ETX–Processor Board AMD

SC1100

SEITE	INHALT
1	Cover
2	AMD SC1100 – PCI – ISA
3	AMD SC1100 – Memory interface
4	AMD SC1100 – Power
5	AMD SC1100 – Video
6	SO–DIMM
7	IDE
8	Ethernet
9	BootROM – Audio – USB
10	LPC–ISA Bridge
11	LPC–SIO
12	Power
13	ETX Connector
14	LPC/Sub–ISA Connector
15	Revision History

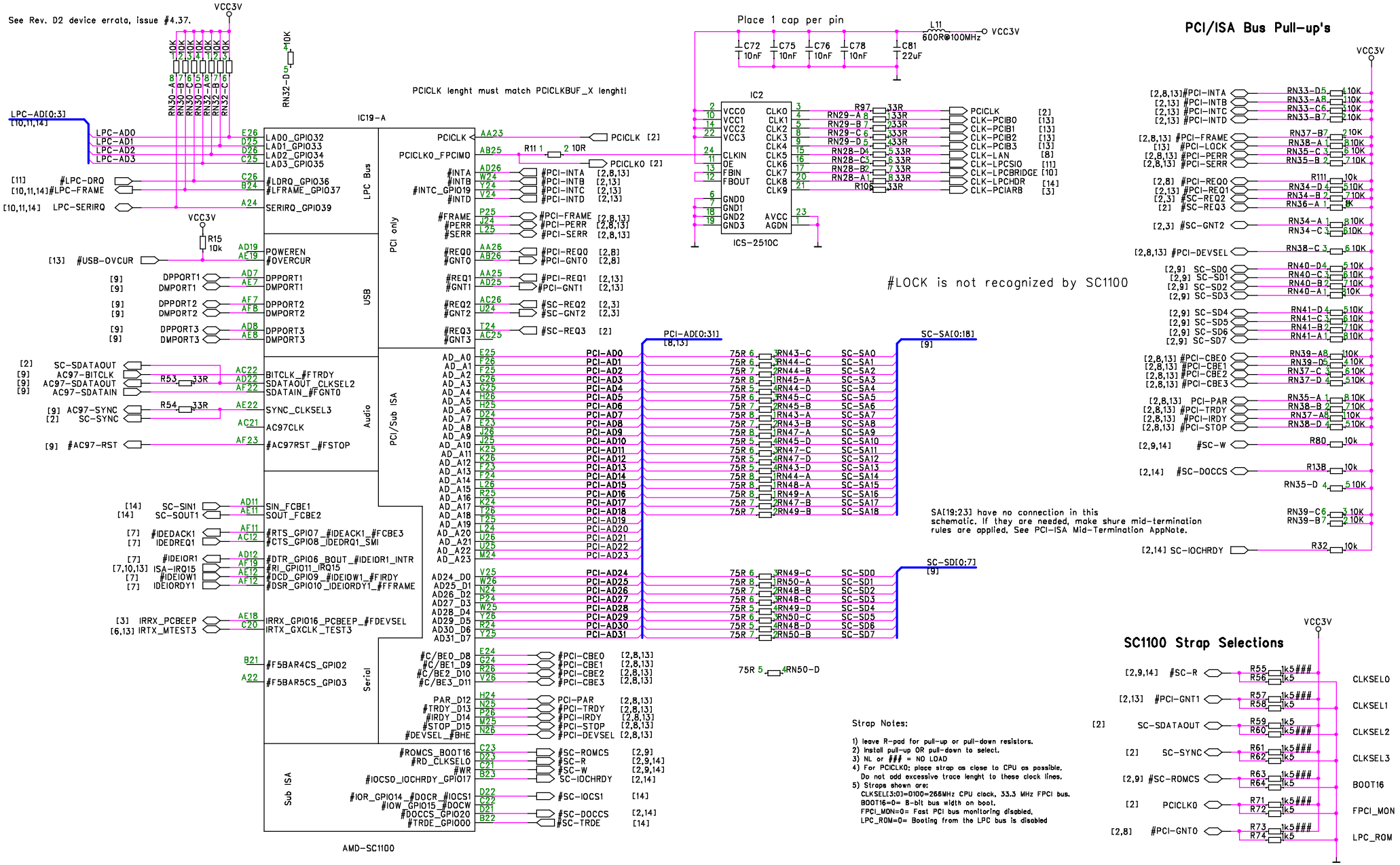
Groups:
not populated

M1

ESA1 Leiterkarte L2/B2

REVISION HISTORY			
REV	DATE	NAME	
01	26.05.2004	R. Lindner	Prototype L1/B1
02	21.03.2005	R. Lindner	Prototype L2/B2

Stromlaufplan	Datum: 21.03.2005	Size: A3
kontron ... always a Jump ahead!	Titel: ESA1	PCB: L2/B2
	Nr.: 3801.00	Rev:02
Kontron CSS GmbH	Datei: ESA1_XX02_SCH.SCH	Blatt: 01/15



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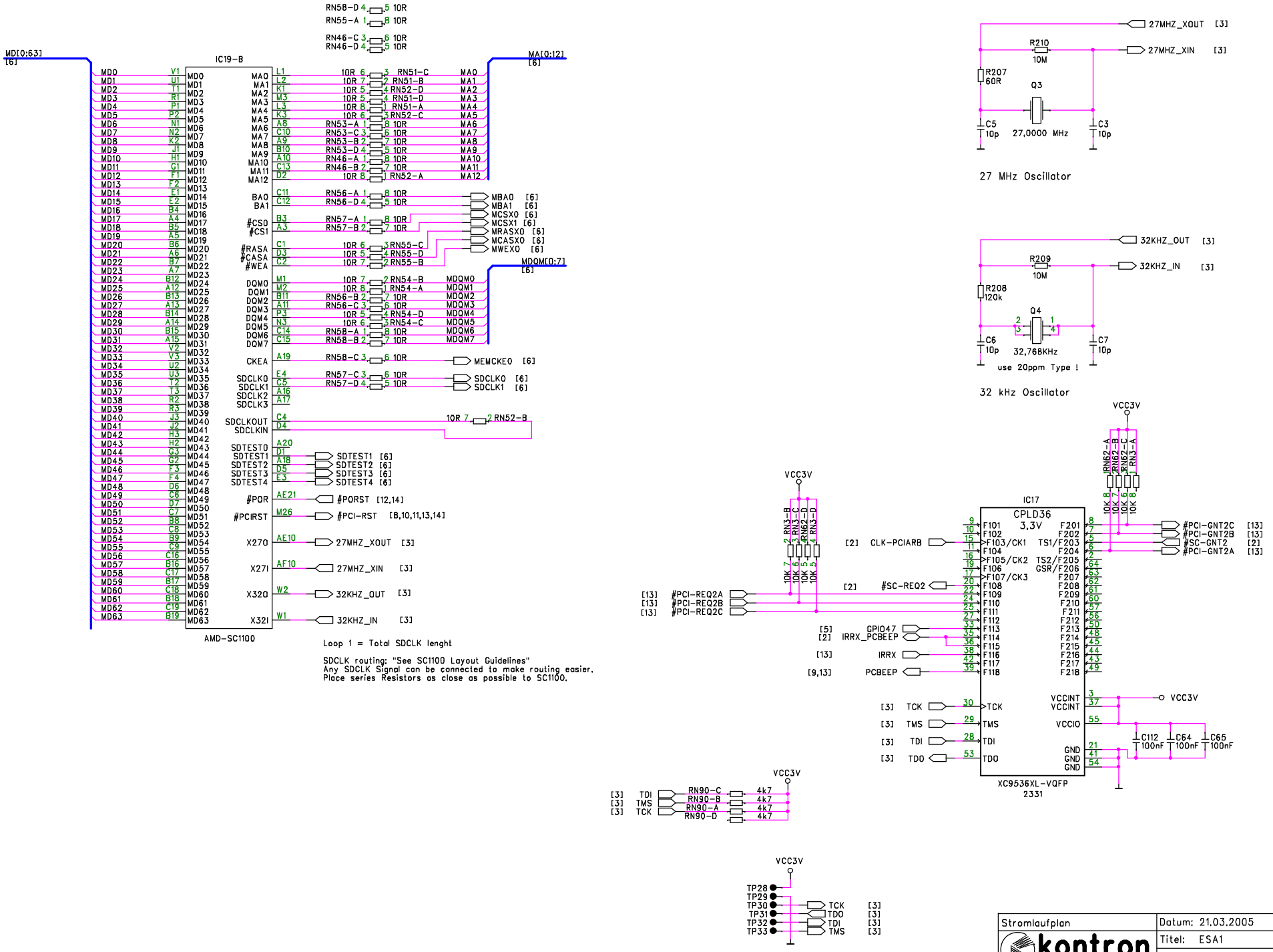
	Nr.: 3801.00	Rev:02	
Kontron CSS GmbH	Datei: ESA1_XX02_SCH.SCH	Blatt: 02/15	



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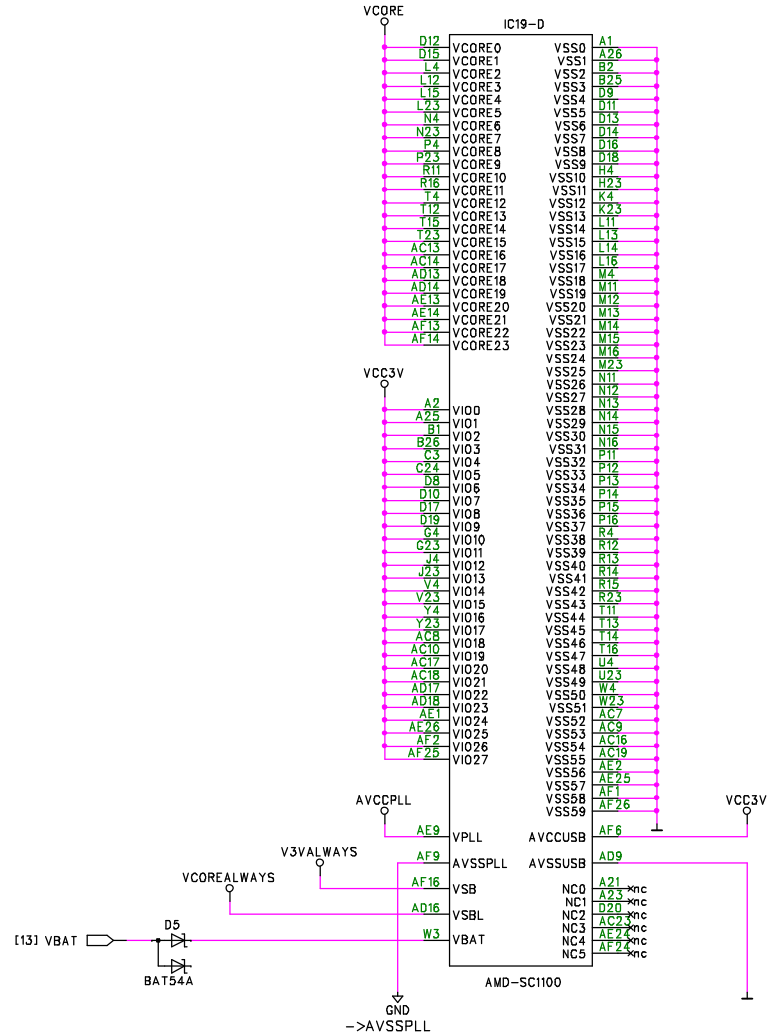
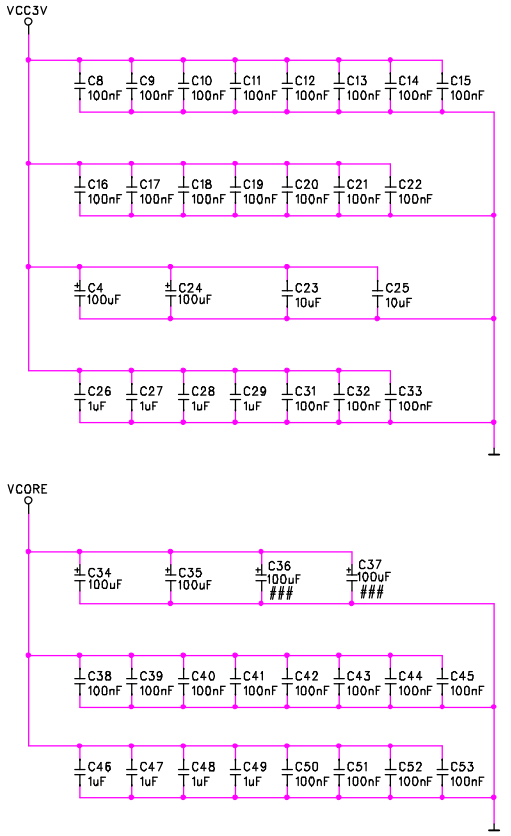
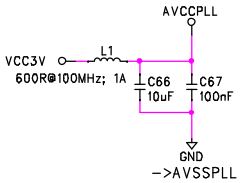
kontron ... always a Jump ahead!	Titel: ESA1	PCB: L2/B2	
	Nr.: 3801.00	Rev:02	
Kontron CSS GmbH	Datei: ESA1_XX02_SCH.SCH	Blatt: 03/15	





These filtered analog supplies should be laid out using seperate power planes.
See Layout Gidelines for details.



Attention!
Use seperate power planes for every of the following GND-Connections marked as:

->AVSSPLL (only on this page)

make Ground Cut with a single connection to GND-Plane

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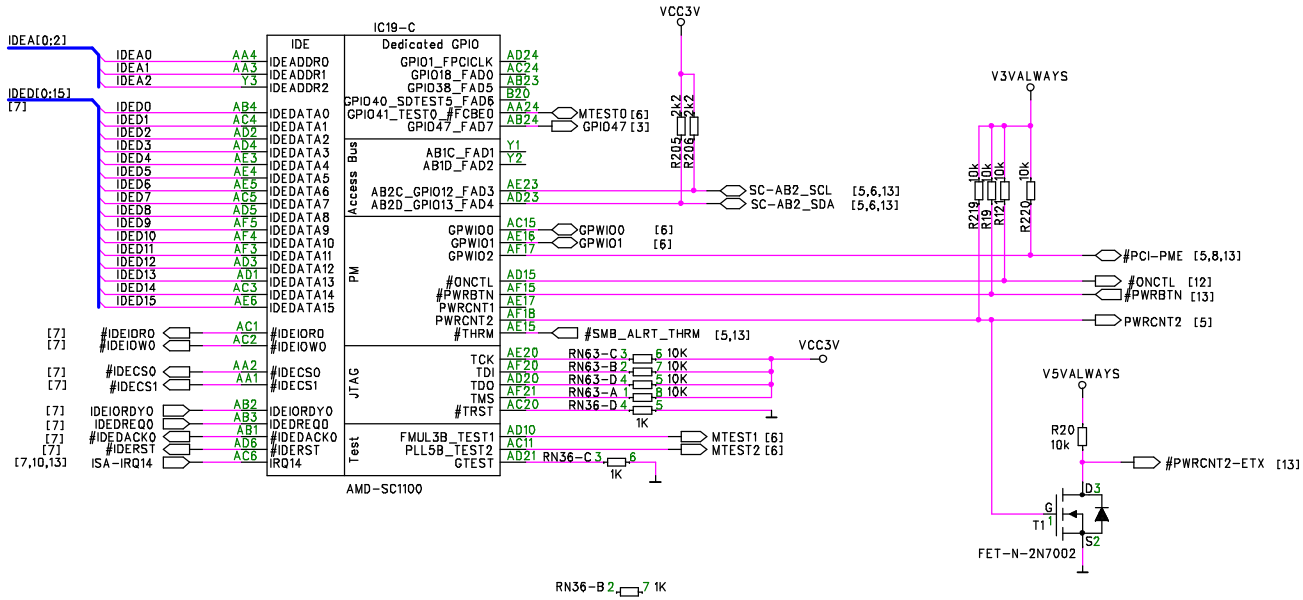
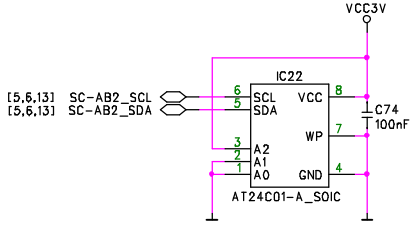
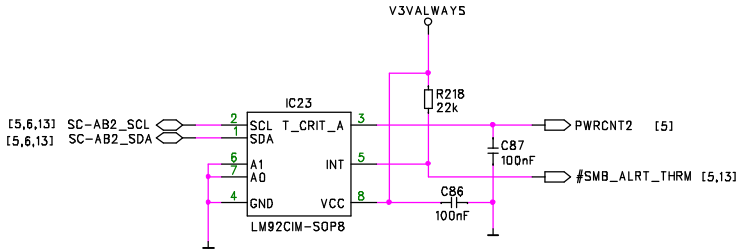
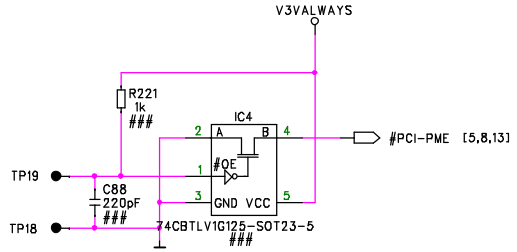






Place LM92 as close as possible to a corner of the SC1100
Create a copper shape or make shure the LM92 and SC1100 have a
continous ground plane to allow thermal coupling.
This will ensure consistent and useful temperature readings for the SC1100

T_CRIT_A of the LM92 is open collector and it goes low if T_CRIT_A erglster is exceeded.
#DNCTRL from the SC1100 is open drain, goes low to shut off power.
Connecting these two tagether with a pull-up creates a wired or circuit. If either goes low
the ATX Power Supply PS_ON will be low and shut off the system.



Dowser

Stromlaufplan	Datum: 21.03.2005	Size: A3
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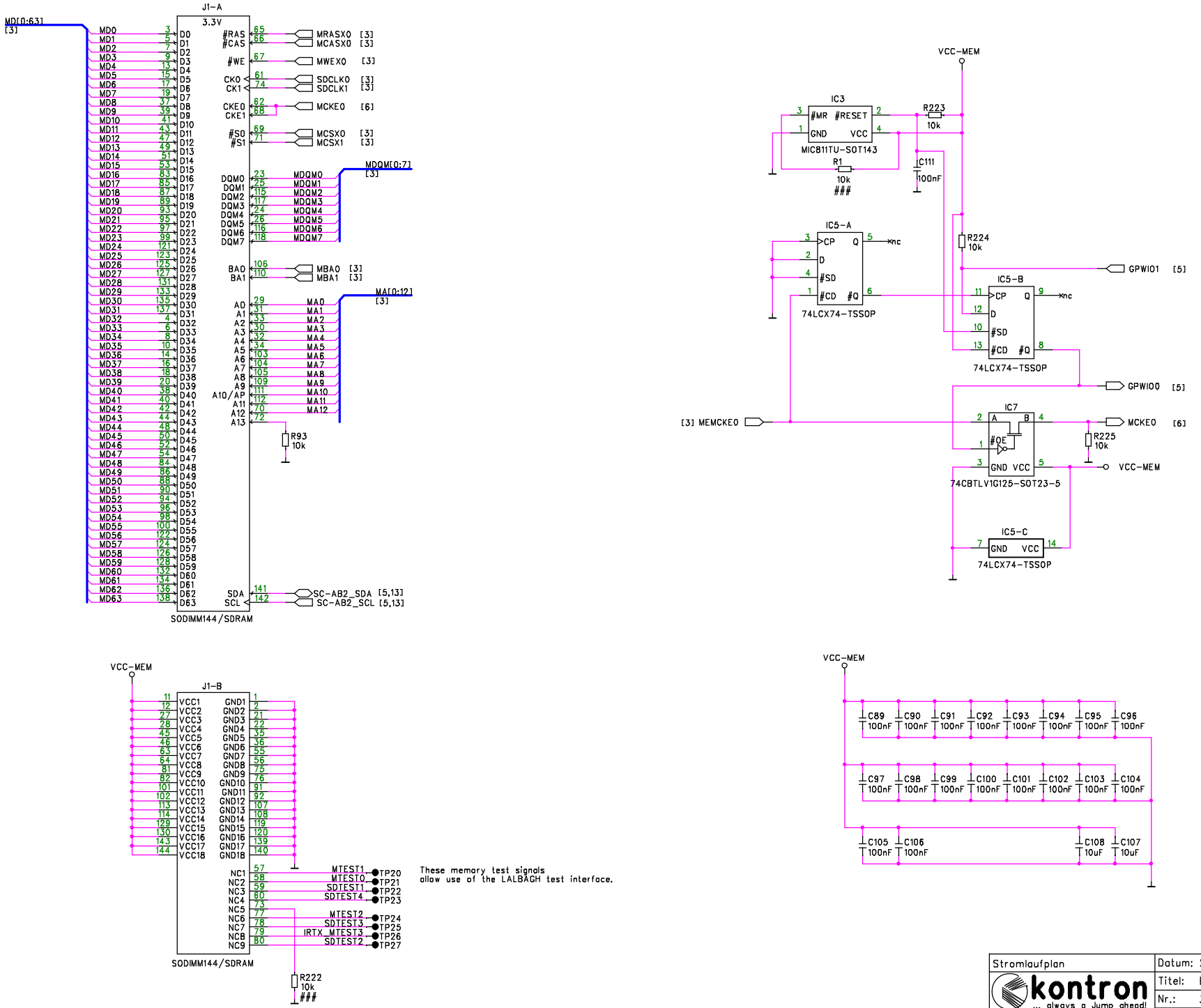
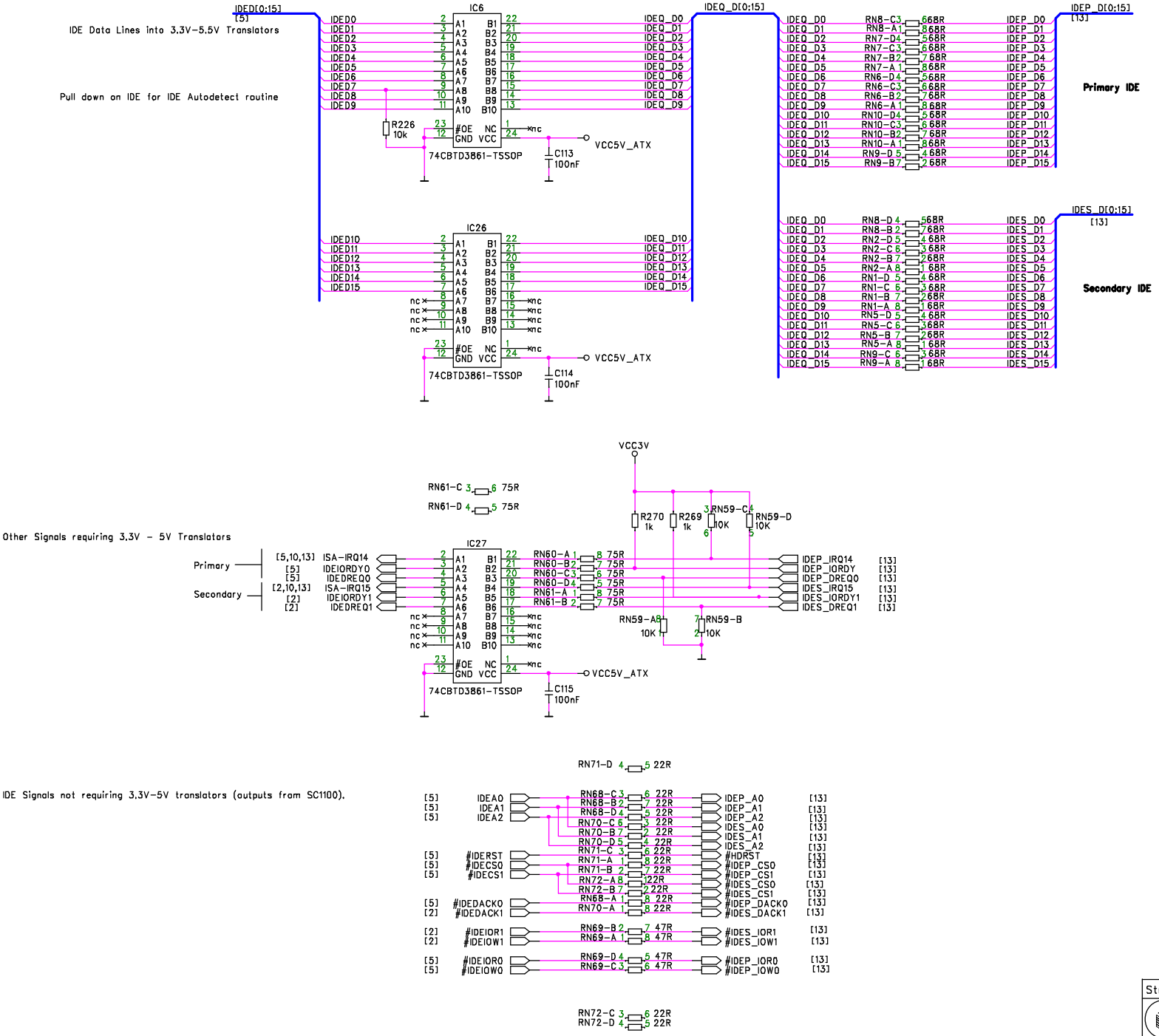
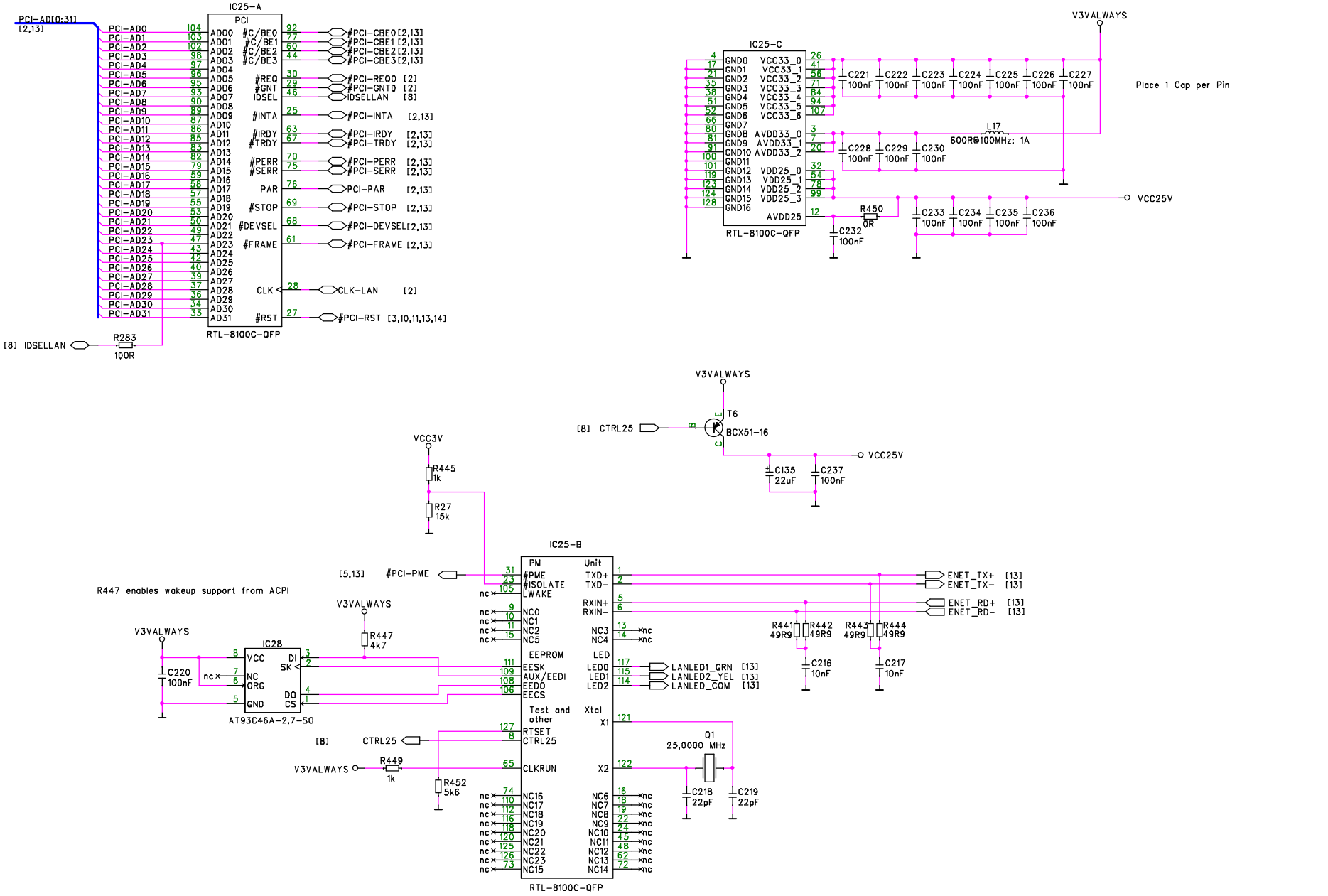
	Nr.: 3801.00	Rev:02
Kontron CSS GmbH	Datei: ESA1_XX02_SCH.SCH	Blatt: 05/15



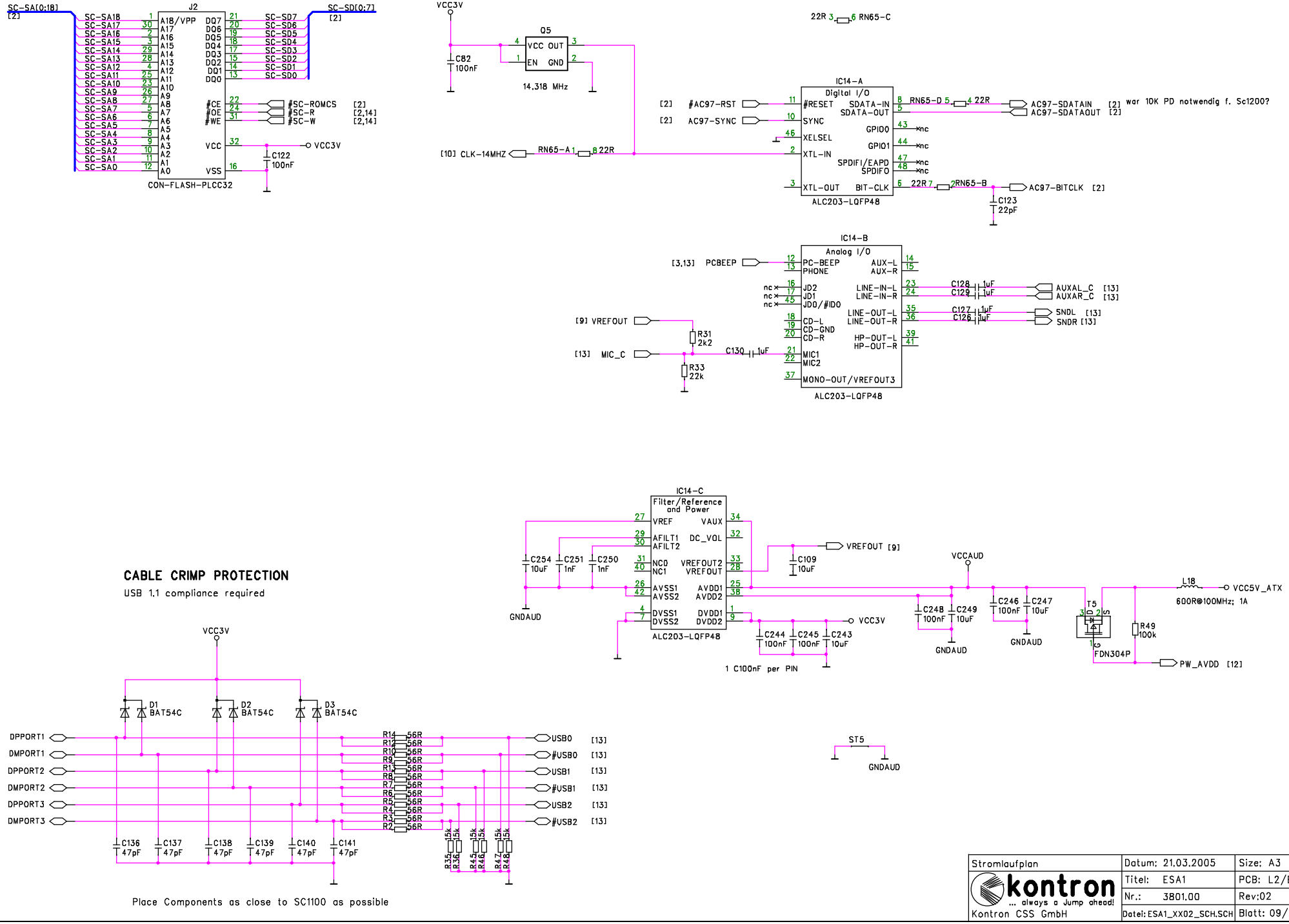
Stromlaufplan	Datum: 21.03.2005	Size: A3	
kontron ... always a Jump ahead!	Titel: ESA1	PCB: L2/B2	
	Nr.: 3801.00	Rev:02	
Kontron CSS GmbH	Datei: ESA1_XX02_SCH.SCH	Blatt: 06/15	



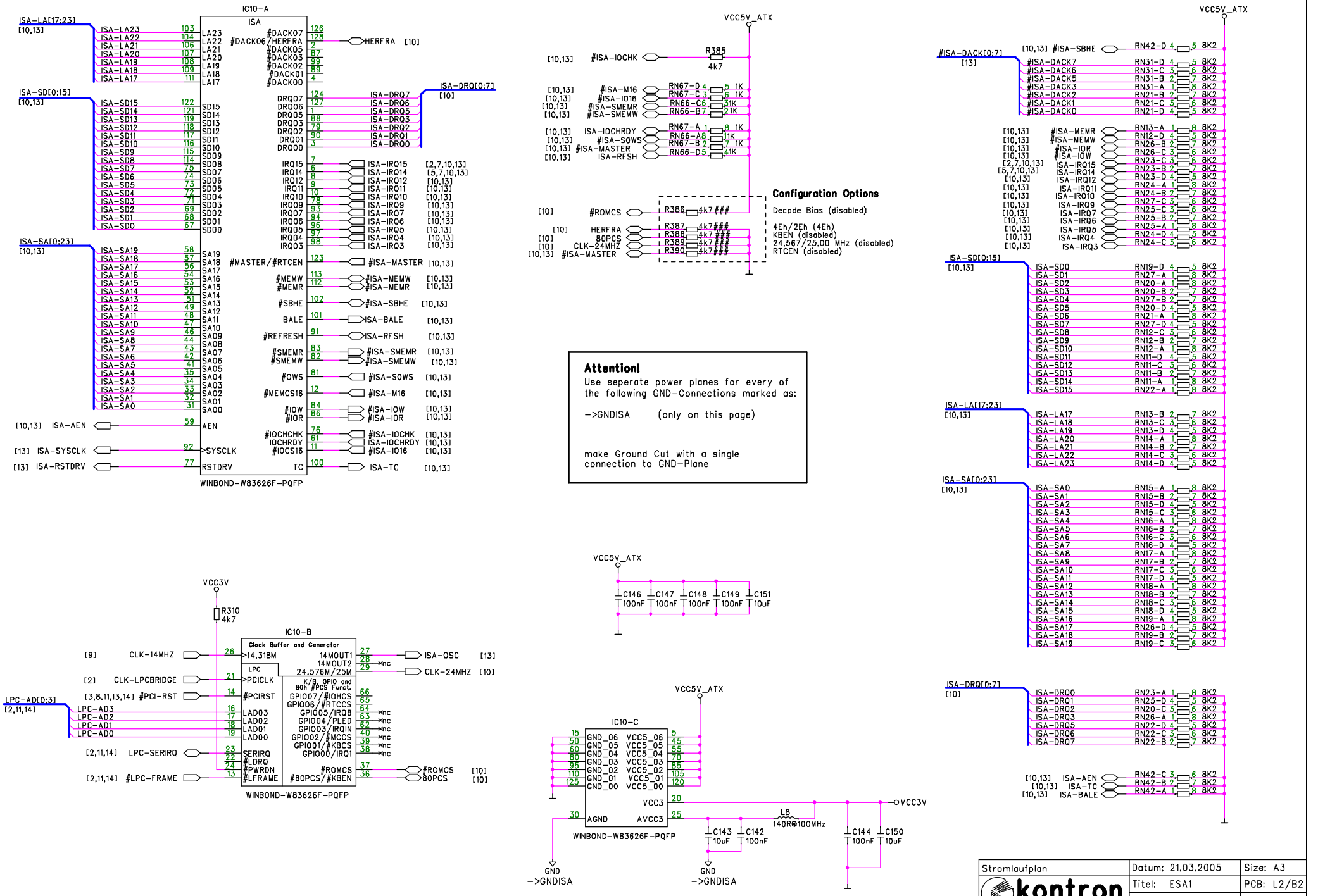
Stromlaufplan	Datum: 21.03.2005	Size: A3
kontron ... always a Jump ahead!	Titel: ESA1	PCB: L2/B2
	Nr.: 3801.00	Rev:02
Kontron CSS GmbH	Datei: ESA1_XX02_SCH.SCH	Blatt: 07/15

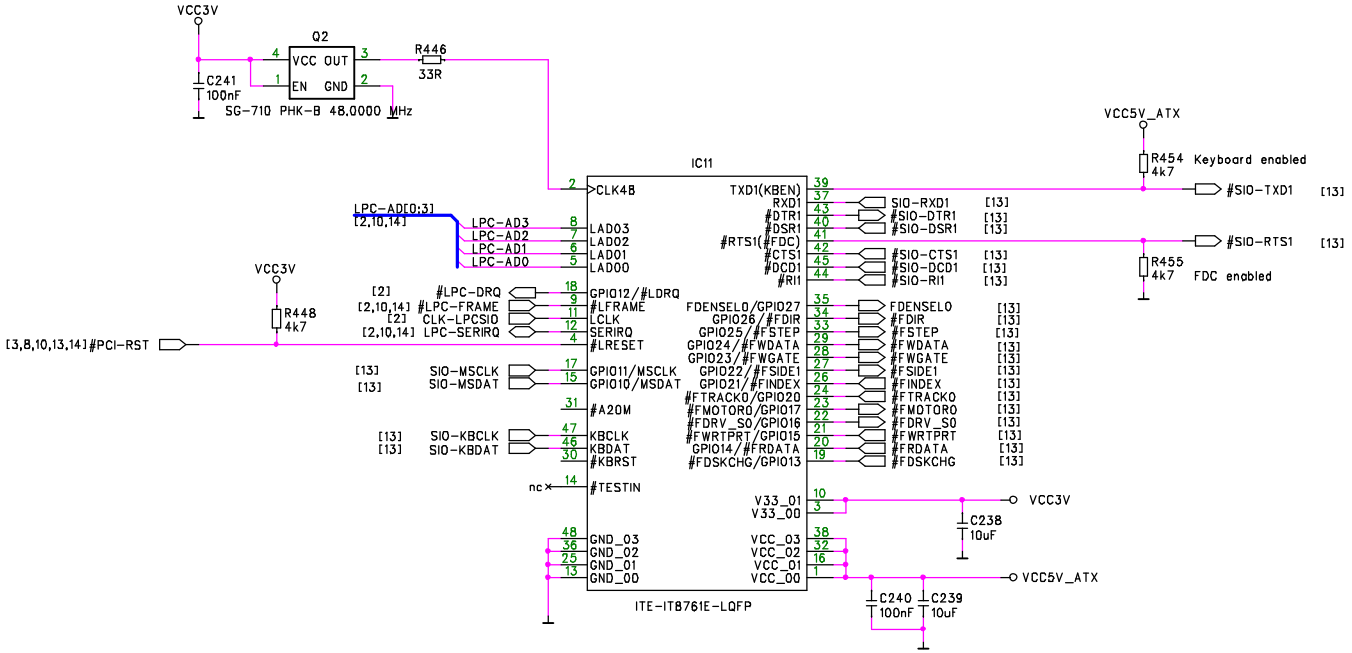


Stromlaufplan	Datum: 21.03.2005	Size: A3	
kontron ... always a Jump ahead!	Titel: ESA1	PCB: L2/B2	
	Nr.: 3801.00	Rev:02	
Kontron CSS GmbH	Datei: ESA1_XX02_SCH.SCH	Blatt: 08/15	



Stromlaufplan	Datum: 21.03.2005	Size: A3
kontron ... always a Jump ahead!	Titel: ESA1	PCB: L2/B2
	Nr.: 3801.00	Rev:02
Kontron CSS GmbH	Datei: ESA1_XX02_SCH.SCH	Blatt: 09/15


IC10-A
ISA
WINBOND-W83626F-PQFP
IC10-B
Clock Buffer and Generator
WINBOND-W83626F-PQFP
IC10-C
WINBOND-W83626F-PQFP
VCC5V_ATX
VCC3V
Configuration Options
Decode Bios (disabled)
4Eh/2Eh (4Eh)
KBEN (disabled)
24.567/25.00 MHz (disabled)
RTCEN (disabled)
Attention!
Use seperate power planes for every of the following GND-Connections marked as:
->GNDISA (only on this page)
make Ground Cut with a single connection to GND-Plane
Stromlaufplan
Datum: 21.03.2005
Size: A3
Titel: ESA1
PCB: L2/B2
Nr.: 3801.00
Rev:02
Datei: ESA1_XX02_SCH.SCH
Blatt: 10/15
Kontron CSS GmbH
... always a Jump ahead!



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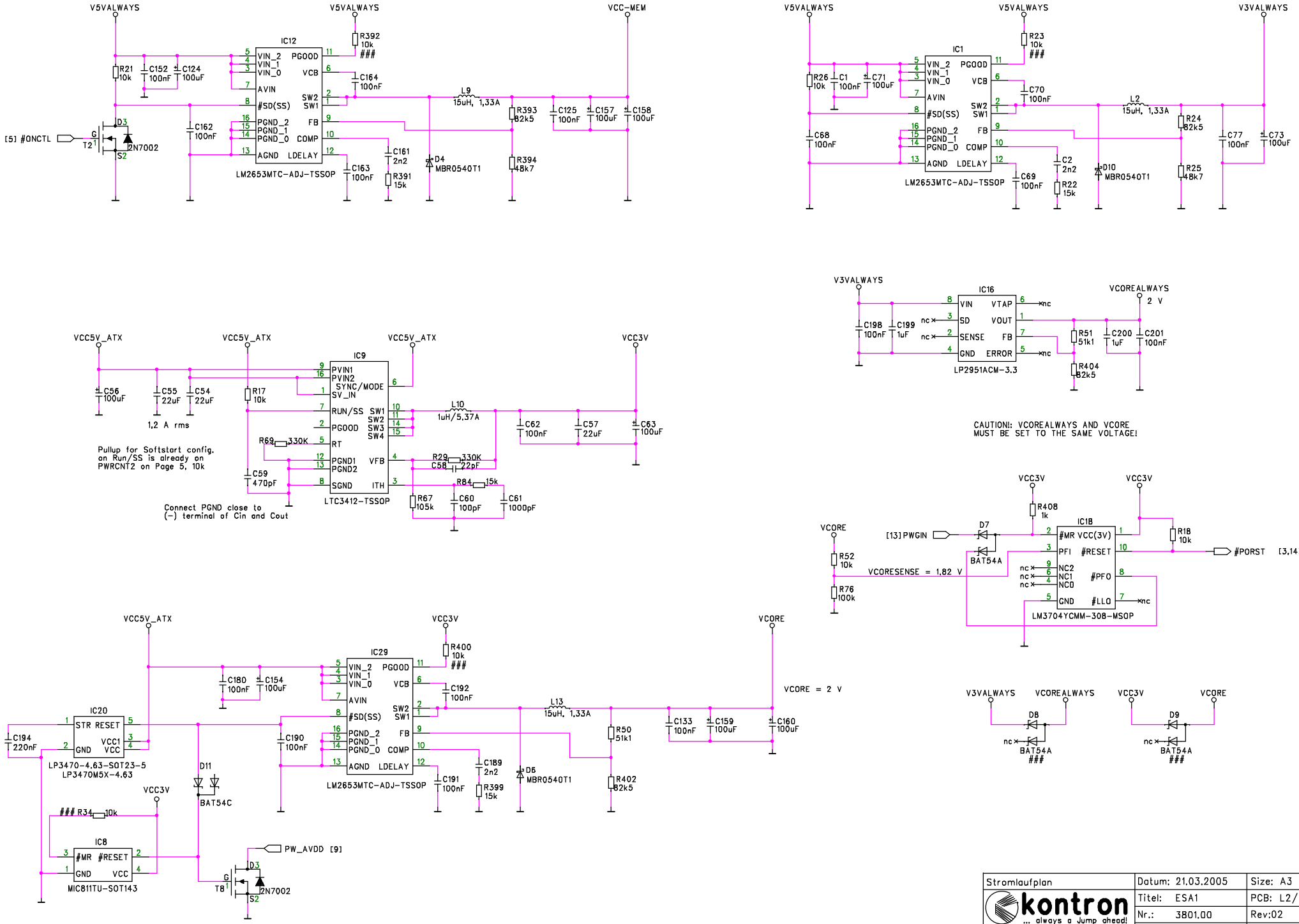
kontron ... always a Jump ahead!	Titel: ESA1	PCB: L2/B2
	Nr.: 3801.00	Rev:02
Kontron CSS GmbH	Datei: ESA1_XX02_SCH.SCH	Blatt: 11/15


V5VALWAYS
V5VALWAYS
VCC-MEM
IC12
R392 10k ###
R21 10k
C152 100nF
C124 100uF
C164 100nF
L9 15uH, 1,33A
R393 82k5
C125 100nF
C157 100uF
C158 100uF
[5] #QNCTL
T2
D3
2N7002
S2
C162 100nF
C161 2n2
D4 MBR0540T1
R394 48k7
C163 100nF
R391 15k
VIN_2
VIN_1
VIN_0
AVIN
#SD(SS)
PGND_2
PGND_1
PGND_0
AGND
PGOOD
VCB
SW2
SW1
FB
COMP
LDELAY
LM2653MTC-ADJ-TSSOP
V5VALWAYS
V5VALWAYS
V3VALWAYS
IC1
R23 10k ###
R26 10k
C1 100nF
C71 100uF
C70 100nF
L2 15uH, 1,33A
R24 82k5
C77 100nF
C73 100uF
C68 100nF
C2 2n2
D10 MBR0540T1
R22 15k
R25 48k7
C69 100nF
LM2653MTC-ADJ-TSSOP
V3VALWAYS
IC16
VCOREALWAYS
2 V
C198 100nF
C199 1uF
nc
nc
VIN
SD
SENSE
GND
VTAP
VOUT
FB
ERROR
nc
nc
R51 51k1
C200 1uF
C201 100nF
R404 82k5
LP2951ACM-3.3
CAUTION!: VCOREALWAYS AND VCORE
MUST BE SET TO THE SAME VOLTAGE!
VCC5V_ATX
VCC5V_ATX
VCC5V_ATX
VCC3V
IC9
C56 100uF
C55 22uF
C54 22uF
1,2 A rms
R17 10k
Pullup for Softstart config.
on Run/SS is already on
PWRCNT2 on Page 5, 10k
R69 330K
C59 470pF
Connect PGND close to
(-) terminal of Cin and Cout
PVIN1
PVIN2
SYNC/MODE
SV_IN
RUN/SS
PGOOD
RT
PGND1
PGND2
SGND
SW1
SW2
SW3
SW4
VFB
ITH
L10 1uH/5,37A
C62 100nF
C57 22uF
C63 100uF
R29 330K
C58 22pF
R84 15k
R67 105k
C60 100pF
C61 1000pF
LTC3412-TSSOP
VCC3V
VCC3V
IC18
R408 1k
VCORE
R52 10k
R76 100k
[13]PWGIN
D7
BAT54A
VCORESENSE = 1,82 V
#MR
PFI
NC2
NC1
NC0
GND
VCC(3V)
#RESET
#PFO
#LLO
R18 10k
#PORST [3,14]
LM3704YCMM-308-MSOP
VCC5V_ATX
VCC3V
VCORE
IC29
R400 10k ###
C180 100nF
C154 100uF
C192 100nF
L13 15uH, 1,33A
VCORE = 2 V
R50 51k1
C133 100nF
C159 100uF
C160 100uF
IC20
C194 220nF
STR
RESET
GND
VCC1
VCC
LP3470-4.63-SOT23-5
LP3470M5X-4.63
C190 100nF
D11
BAT54C
R402 82k5
C191 100nF
C189 2n2
R399 15k
D6 MBR0540T1
VCC3V
R34 10k
IC8
#MR
#RESET
GND
VCC
MIC811TU-SOT143
PW_AVDD [9]
T8
D3
2N7002
S2
V3VALWAYS
VCOREALWAYS
D8
nc
BAT54A
###
VCC3V
VCORE
D9
nc
BAT54A
###
Stromlaufplan
Datum: 21.03.2005
Size: A3
kontron
... always a Jump ahead!
Titel: ESA1
PCB: L2/B2
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Rev:02
Kontron CSS GmbH
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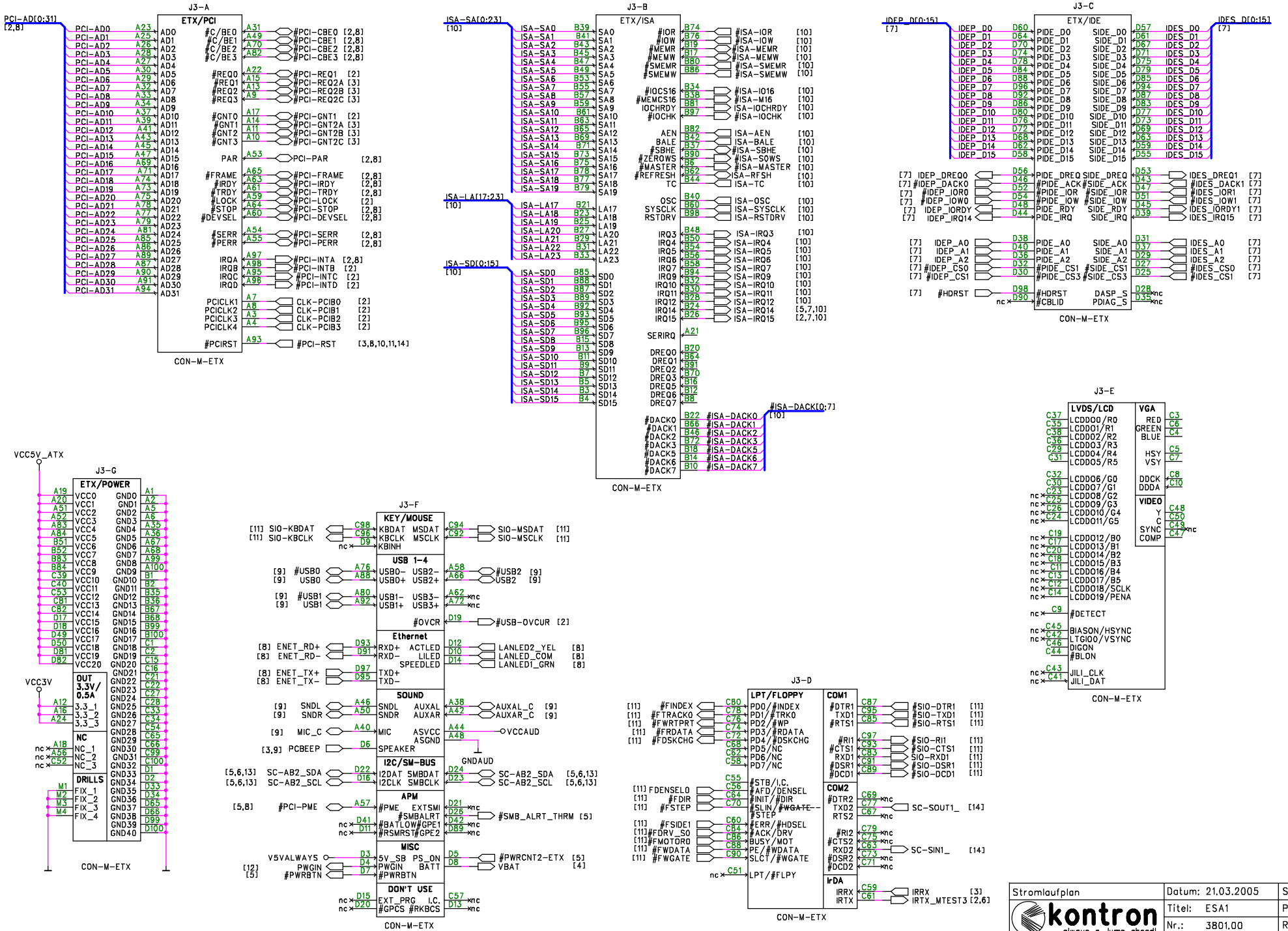
Blatt: 12/15


J3-A
ETX/PCI
PCI-AD[0:31]
[2,8]
PCI-AD0 PCI-AD1 PCI-AD2 PCI-AD3 PCI-AD4 PCI-AD5 PCI-AD6 PCI-AD7 PCI-AD8 PCI-AD9 PCI-AD10 PCI-AD11 PCI-AD12 PCI-AD13 PCI-AD14 PCI-AD15 PCI-AD16 PCI-AD17 PCI-AD18 PCI-AD19 PCI-AD20 PCI-AD21 PCI-AD22 PCI-AD23 PCI-AD24 PCI-AD25 PCI-AD26 PCI-AD27 PCI-AD28 PCI-AD29 PCI-AD30 PCI-AD31
AD0 AD1 AD2 AD3 AD4 AD5 AD6 AD7 AD8 AD9 AD10 AD11 AD12 AD13 AD14 AD15 AD16 AD17 AD18 AD19 AD20 AD21 AD22 AD23 AD24 AD25 AD26 AD27 AD28 AD29 AD30 AD31
#C/BE0 #C/BE1 #C/BE2 #C/BE3
#PCI-CBE0 [2,8] #PCI-CBE1 [2,8] #PCI-CBE2 [2,8] #PCI-CBE3 [2,8]
#REQ0 #REQ1 #REQ2 #REQ3
#PCI-REQ1 [2] #PCI-REQ2A [3] #PCI-REQ2B [3] #PCI-REQ2C [3]
#GNT0 #GNT1 #GNT2 #GNT3
#PCI-GNT1 [2] #PCI-GNT2A [3] #PCI-GNT2B [3] #PCI-GNT2C [3]
PAR
#PCI-PAR [2,8]
#FRAME #IRDY #TRDY #LOCK #STOP #DEVSEL
#PCI-FRAME [2,8] #PCI-IRDY [2,8] #PCI-TRDY [2,8] #PCI-LOCK [2] #PCI-STOP [2,8] #PCI-DEVSEL [2,8]
#SERR #PERR
#PCI-SERR [2,8] #PCI-PERR [2,8]
IRQA IRQB IRQC IRQD
#PCI-INTA [2,8] #PCI-INTB [2] #PCI-INTC [2] #PCI-INTD [2]
PCICLK1 PCICLK2 PCICLK3 PCICLK4
CLK-PCIB0 [2] CLK-PCIB1 [2] CLK-PCIB2 [2] CLK-PCIB3 [2]
#PCIRST
#PCI-RST [3,8,10,11,14]
CON-M-ETX
J3-B
ETX/ISA
ISA-SA[0:23]
[10]
ISA-SA0 ISA-SA1 ISA-SA2 ISA-SA3 ISA-SA4 ISA-SA5 ISA-SA6 ISA-SA7 ISA-SA8 ISA-SA9 ISA-SA10 ISA-SA11 ISA-SA12 ISA-SA13 ISA-SA14 ISA-SA15 ISA-SA16 ISA-SA17 ISA-SA18 ISA-SA19
SA0 SA1 SA2 SA3 SA4 SA5 SA6 SA7 SA8 SA9 SA10 SA11 SA12 SA13 SA14 SA15 SA16 SA17 SA18 SA19
#IOR #IOW #MEMR #MEMW #SMEMR #SMEMW
#ISA-IOR [10] #ISA-IOW [10] #ISA-MEMR [10] #ISA-MEMW [10] #ISA-SMEMR [10] #ISA-SMEMW [10]
#IOCS16 #MEMCS16 IOCHRDY #IOCHK
#ISA-IO16 [10] #ISA-M16 [10] ISA-IOCHRDY [10] #ISA-IOCHK [10]
AEN BALE #SBHE #ZEROWS #MASTER #REFRESH TC
ISA-AEN [10] ISA-BALE [10] #ISA-SBHE [10] #ISA-SOWS [10] #ISA-MASTER [10] ISA-RFSH [10] ISA-TC [10]
OSC SYSCLK RSTDRV
ISA-OSC [10] ISA-SYSCLK [10] ISA-RSTDRV [10]
ISA-LA[17:23]
[10]
ISA-LA17 ISA-LA18 ISA-LA19 ISA-LA20 ISA-LA21 ISA-LA22 ISA-LA23
LA17 LA18 LA19 LA20 LA21 LA22 LA23
IRQ3 IRQ4 IRQ5 IRQ6 IRQ7 IRQ9 IRQ10 IRQ11 IRQ12 IRQ14 IRQ15
ISA-IRQ3 [10] ISA-IRQ4 [10] ISA-IRQ5 [10] ISA-IRQ6 [10] ISA-IRQ7 [10] ISA-IRQ9 [10] ISA-IRQ10 [10] ISA-IRQ11 [10] ISA-IRQ12 [10] ISA-IRQ14 [5,7,10] ISA-IRQ15 [2,7,10]
ISA-SD[0:15]
[10]
ISA-SD0 ISA-SD1 ISA-SD2 ISA-SD3 ISA-SD4 ISA-SD5 ISA-SD6 ISA-SD7 ISA-SD8 ISA-SD9 ISA-SD10 ISA-SD11 ISA-SD12 ISA-SD13 ISA-SD14 ISA-SD15
SD0 SD1 SD2 SD3 SD4 SD5 SD6 SD7 SD8 SD9 SD10 SD11 SD12 SD13 SD14 SD15
SERIRQ
DREQ0 DREQ1 DREQ2 DREQ3 DREQ5 DREQ6 DREQ7
#DACK0 #DACK1 #DACK2 #DACK3 #DACK5 #DACK6 #DACK7
#ISA-DACK0 #ISA-DACK1 #ISA-DACK2 #ISA-DACK3 #ISA-DACK5 #ISA-DACK6 #ISA-DACK7
#ISA-DACK[0:7]
[10]
CON-M-ETX
J3-C
ETX/IDE
IDEP_D[0:15]
[7]
IDEP_D0 IDEP_D1 IDEP_D2 IDEP_D3 IDEP_D4 IDEP_D5 IDEP_D6 IDEP_D7 IDEP_D8 IDEP_D9 IDEP_D10 IDEP_D11 IDEP_D12 IDEP_D13 IDEP_D14 IDEP_D15
PIDE_D0 PIDE_D1 PIDE_D2 PIDE_D3 PIDE_D4 PIDE_D5 PIDE_D6 PIDE_D7 PIDE_D8 PIDE_D9 PIDE_D10 PIDE_D11 PIDE_D12 PIDE_D13 PIDE_D14 PIDE_D15
SIDE_D0 SIDE_D1 SIDE_D2 SIDE_D3 SIDE_D4 SIDE_D5 SIDE_D6 SIDE_D7 SIDE_D8 SIDE_D9 SIDE_D10 SIDE_D11 SIDE_D12 SIDE_D13 SIDE_D14 SIDE_D15
IDES_D0 IDES_D1 IDES_D2 IDES_D3 IDES_D4 IDES_D5 IDES_D6 IDES_D7 IDES_D8 IDES_D9 IDES_D10 IDES_D11 IDES_D12 IDES_D13 IDES_D14 IDES_D15
IDES_D[0:15]
[7]
[7] IDEP_DREQ0 [7] #IDEP_DACK0 [7] #IDEP_IOR0 [7] #IDEP_IOW0 [7] IDEP_IORDY [7] IDEP_IRQ14
PIDE_DREQ #PIDE_ACK #PIDE_IOR #PIDE_IOW PIDE_RDY PIDE_IRQ
SIDE_DREQ #SIDE_ACK #SIDE_IOR #SIDE_IOW SIDE_RDY SIDE_IRQ
IDES_DREQ1 [7] #IDES_DACK1 [7] #IDES_IOR1 [7] #IDES_IOW1 [7] IDES_IORDY1 [7] IDES_IRQ15 [7]
[7] IDEP_A0 [7] IDEP_A1 [7] IDEP_A2 [7] #IDEP_CS0 [7] #IDEP_CS1
PIDE_A0 PIDE_A1 PIDE_A2 #PIDE_CS1 #PIDE_CS3
SIDE_A0 SIDE_A1 SIDE_A2 #SIDE_CS1 #SIDE_CS3
IDES_A0 [7] IDES_A1 [7] IDES_A2 [7] #IDES_CS0 [7] #IDES_CS1 [7]
[7] #HDRST
#HDRST DASP_S
#CBLID PDIAG_S
CON-M-ETX
J3-E
LVDS/LCD
C37 LCDD00/R0 C35 LCDD01/R1 C38 LCDD02/R2 C36 LCDD03/R3 C29 LCDD04/R4 C31 LCDD05/R5 C32 LCDD06/G0 C30 LCDD07/G1 C23 LCDD08/G2 C25 LCDD09/G3 C26 LCDD010/G4 C24 LCDD011/G5 C19 LCDD012/B0 C17 LCDD013/B1 C20 LCDD014/B2 C18 LCDD015/B3 C11 LCDD016/B4 C13 LCDD017/B5 C12 LCDD018/SCLK C14 LCDD019/PENA
C9 #DETECT
C45 BIASON/HSYNC C42 LTGIO0/VSYNC C46 DIGON C44 #BLON
C43 JILI_CLK C41 JILI_DAT
VGA
RED C3 GREEN C6 BLUE C4 HSY C5 VSY C7 DDCK C8 DDDA C10
VIDEO
Y C48 C C50 SYNC C49 COMP C47
CON-M-ETX
VCC5V_ATX
VCC3V
J3-G
ETX/POWER
A19 A20 A51 A52 A83 A84 B51 B52 B83 B84 C39 C40 C53 C81 C82 D17 D18 D49 D50 D81 D82
VCC0 VCC1 VCC2 VCC3 VCC4 VCC5 VCC6 VCC7 VCC8 VCC9 VCC10 VCC11 VCC12 VCC13 VCC14 VCC15 VCC16 VCC17 VCC18 VCC19 VCC20
A1 A2 A5 A6 A35 A36 A67 A68 A99 A100 B1 B2 B35 B36 B67 B68 B99 B100 C1 C2 C15 C16 C21 C22 C27 C28 C33 C34 C54 C65 C66 C99 C100 D1 D2 D33 D34 D65 D66 D99 D100
GND0 GND1 GND2 GND3 GND4 GND5 GND6 GND7 GND8 GND9 GND10 GND11 GND12 GND13 GND14 GND15 GND16 GND17 GND18 GND19 GND20 GND21 GND22 GND23 GND24 GND25 GND26 GND27 GND28 GND29 GND30 GND31 GND32 GND33 GND34 GND35 GND36 GND37 GND38 GND39 GND40
OUT 3.3V/ 0.5A
A12 A16 A24
3.3_1 3.3_2 3.3_3
NC
A18 A56 C52
NC_1 NC_2 NC_3
DRILLS
M1 M2 M3 M4
FIX_1 FIX_2 FIX_3 FIX_4
CON-M-ETX
J3-F
KEY/MOUSE
[11] SIO-KBDAT C98
[11] SIO-KBCLK C96
nc D9
KBDAT MSDAT KBCLK MSCLK KBINH
C94 SIO-MSDAT [11]
C92 SIO-MSCLK [11]
USB 1-4
[9] #USB0 A76 [9] USB0 A88
USB0- USB2- USB0+ USB2+
A58 #USB2 [9] A66 USB2 [9]
[9] #USB1 A80 [9] USB1 A92
USB1- USB3- USB1+ USB3+
A62 nc A72 nc
#OVCR
D19 #USB-OVCUR [2]
Ethernet
[8] ENET_RD+ D93 [8] ENET_RD- D91
RXD+ ACTLED RXD- LILED SPEEDLED
D12 LANLED2_YEL [8] D10 LANLED_COM [8] D14 LANLED1_GRN [8]
[8] ENET_TX+ D97 [8] ENET_TX- D95
TXD+ TXD-
SOUND
[9] SNDL A46 [9] SNDR A50
SNDL AUXAL SNDR AUXAR
A38 AUXAL_C [9] A42 AUXAR_C [9]
[9] MIC_C A40
MIC ASVCC ASGND
A44 VCCAUD A48 GNDAUD
[3,9] PCBEEP D6
SPEAKER
I2C/SM-BUS
[5,6,13] SC-AB2_SDA D22 [5,6,13] SC-AB2_SCL D16
I2DAT SMBDAT I2CLK SMBCLK
D24 SC-AB2_SDA [5,6,13] D23 SC-AB2_SCL [5,6,13]
APM
[5,8] #PCI-PME A57
#PME EXTSMI #SMBALRT #BATLOW/GPE1 #RSMRST/GPE2
D21 nc D26 #SMB_ALRT_THRM [5] nc D42 nc D89 nc
nc D41 nc D11
MISC
V5VALWAYS D3
[12] PWGIN D4
[5] #PWRBTN D7
5V_SB PS_ON PWGIN BATT #PWRBTN
D5 #PWRCNT2-ETX [5] D8 VBAT [4]
DON'T USE
nc D15 nc D20
EXT_PRG I.C. #GPCS #RKBCS
C57 nc D13 nc
CON-M-ETX
J3-D
LPT/FLOPPY
[11] #FINDEX C80 [11] #FTRACK0 C78 [11] #FWRTPRT C76 [11] #FRDATA C74 [11] #FDSKCHG C72 C68 C62 C58
PD0/#INDEX PD1/#TRK0 PD2/#WP PD3/#RDATA PD4/#DSKCHG PD5/NC PD6/NC PD7/NC
[11] FDENSEL0 C55 [11] #FDIR C56 [11] #FSTEP C64 C70
#STB/I.C. #AFD/DENSEL #INIT/#DIR #SLIN/#STEP #WGATE
[11] #FSIDE1 C60 [11] #FDRV_S0 C84 [11] FMOTORO C86 [11] #FWDATA C88 [11] #FWGATE C90
#ERR/#HDSEL #ACK/DRV BUSY/MOT PE/#WDATA SLCT/#WGATE
nc C51
LPT/#FLPY
COM1
#DTR1 C87 TXD1 C95 #RTS1 C85
#RI1 C97 #CTS1 C93 RXD1 C83 #DSR1 C91 #DCD1 C89
#SIO-DTR1 [11] #SIO-TXD1 [11] #SIO-RTS1 [11] #SIO-RI1 [11] #SIO-CTS1 [11] SIO-RXD1 [11] #SIO-DSR1 [11] #SIO-DCD1 [11]
COM2
#DTR2 C69 TXD2 C77 RTS2 C67
#RI2 C79 #CTS2 C75 RXD2 C63 #DSR2 C73 #DCD2 C71
SC-SOUT1_ [14] SC-SIN1_ [14]
IrDA
IRRX C59 IRTX C61
IRRX [3] IRTX_MTEST3 [2,6]
CON-M-ETX
Stromlaufplan
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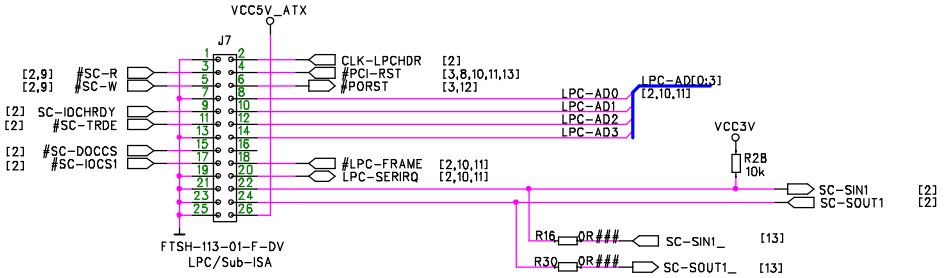
Kontron CSS GmbH
Datum: 21.03.2005
Size: A3
Titel: ESA1
PCB: L2/B2
Nr.: 3801.00
Rev:02
Datei: ESA1_XX02_SCH.SCH
Blatt: 13/15



Populate R16 and R30 to connect signals to the ETX-Header.
In this case don't use signals on connector J7.
Signals are not 5V tolerant. ONLY CONNECT TO 3V DEVICES!

Stromlaufplan	Datum: 21.03.2005	Size: A3
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	Nr.: 3801.00	Rev:02
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L1/B1:

First prototype.

L2/B2:

Signal #PCI-PME removed from VCC3V pullup RN35-D (Page 2).

V3VALWAYS pullup R220 on signal #PCI-PME changed from 22k to 10k (Page 5).

IC7 marked as populated (Page 6).

R445 changed to 1k and connected to VCC3V for WOL support (Page 8).

R27 with 15k added for WOL support (Page 8).

R16 marked as unpopulated. Populate to connect SC-SIN1 to ETX-Connector, when working in 3V environment (Page 14).

R30 added as stuffing option to connect SC-SOUT1 ETX-Connector, when working in 3V environment (Page 14).

R28 pullup to VCC3V added at SC-SIN1 (Page 14).

R32 pullup to VCC3V added at #IOCHRDY to solve startup problem (Page 2).

Stromlaufplan	Datum: 21.03.2005	Size: A3
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