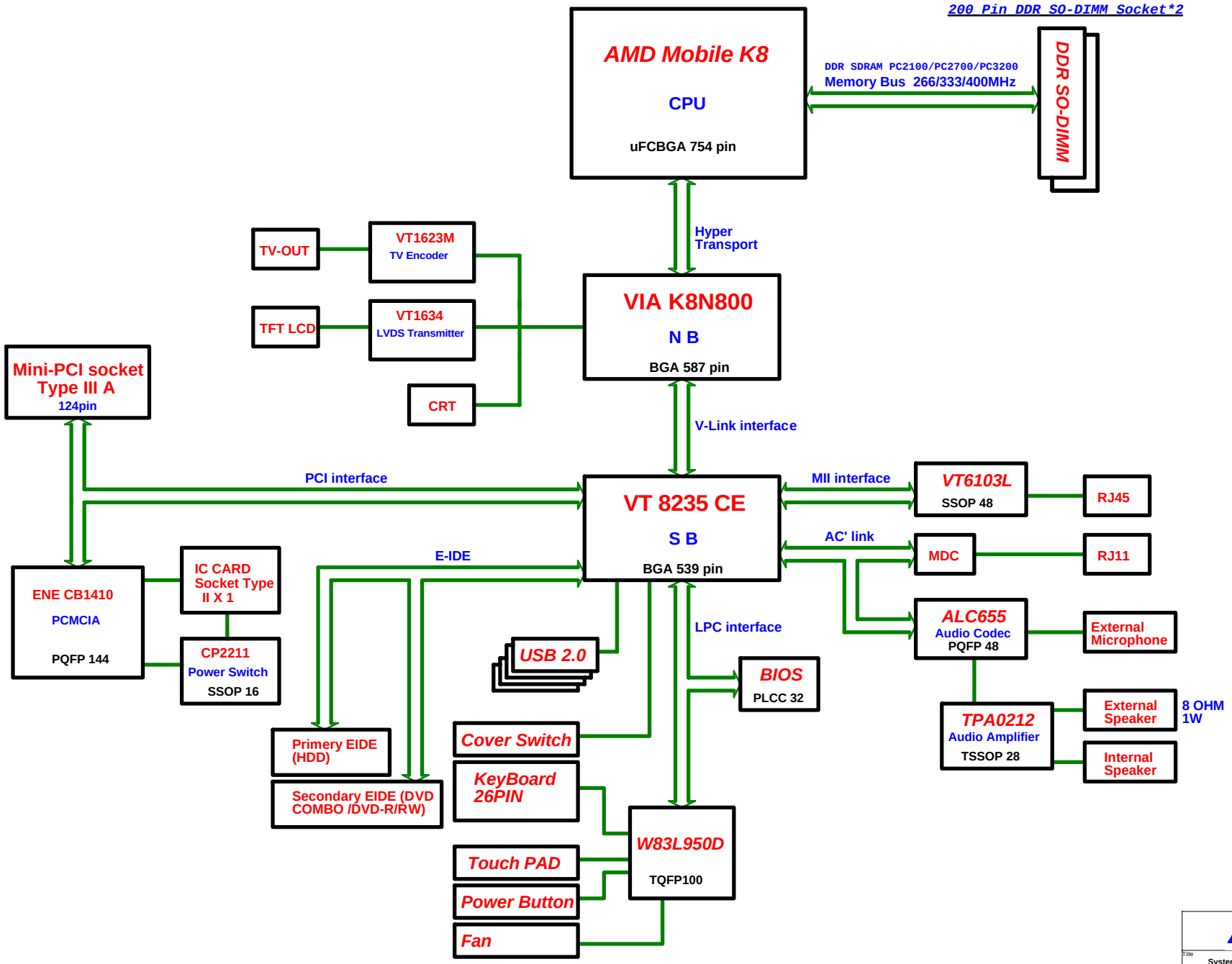
Title: COVER SHEET

Size | Document Number: 316685200002 | Rev: R02

Date: Monday, August 23, 2004 | Sheet 1 of 30

hexainf@hotmail.com

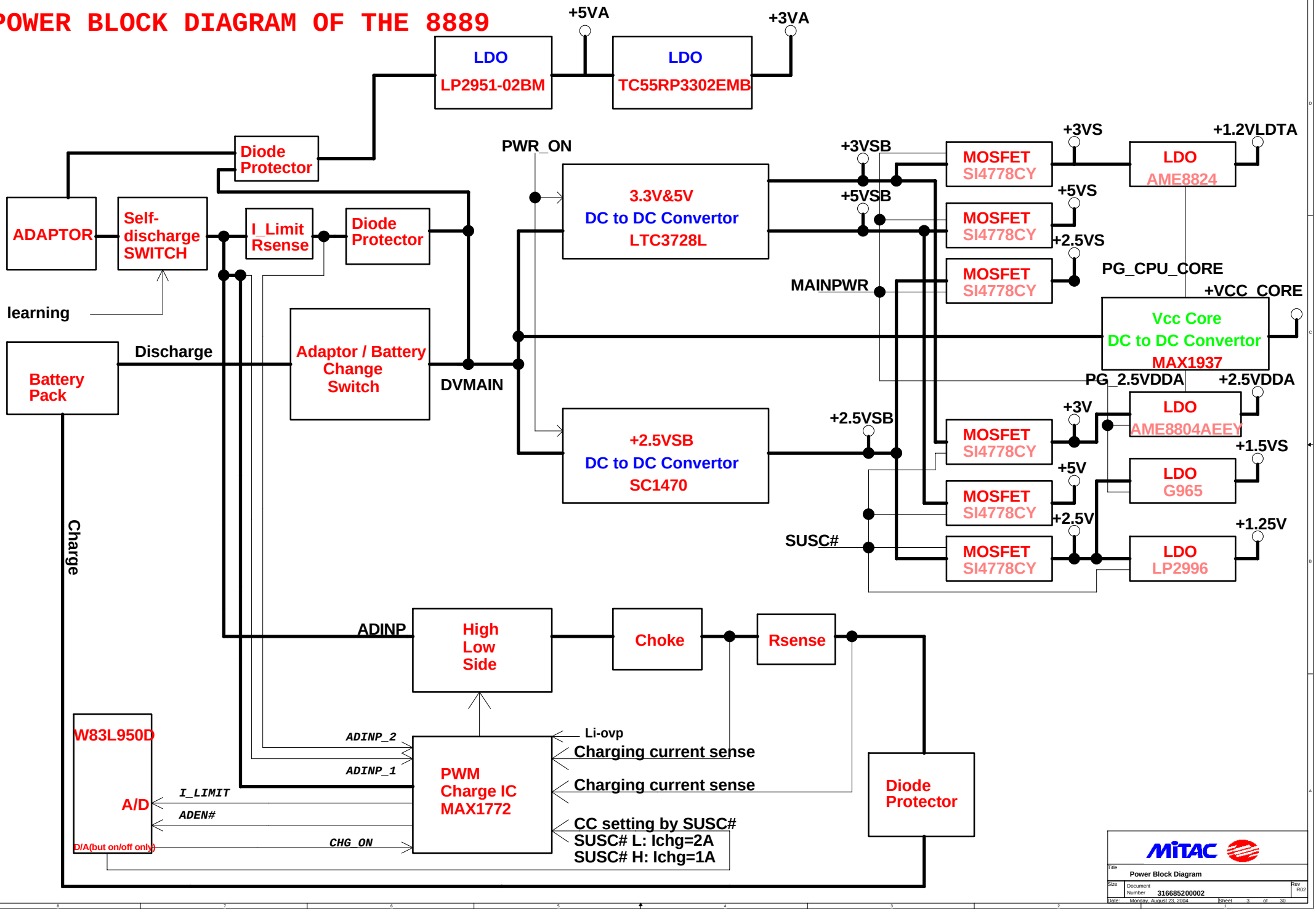
8889 SYSTEM BLOCK DIAGRAM



MiTAC

Title	System Block DIAGRAM	
Size	Document Number 316685200002	Rev R02
Date: Monday, August 23, 2004	Sheet 2 of 30	

POWER BLOCK DIAGRAM OF THE 8889



MiTAC

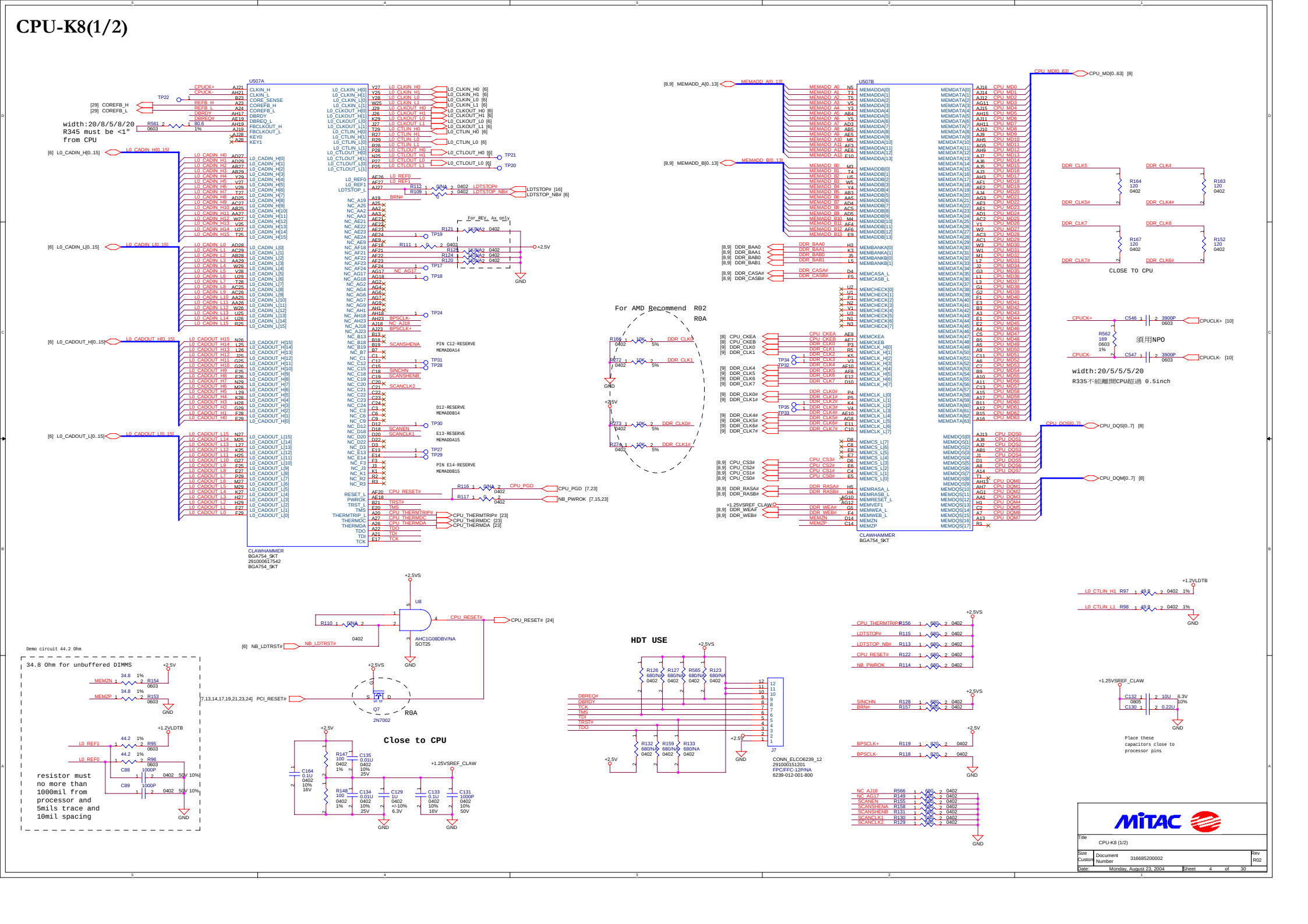
Title: Power Block Diagram

Size | Document Number: 316685200002 | Rev: R02

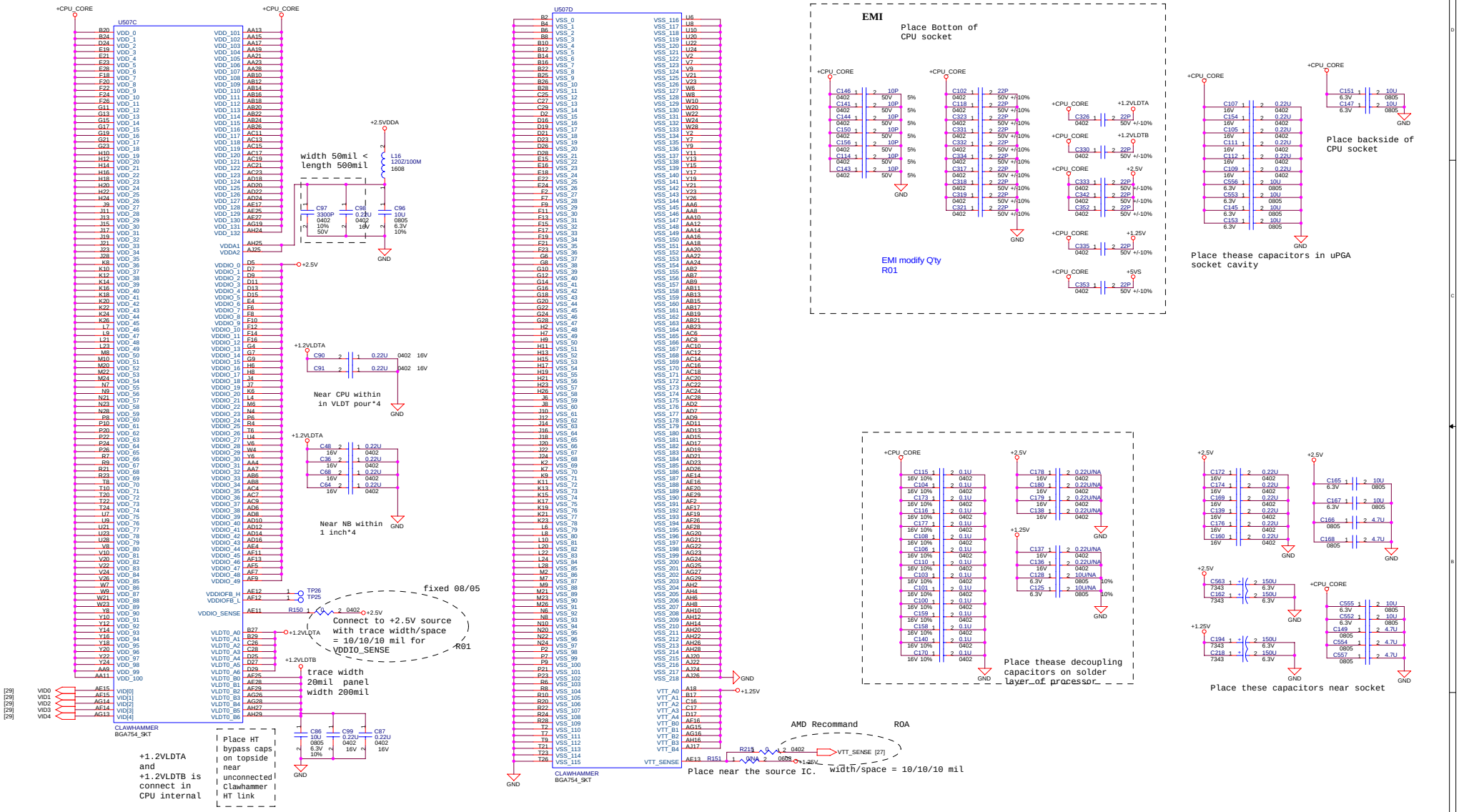
Date: Monday, August 23, 2004 | Sheet 3 of 30

hexainf@hotmail.com

CPU-K8(1/2)


U507A
CLAWHAMMER
BGA754_SKT
291000617542
U507B
CLAWHAMMER
BGA754_SKT
width:20/8/5/8/20
R345 must be <1"
from CPU
For AMD Recommend R02
R0A
須用NPO
width:20/5/5/5/20
R335不能離開CPU超過 0.5inch
CLOSE TO CPU
HDT USE
Close to CPU
34.8 Ohm for unbuffered DIMMS
resistor must
no more than
1000mil from
processor and
5mils trace and
10mil spacing
Demo circuit 44.2 Ohm
Place these
capacitors close to
processor pins
CONN_ELCO6239_12
291000151201
FPC/FFC-12P/NA
6239-012-001-800
MiTAC
Title
CPU-K8 (1/2)
Size
Custom
Document Number
316685200002
Rev
R02
Date:
Monday, August 23, 2004
Sheet
4
of
30

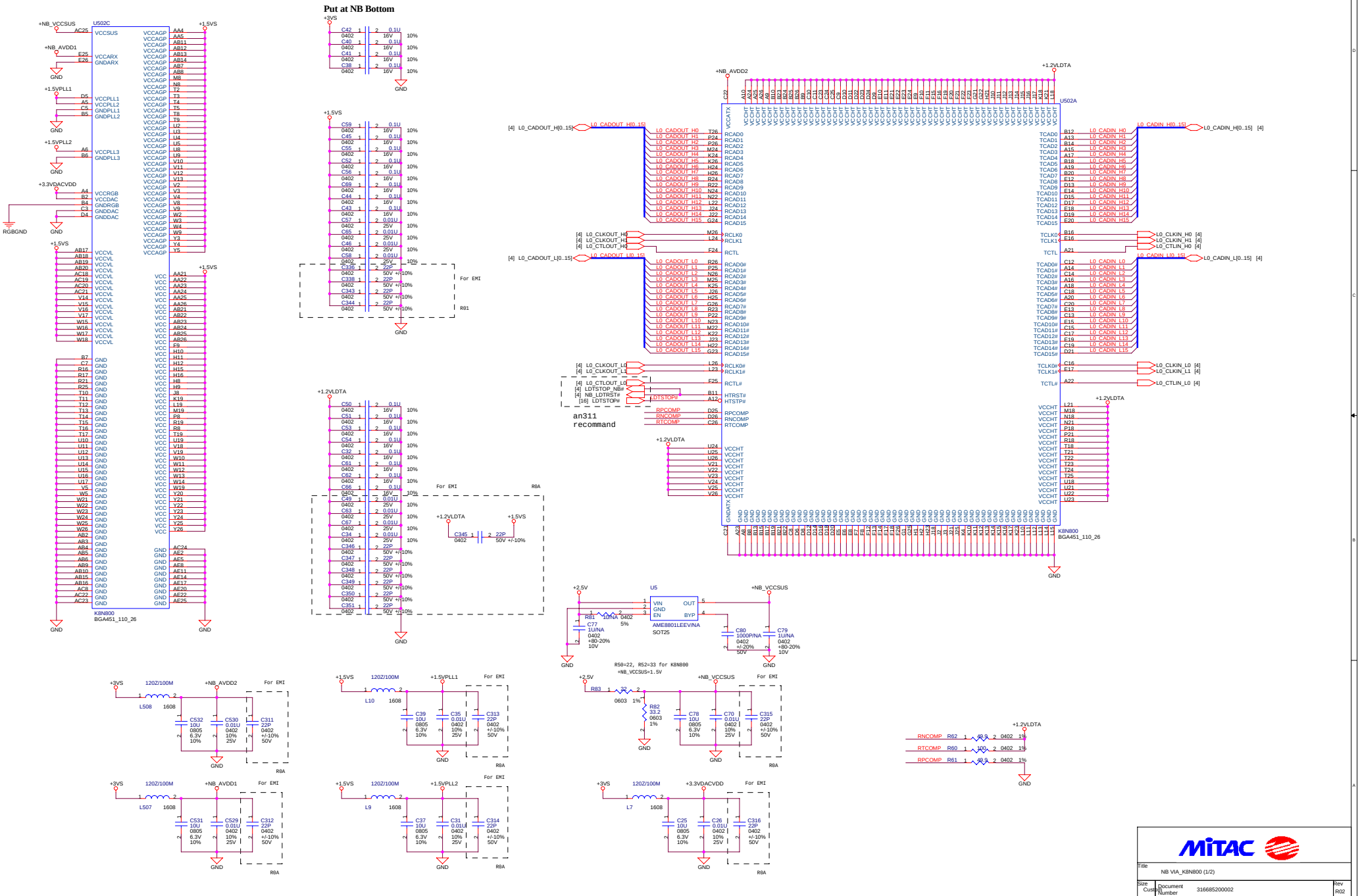
CPU-K8 (2/2)



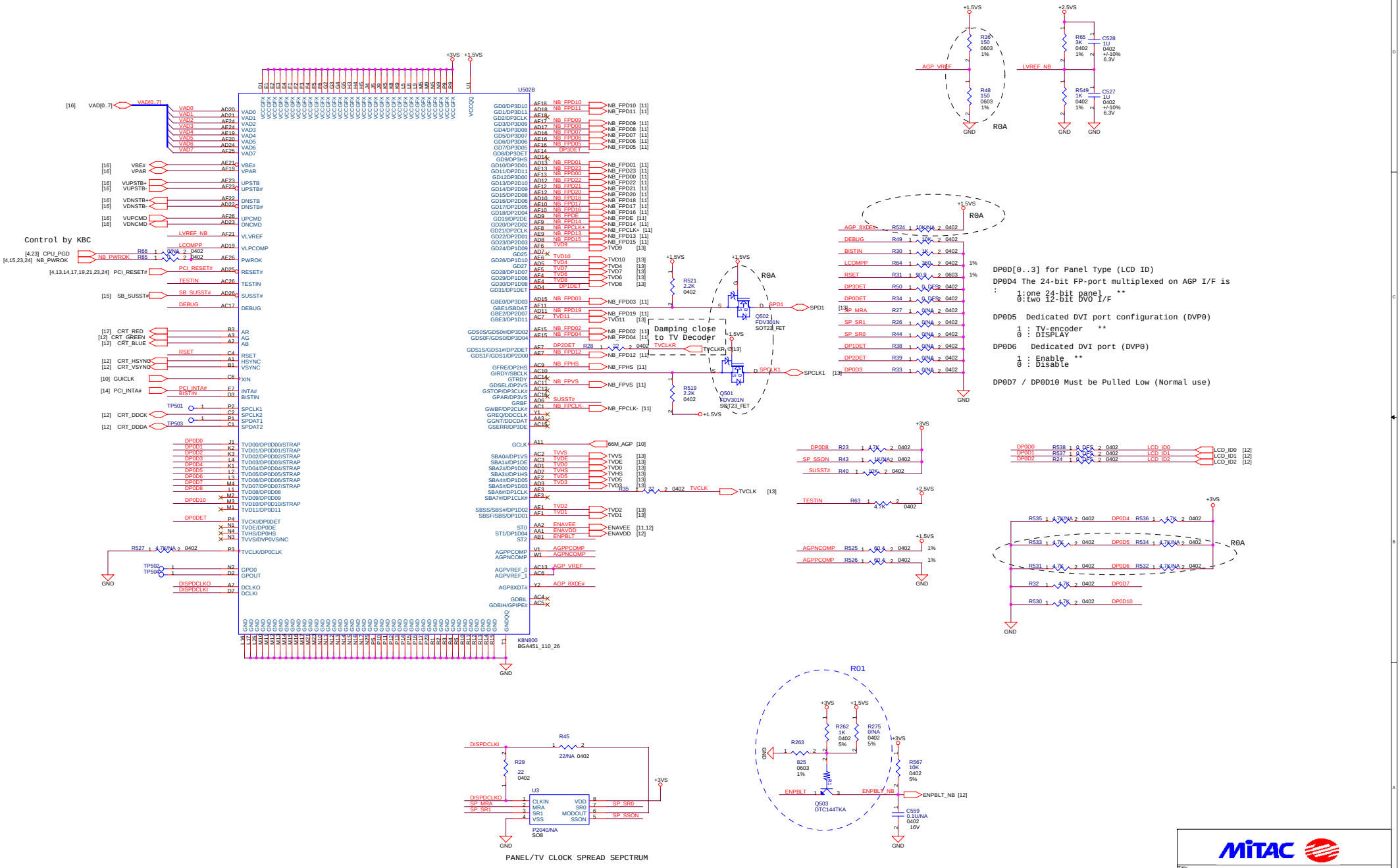
Title	CPU-K8 (2/2)
Size	Custom
Document Number	316685200002
Rev	R02
Date:	Monday, August 23, 2004
Sheet	5 of 30

hexainf@hotmail.com

NB VIA_K8N800 (1/2)



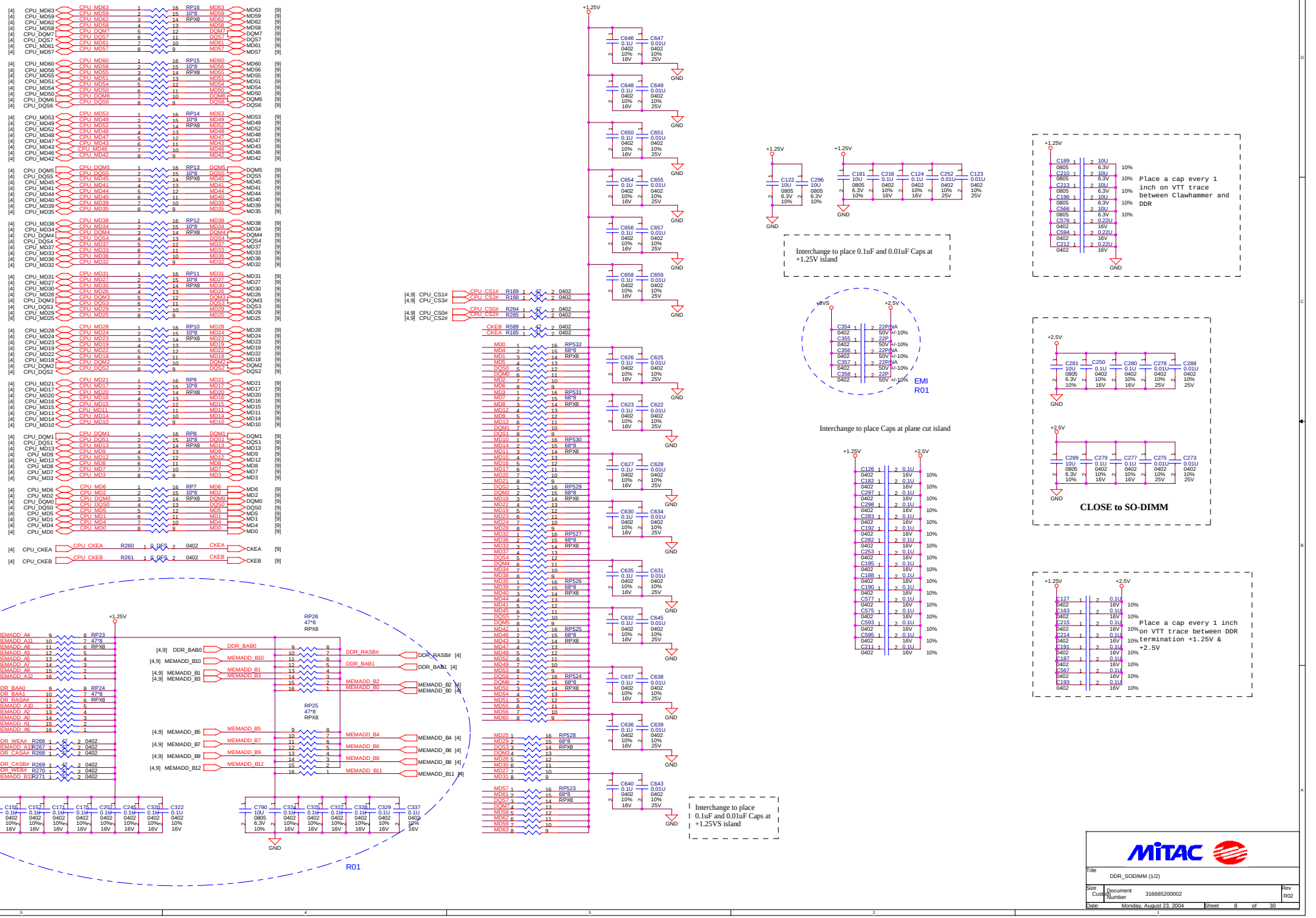
NB VIA_K8N800 (2/2)



hexainf@hotmail.com

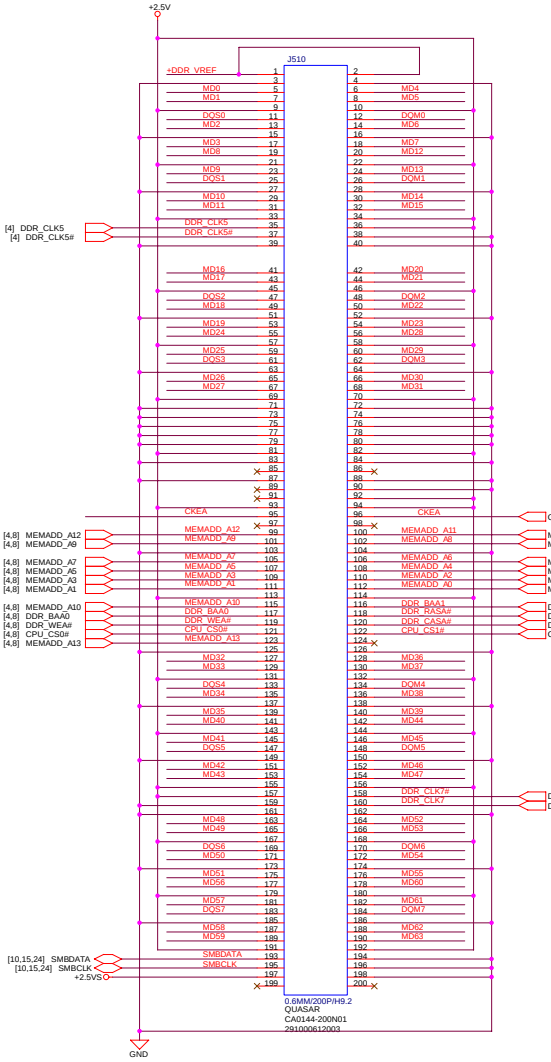
Title	NB VIA_K8N800 (2/2)		
Size: Custom	Document Number: 316685200002		Rev: R02
Date: Monday, August 23, 2004	Sheet 7 of 30		

DDR_SODIMM(1/2)

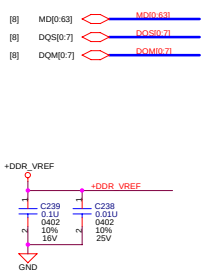


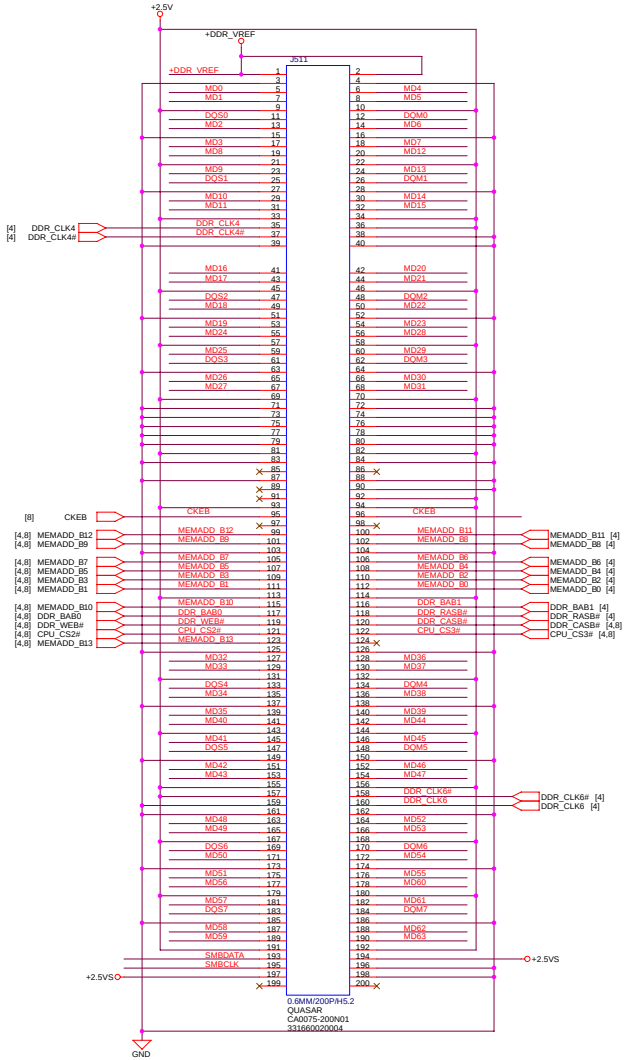
Title	DDR_SODIMM (1/2)
Size: Custom	Document Number: 316685200002
Rev	R02
Date: Monday, August 23, 2004	Sheet 8 of 30

DDR_SODIMM(2/2)

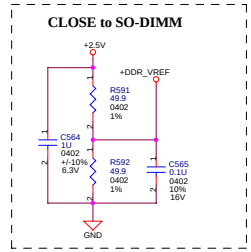


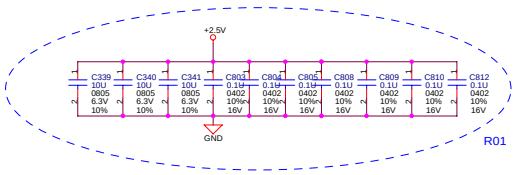
I2C / SMB Address : A0h



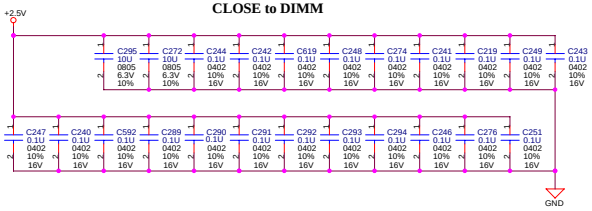


I2C / SMB Address : A2h





CLOSE to DIMM

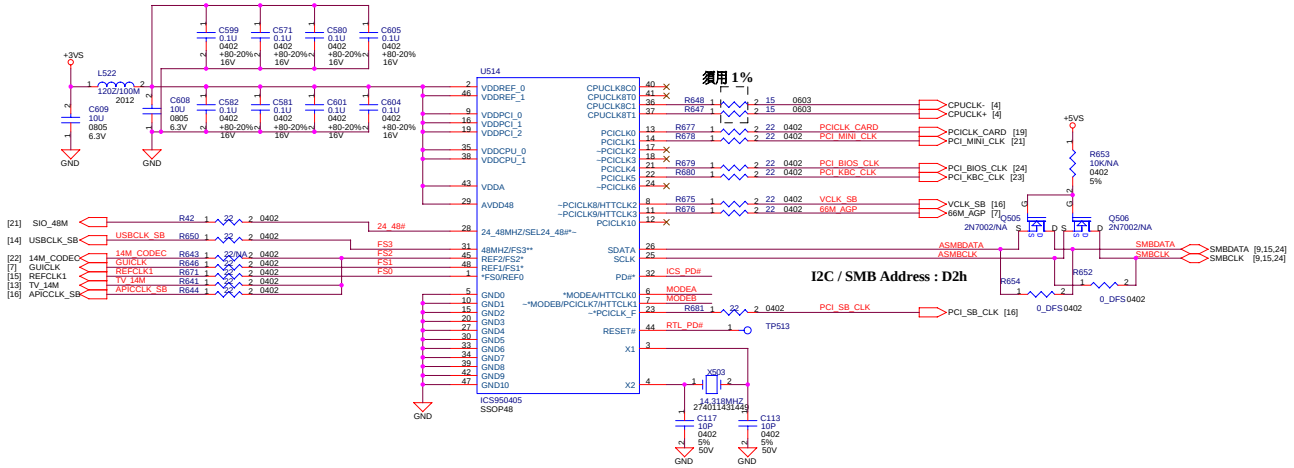


MiTAC

Title	DDR_SODIMM (2/2)		
Size: Custom	Document Number: 316685200002		Rev: R02
Date: Monday, August 23, 2004	Sheet 9 of 30		

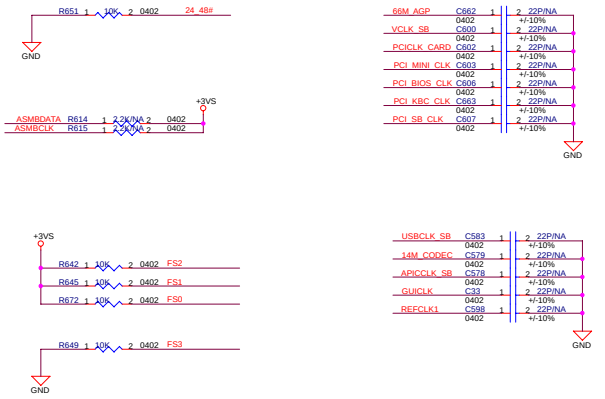
hexainf@hotmail.com

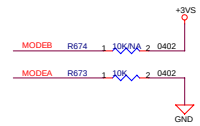
CLOCK GENERATOR(ICS950405)



MODE FUNCTIONALITY TABLES

MODE A	MODE B	Pin6	Pin7	Pin8	Pin11	
0	0	66MHZ	66MHZ	66MHZ	33MHZ	
0	1	MODE A INPUT ONLY	66MHZ	66MHZ	66MHZ	**DEFAULT**
1	0	33MHZ	33MHZ	33MHZ	33MHZ	
1	1	MODE A INPUT ONLY	33MHZ	33MHZ	33MHZ	



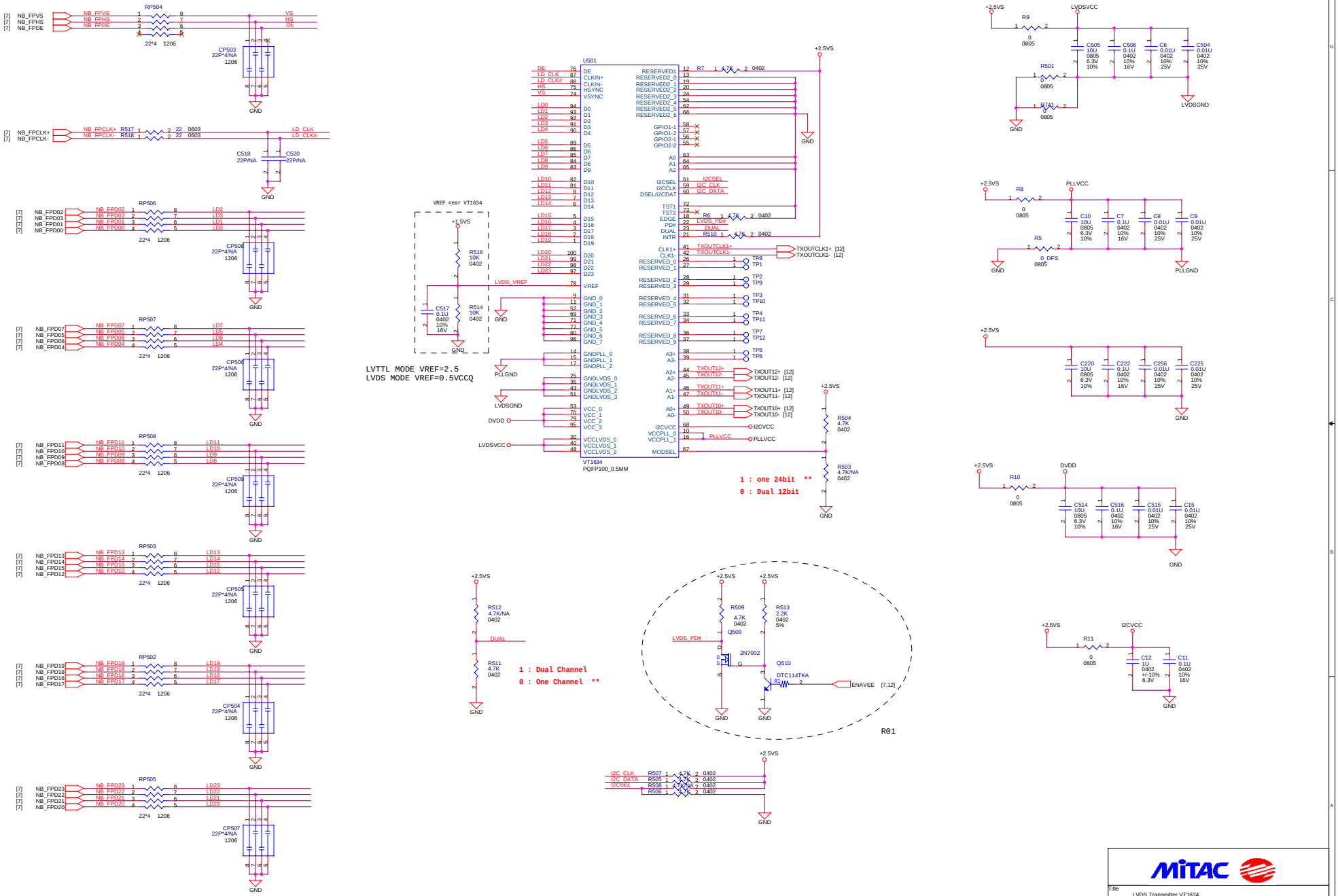


FS3	FS2	FS1	FS0	CPU Mhz	HTT Mhz	PCI Mhz	
0	0	0	0	100.90	67.27	33.63	
0	0	0	1	133.90	66.95	33.48	
0	0	1	0	168.00	67.20	33.60	
0	0	1	1	202.00	67.33	33.67	
0	1	0	0	100.20	66.80	33.40	
0	1	0	1	133.50	66.75	33.38	
0	1	1	0	166.70	67.68	33.34	
0	1	1	1	200.40	66.80	33.40	**DEFAULT**
1	0	0	0	150.00	60.00	33.00	
1	0	0	1	180.00	60.00	33.00	
1	0	1	0	210.00	70.00	35.00	
1	0	1	1	240.00	60.00	30.00	
1	1	0	0	270.00	67.50	33.75	
1	1	0	1	233.33	66.67	33.33	
1	1	1	0	266.67	66.67	33.33	
1	1	1	1	300.00	75.00	37.50	

MiTAC

Title	Clock Generator	
Size: Custom	Document Number: 316685200002	Rev: R02
Date: Monday, August 23, 2004	Sheet 10 of 30	

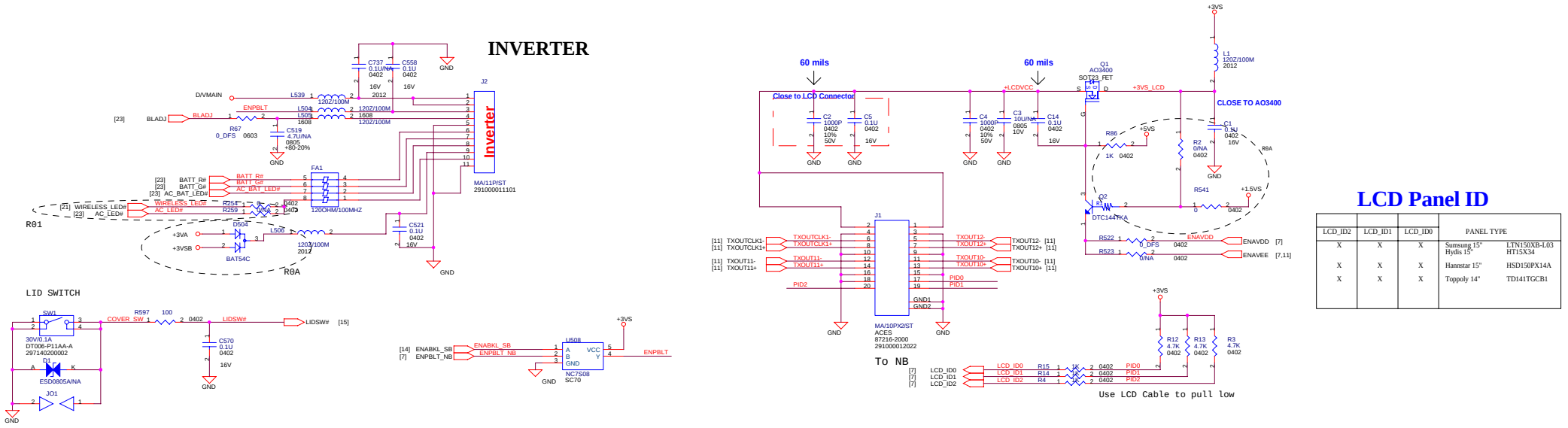
VT1634 LVDS Transmitter



Title	LVDS Transmitter VT1634
Size: Custom	Document Number: 316685200002
Rev	R02
Date: Monday, August 23, 2004	Sheet 11 of 30

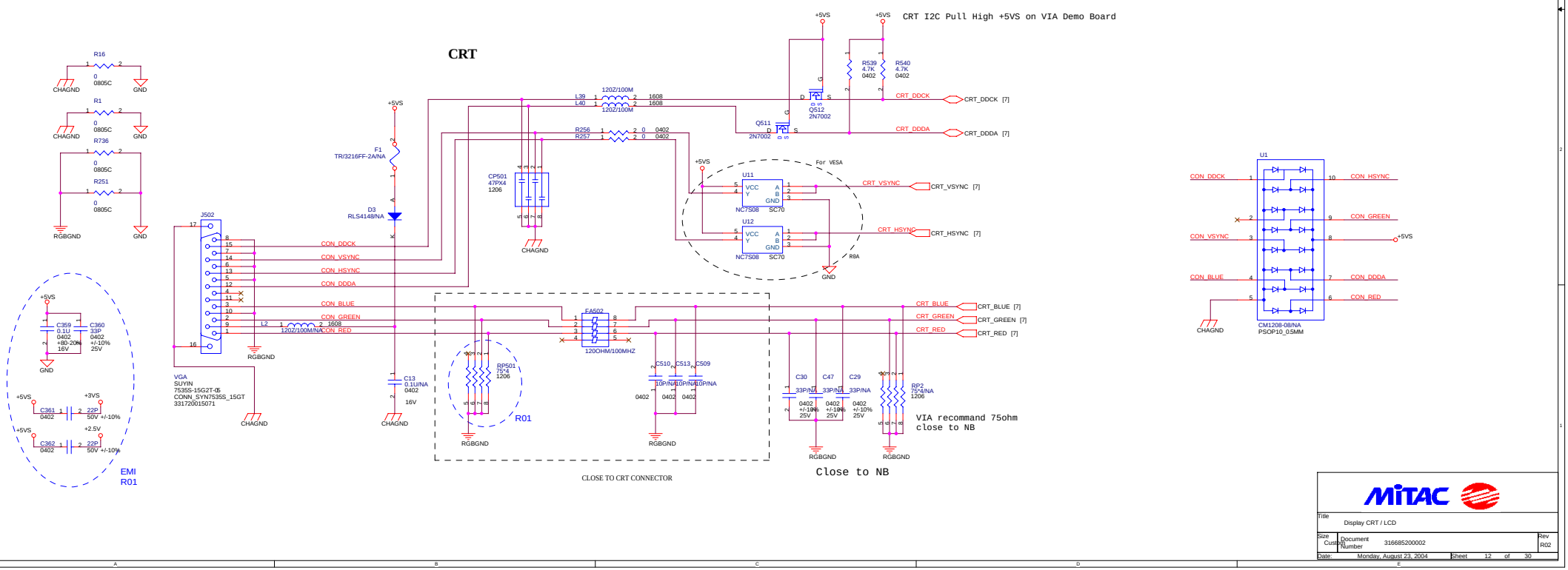
hexainf@hotmail.com

Display (CRT / LCD)



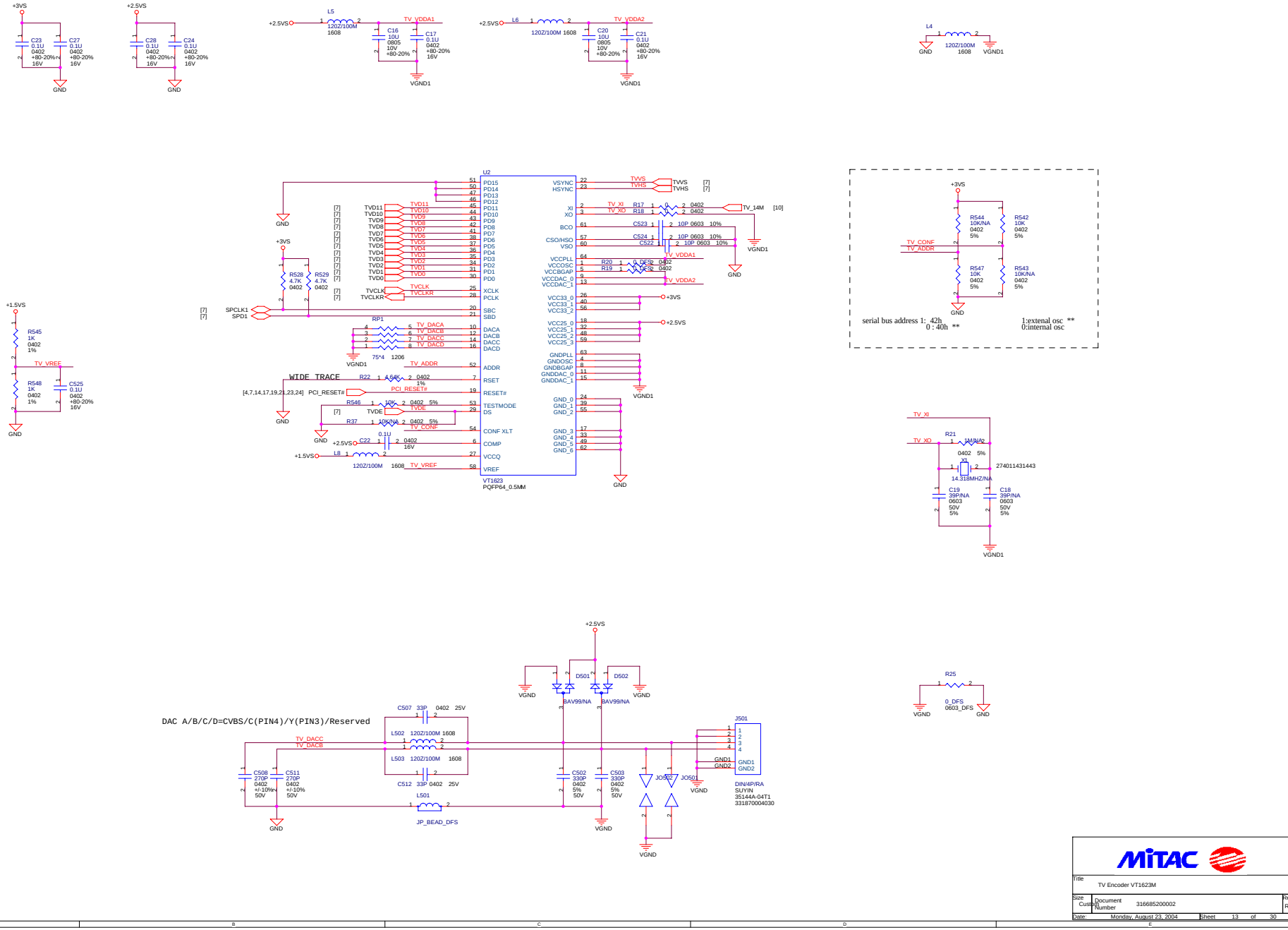
LCD Panel ID

LCD_ID2	LCD_ID1	LCD_ID0	PANEL TYPE	
X	X	X	Sumsung 15"	LTN150XB-L03
			Hydis 15"	HT15X34
X	X	X	Hannstar 15"	HSD150PX14A
X	X	X	Toppoly 14"	TD141TGCB1



Title	Display CRT / LCD		
Size: Custom	Document Number: 316685200002		Rev: R02
Date: Monday, August 23, 2004	Sheet 12 of 30		

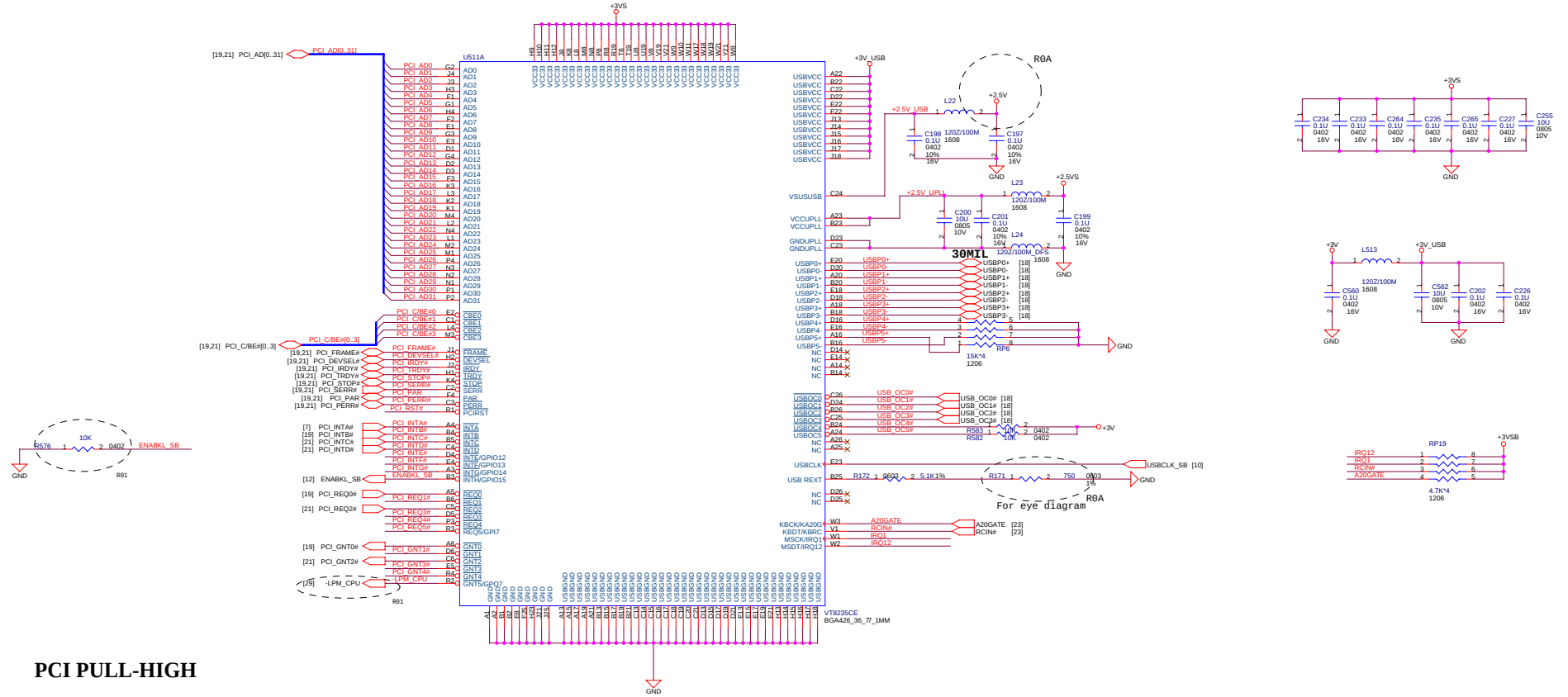
Display (TV Encoder)



Title	TV Encoder VT1623M
Size: Custom	Document Number: 316685200002
Rev	R02
Date:	Monday, August 23, 2004
Sheet	13 of 30

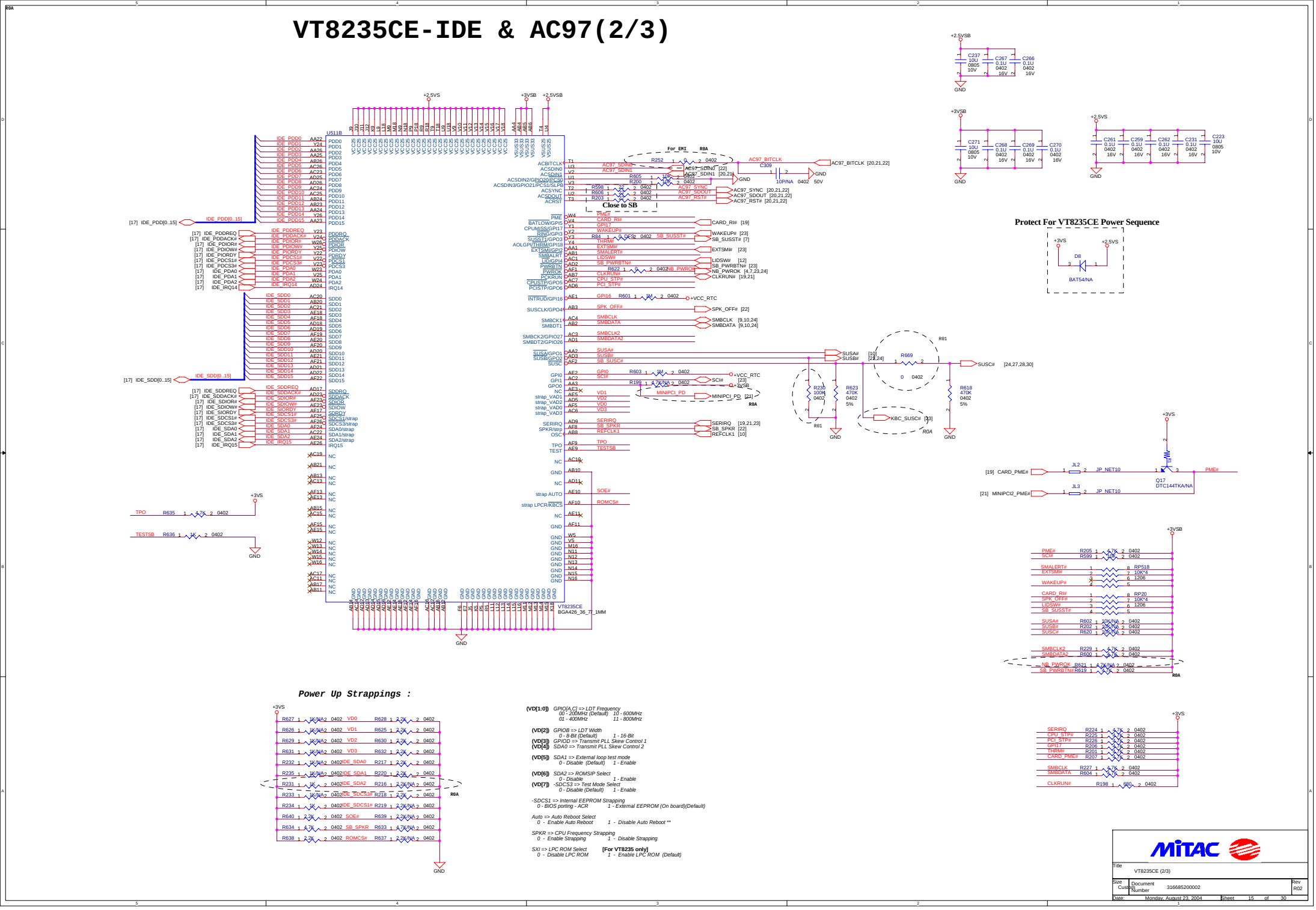
hexainf@hotmail.com

VT8235CE- PCI & USB(1/3)



Title	VT8235CE (1/3)
Size	Custom
Document Number	316685200002
Rev	R02
Date:	Monday, August 23, 2004
Sheet	14 of 30

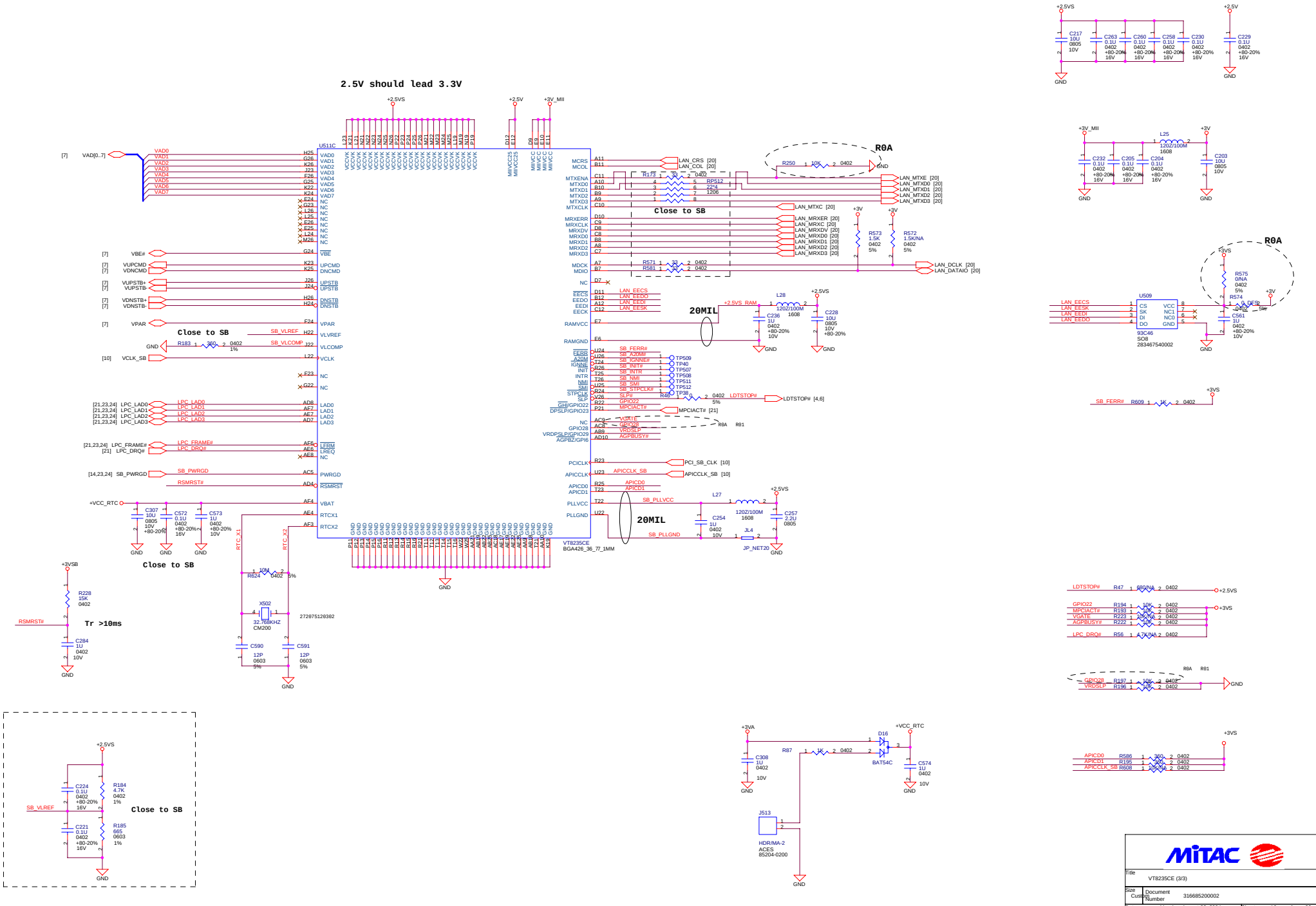
VT8235CE-IDE & AC97(2/3)



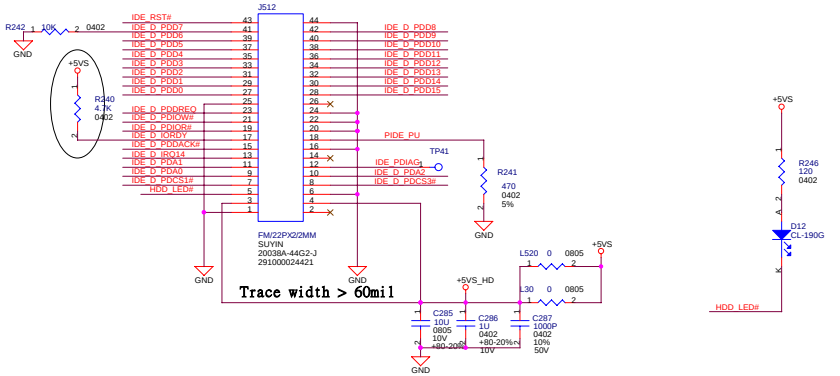
hexainf@hotmail.com

MiTAC			
Title	VT8235CE (2/3)		
Size: Custom	Document Number: 316685200002		Rev: R02
Date: Monday, August 23, 2004	Sheet 15 of 30		

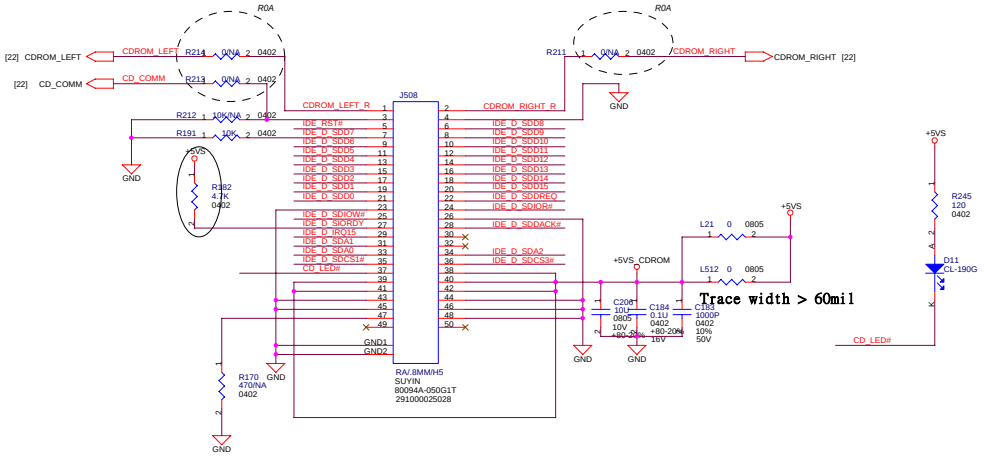
VT8235CE-VLINK& LAN(3/3)



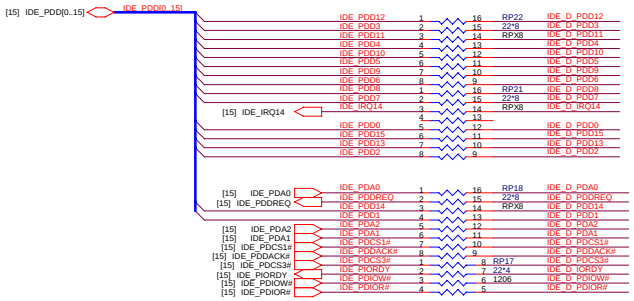
PRIMARY IDE CONNECTOR

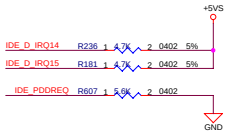


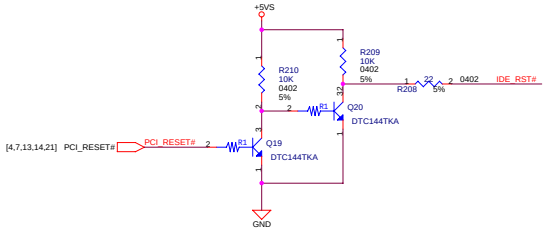
SECONDARY IDE CONNECTOR



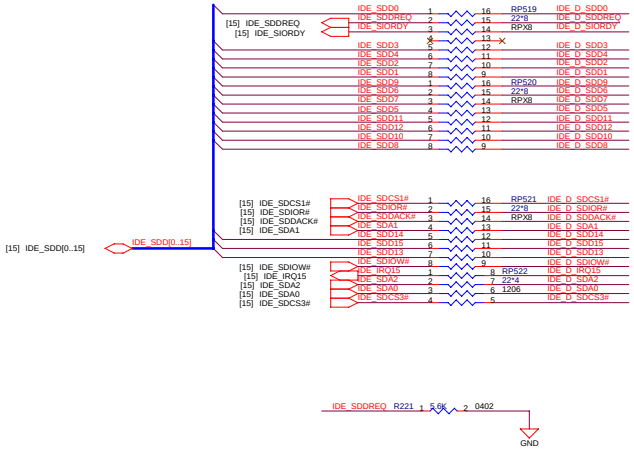
Place close to the SB. < 1"







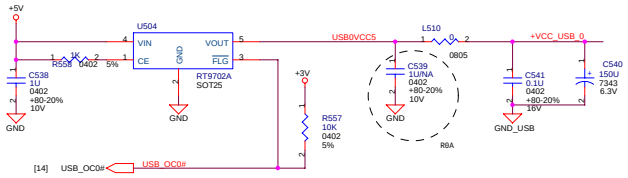
Place close to the SB. < 1"

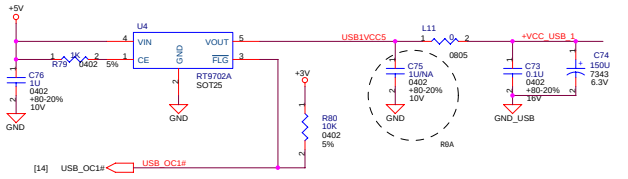


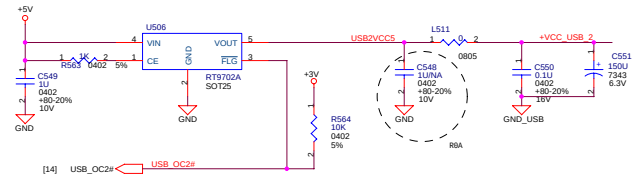
hexainf@hotmail.com

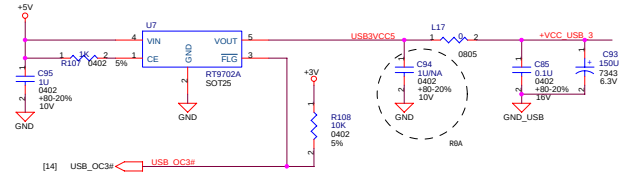
MiTAC			
Title	IDE INTERFACE		
Size: Custom	Document Number: 316685200002		Rev: R02
Date: Monday, August 23, 2004	Sheet 17 of 30		

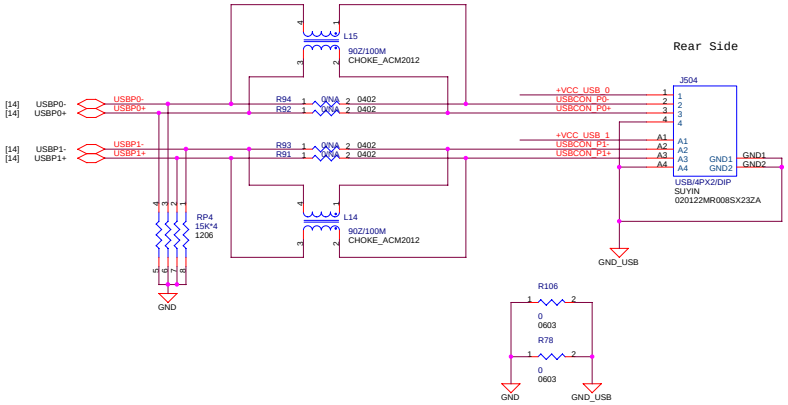
USB CONNECOTR

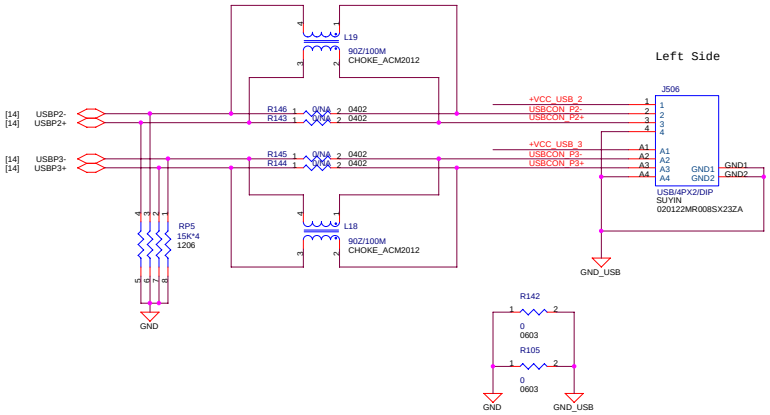










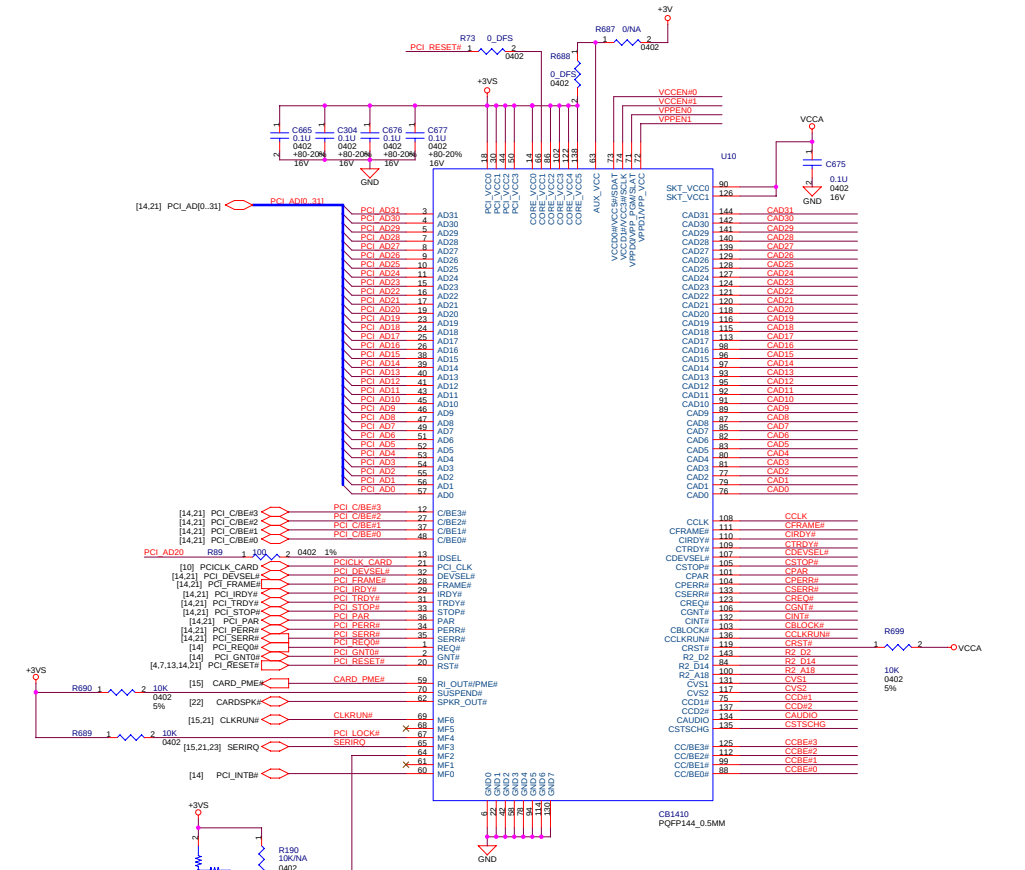


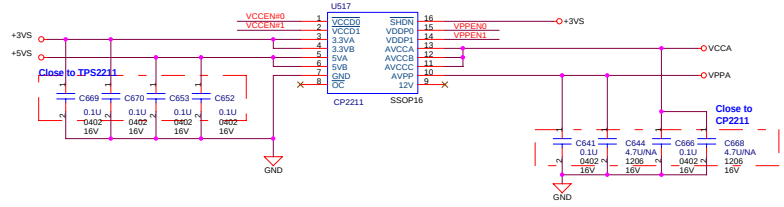
MiTAC

Title	USB	
Size: Custom	Document Number: 316685200002	Rev: R02
Date: Monday, August 23, 2004	Sheet 18 of 30	

ENE CB1410

AD20
PCI_INTB# (Card BUS)
REQ0#/GNT0#





SIGNAL	PC CARD PULL UP	VOLT
CCD#1	+3V	
CCD#2	+3V	
CBLOCK#	CARD_VCC	
CSTOP#	CARD_VCC	
CDEVSEL#	CARD_VCC	
CTRDY#	CARD_VCC	
CVS1	+3V	
CVS2	+3V	
CRST#	CARD_VCC	
CSERR#	CARD_VCC	
CPERR#	CARD_VCC	
CINT#	CARD_VCC	
CIRDY#	CARD_VCC	
CREQ#	CARD_VCC	
CSTSCHG#	CARD_VCC	
CAUDIO	CARD_VCC	

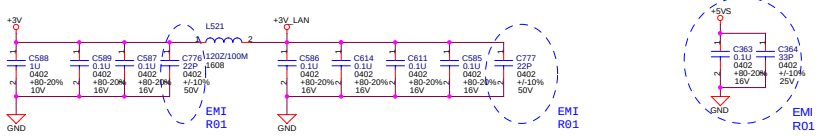
PCI1410 HAVE INTEGRATED ALL PULL UP RES ABOVE

MiTAC

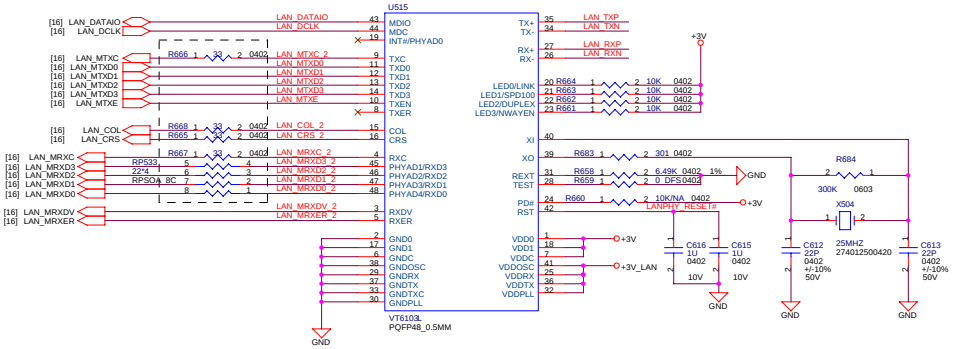
Title	ENE CB1410	
Size: Custom	Document Number: 316685200002	Rev: R02
Date: Monday, August 23, 2004	Sheet 19 of 30	

hexainf@hotmail.com

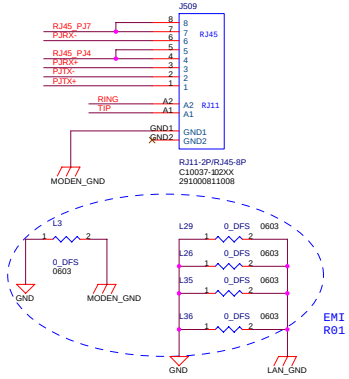
LAN (PHY-VT6103) & MDC



Close to VT6103L PHY

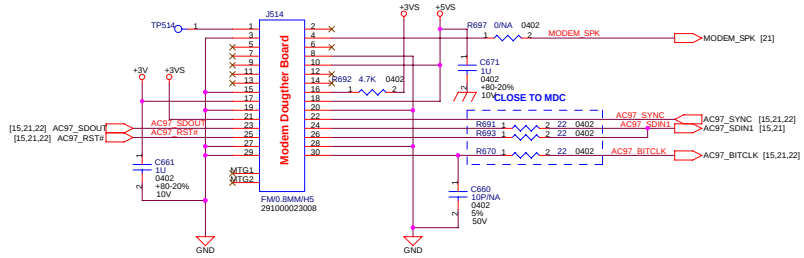


RJ45 / RJ11 CONNECTOR



MDC

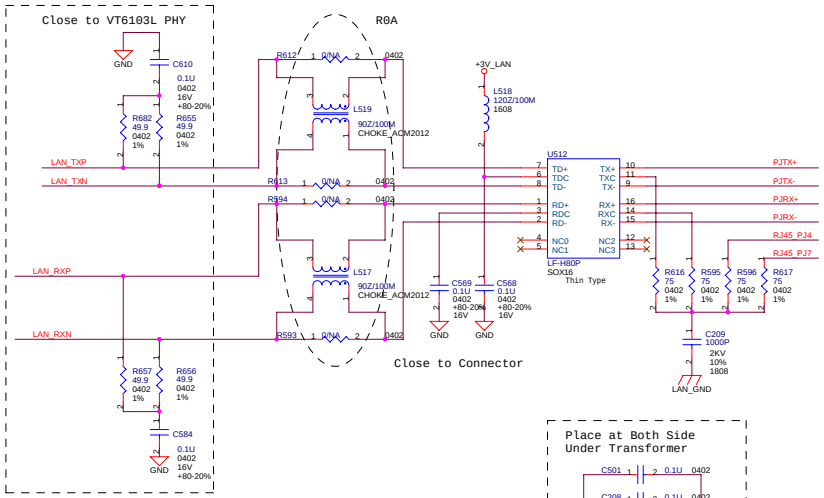
AC-Link



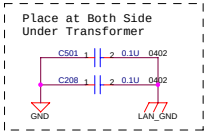
Change 90Z choke for EMI

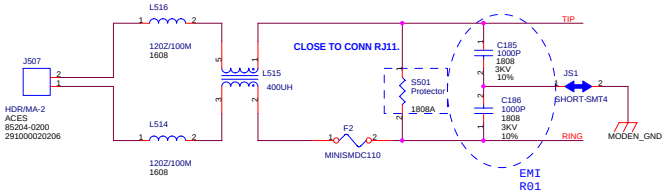
R0A

Close to VT6103L PHY



Place at Both Side Under Transformer

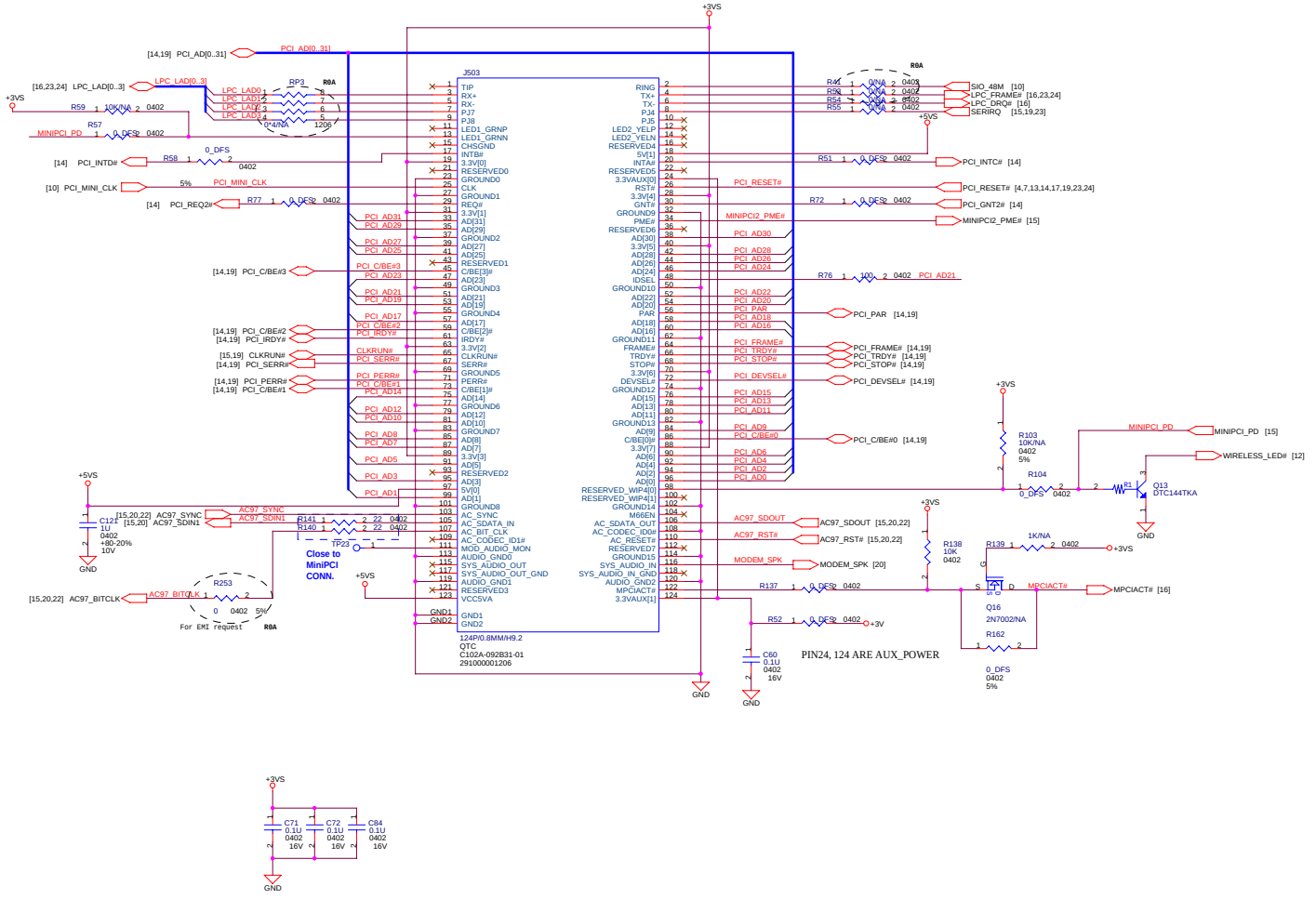




MiTAC			
Title	LAN (VT6103) & MDC		
Size: Custom	Document Number: 316685200002		Rev: R02
Date: Monday, August 23, 2004	Sheet 20 of 30		

MINI-PCI
AD19
PCI_INTD#
(PCI_INTC#)
REQ2#/GNT2#

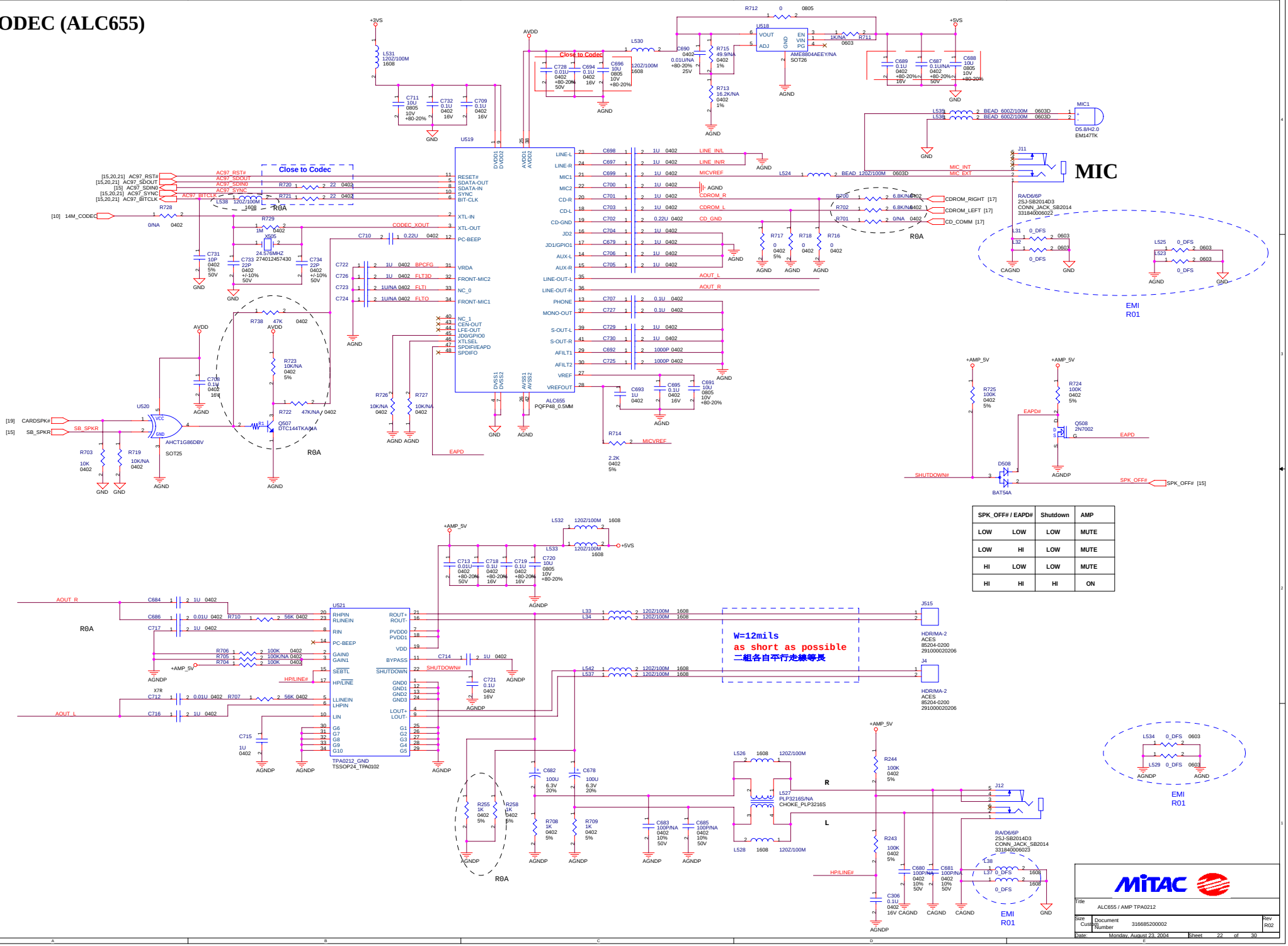
MINI-PCI (Wireless)



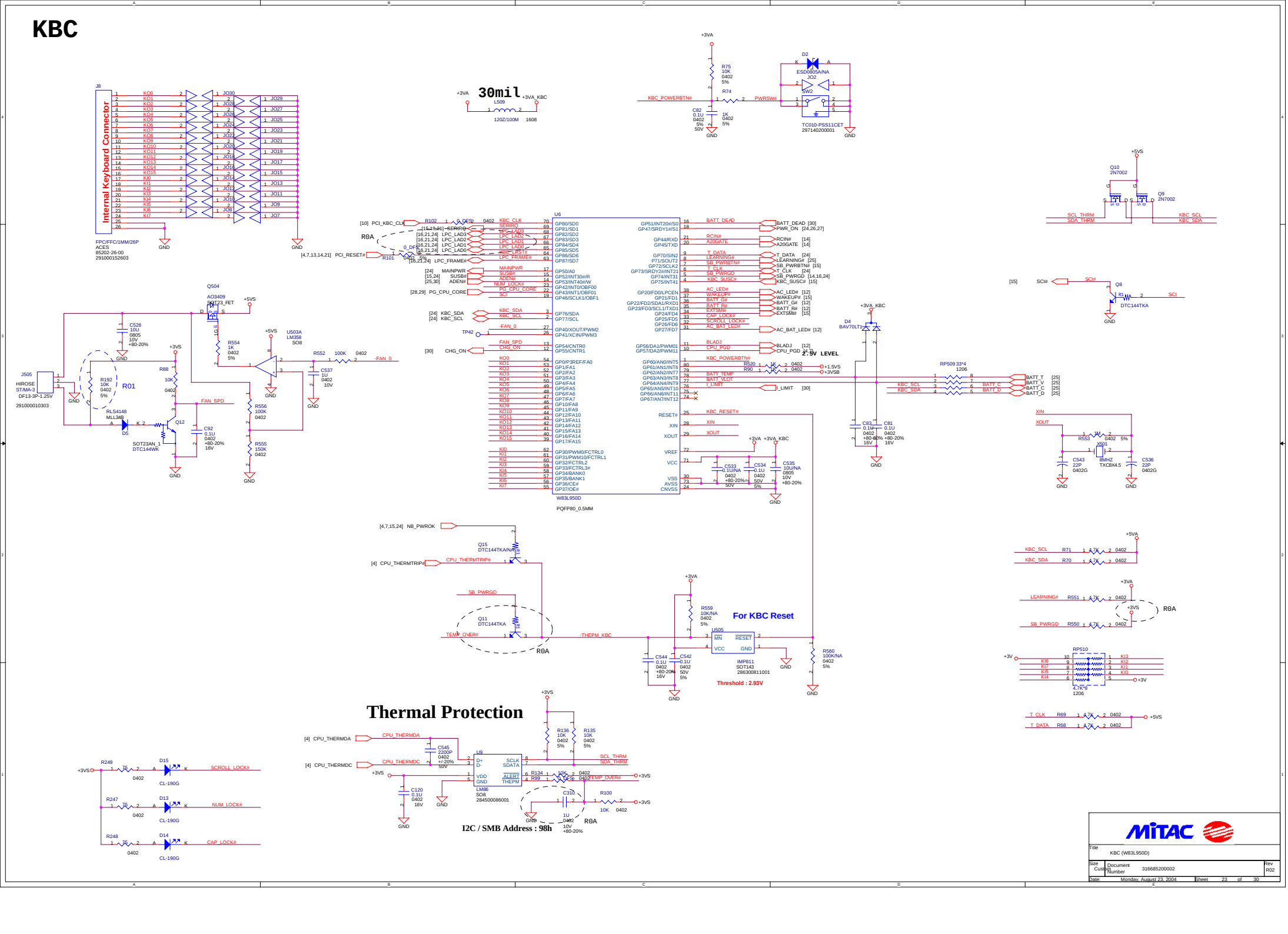
Title	MINI PCI (Wireless)		
Size: Custom	Document Number: 316685200002		Rev: R02
Date: Monday, August 23, 2004	Sheet 21 of 30		

hexainf@hotmail.com

Audio CODEC (ALC655)



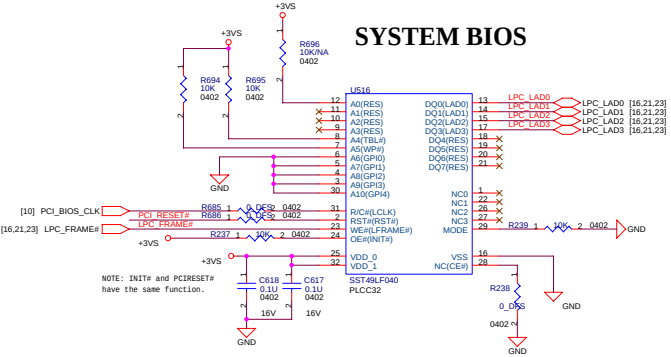
KBC



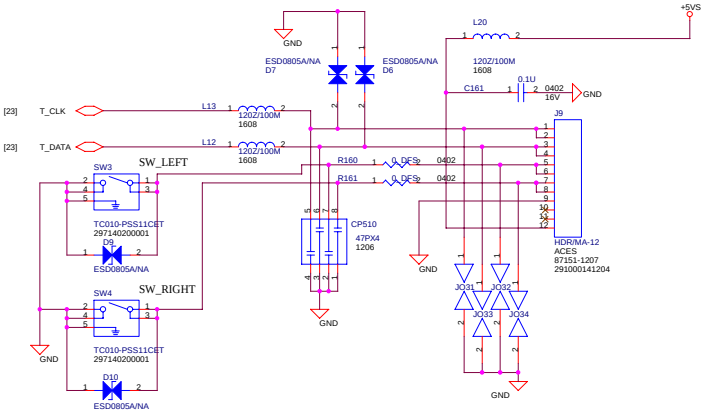
hexainf@hotmail.com

BIOS / TouchPad / Through Hole

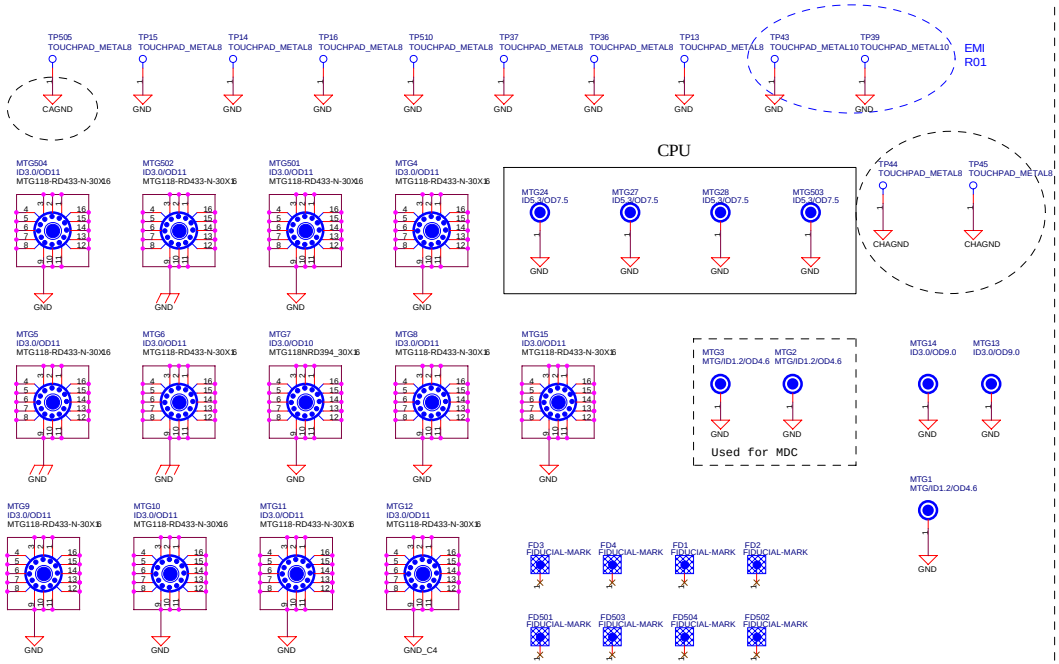
SYSTEM BIOS



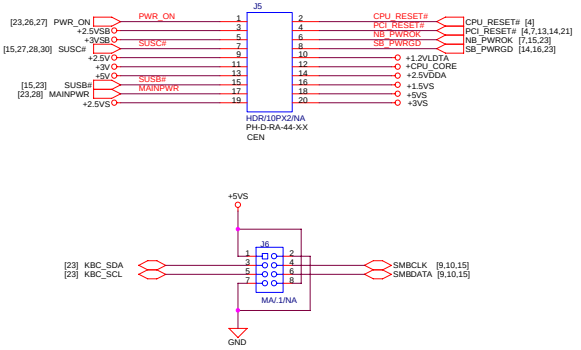
TOUCH PAD



CPU

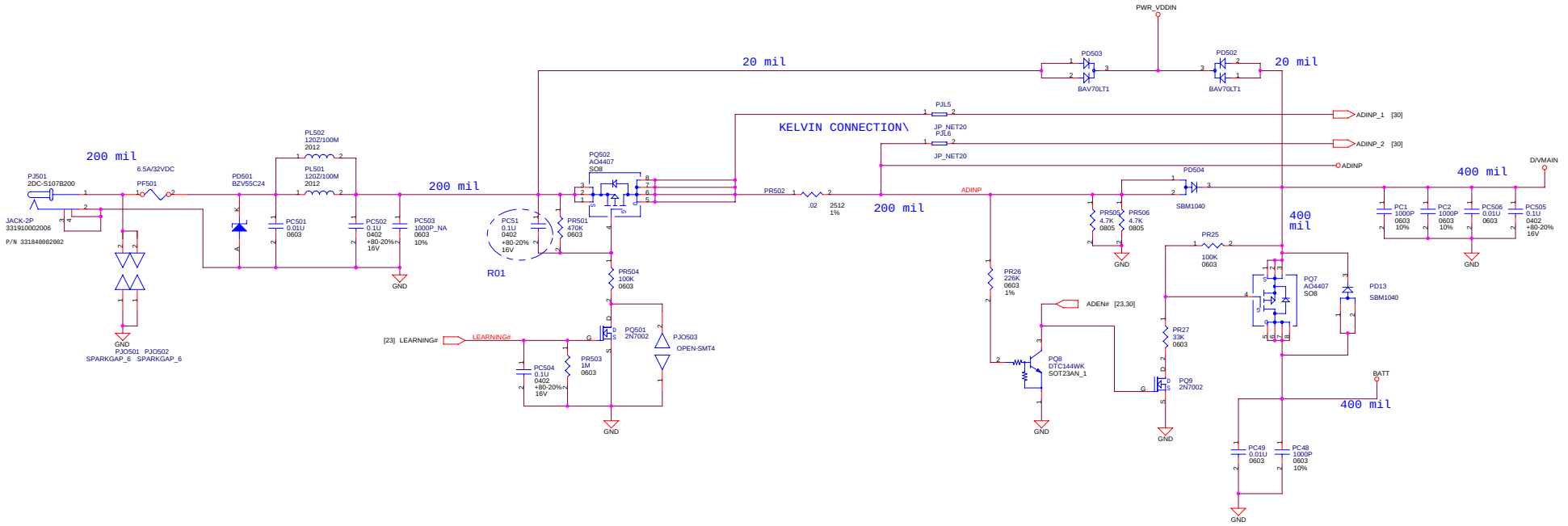


For debug only (6 mil)



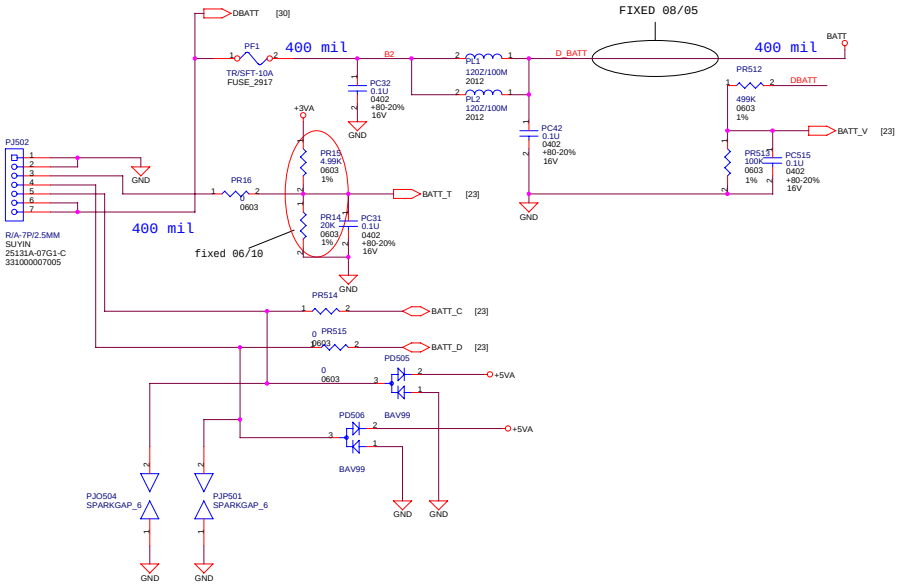
Title	BIOS / TP / HOLE		
Size	Document Number	316685200002	Rev R02
Date:	Monday, August 23, 2004	Sheet 24 of 30	

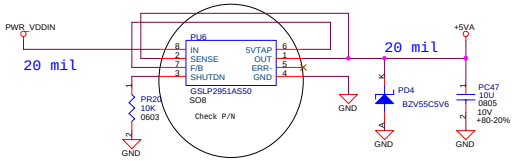
ADP IN / BATT IN / +5VA / +5VAS

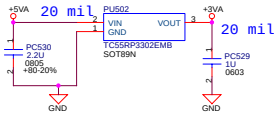


+5VA

RTC BATTERY



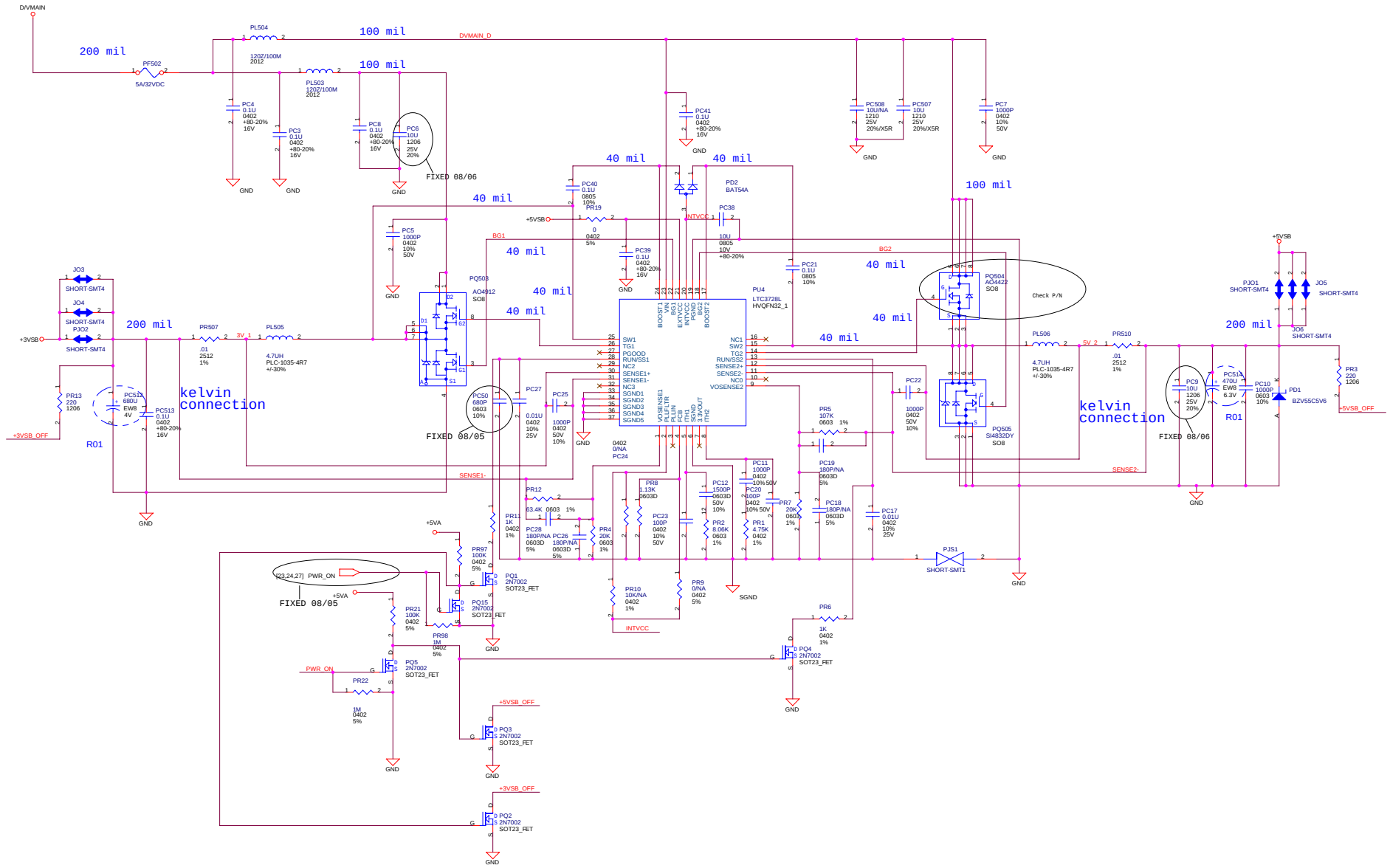




hexainf@hotmail.com

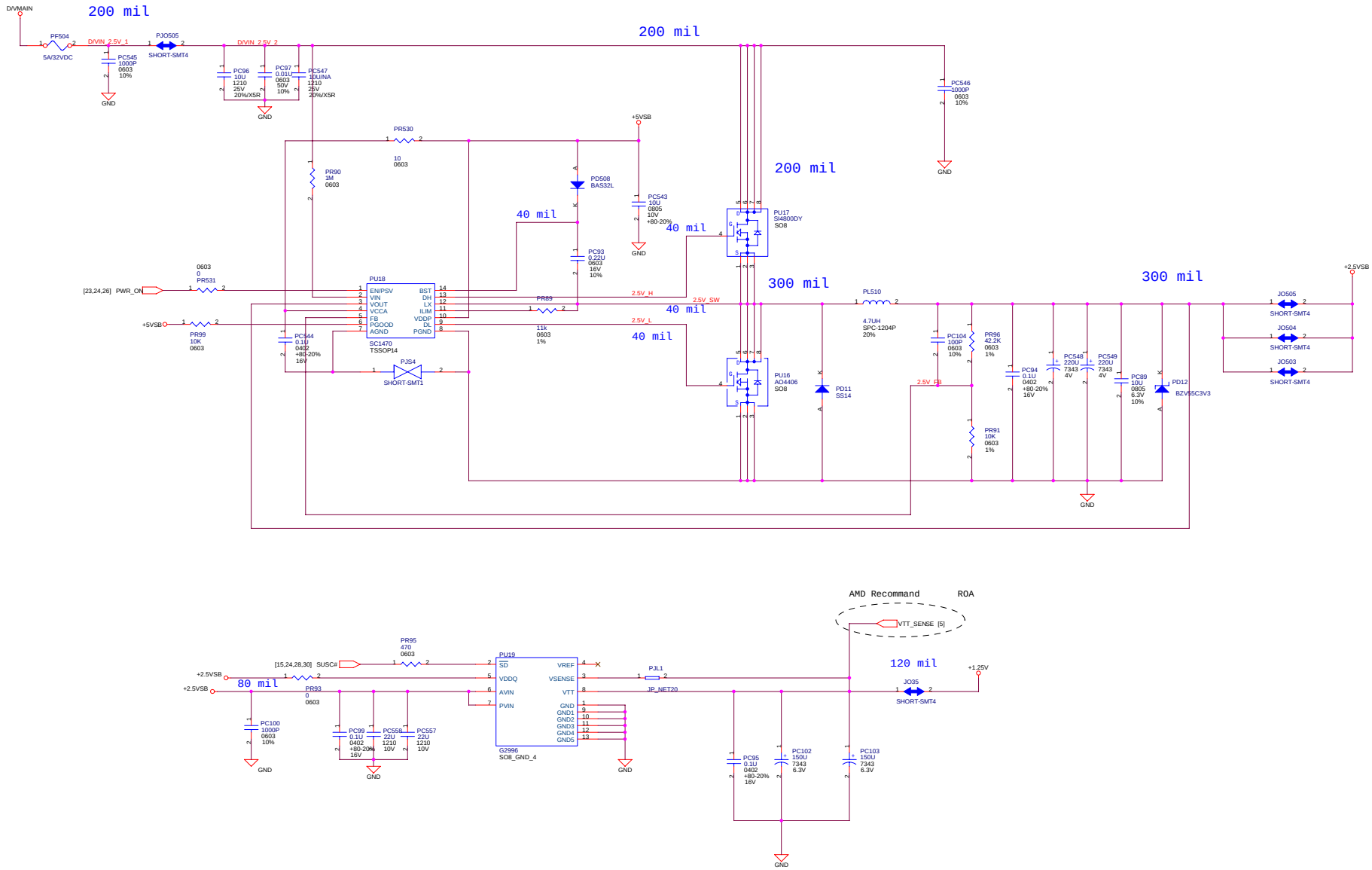
MiTAC

Title	ADP IN & BATT IN
Size: Custom	Document Number: 316684700001 Rev: R02
Date: Monday, August 23, 2004	Sheet 25 of 30



MiTAC

Title	+5V,+3V	
Size: Custom	Document Number: 316684700001	Rev: R02
Date: Monday, August 23, 2004	Sheet 26 of 30	

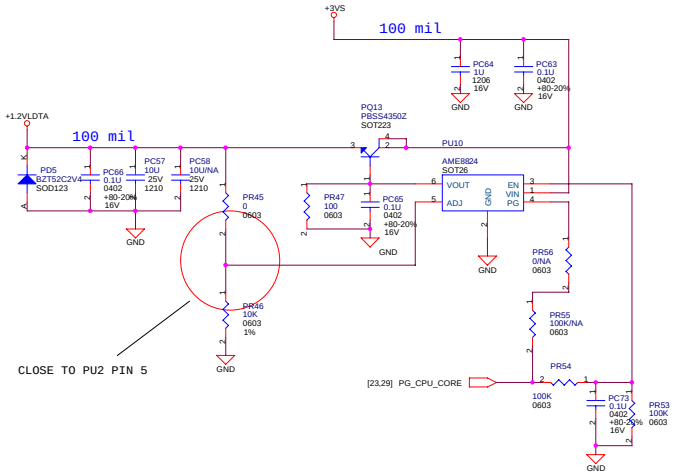


MiTAC

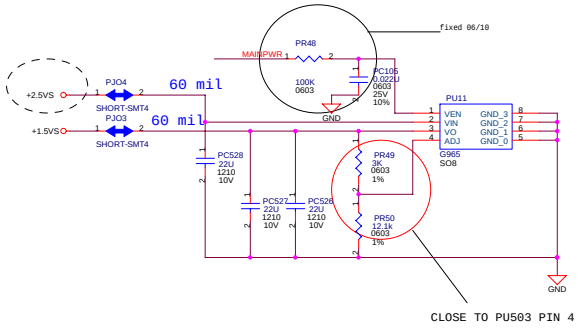
Title	+2.5V,+1.25VS	
Size: Custom	Document Number: 316684700001	Rev: R02
Date: Monday, August 23, 2004	Sheet 27 of 30	

hexainf@hotmail.com

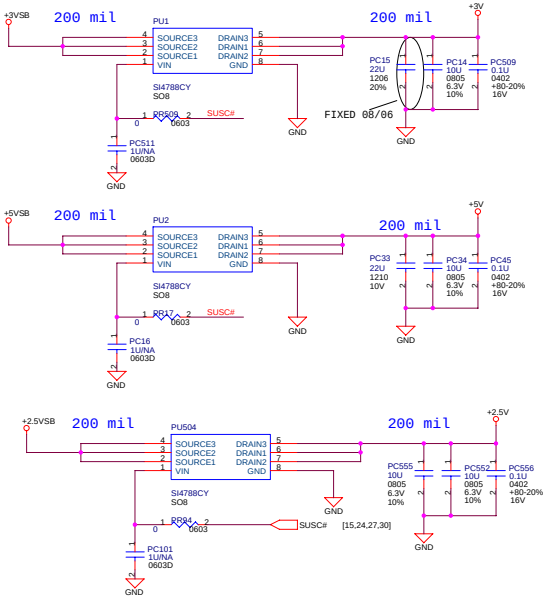
+1.2VLDTA



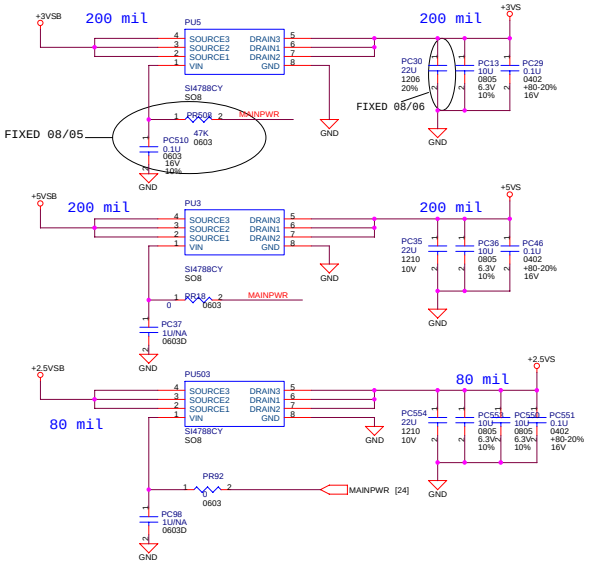
+1.5VS



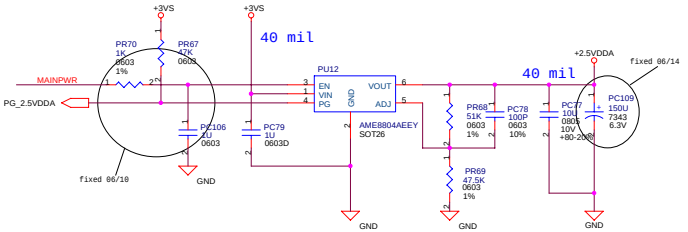
3V / 2.5V



3VS / 5VS / 2.5VS



2.5VDDA



MiTAC

Title: +5VS,+3VS,+2.5VS,+1.5VS,+2.5VDDA,+1.2VLDTA

Size: Custom | Document Number: 316684700001 | Rev: R02

Date: Monday, August 23, 2004 | Sheet 28 of 30

For low power CPU , voltage offset -100mV-----a
Transient : +100mV to -50mV; Offset will be +50mV------b
a,b--->Total offset will be -50mV(Without pin 5 OFS offset)

Ros = RFB*(5V-VID)/Vos
PR61= PR76*(5V-VID)/50mV
If VID 1.35V
PR61=3.6K*(5V-1.35V)/100mV=131.4K

GPIO	+CPU_CORE
1	1.35V
0	1.25V

Vdroop=Idroop*PR17 ~ Isen*PR17 ~ 72.6mV
If PR59 NA, Vdroop=0

ROFS = VOFS*10/100uA
PR62=32.4mV*10/100uA = 3.24K
PR79 : 107K Ohms -----> f ~ 250K HZ

Over current trip level : 90uA(typ.)
Full load Isen current : 90uA/1.5 ~ 60uA
Rds(on) * Io = Rsen * Isen
6.5m*1.5*15A*1.5 = Rsen*60uA
Rsen = 3.65K
OCP :15A*1.5*2 = 45A

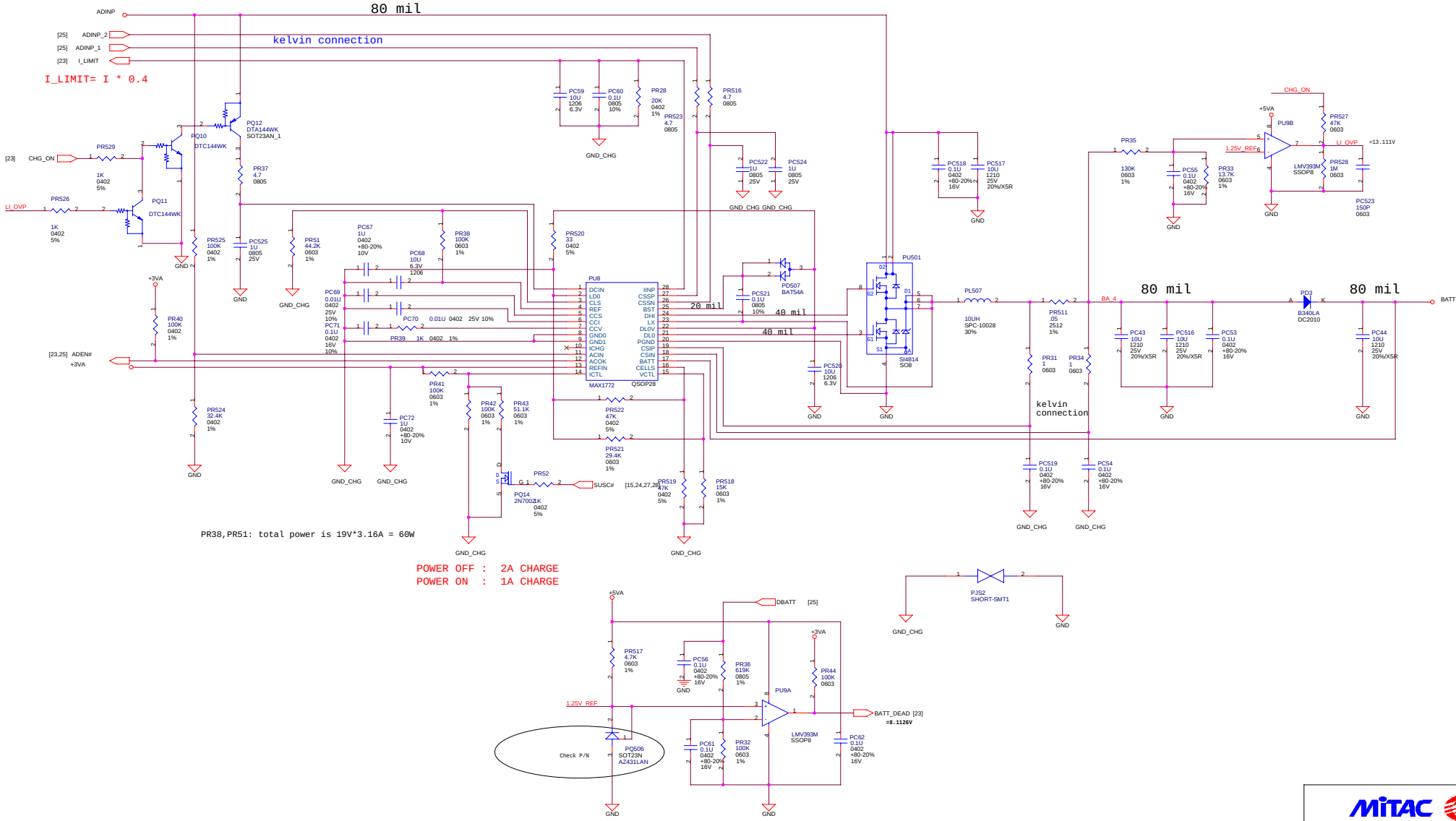
AMD spec.:
Output Cap.4800uF
Actually output cap.:4690uF

CLOSE TO IC
FIXED 08/05
for ISL6244 fixed 06/21
for leakage fixed 06/21
Vdroop fixed 06/09
Voffset fixed 06/21
CPU Back Side
平行走線

hexainf@hotmail.com

Title	+CPU_CORE
Size / Custom	Document Number 316684700001
Rev	R02
Date:	Monday, August 23, 2004
Sheet	29 of 30

CHARGING



Title	Charger		
Size: Custom	Document Number: 316684700001		Rev: R02
Date: Monday, August 23, 2004	Sheet 30 of 30		