



# Intel<sup>®</sup> StrongARM<sup>®</sup> SA-1110 Development Board

## Schematics

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*Advance Information*

*February 2000*

*Phase 4*

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**Notice:** This document contains information on products in the sampling and initial production phases of development. Revised information will be published when this product is available.

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Order No: 278279-005



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Copies of documents which have an ordering number and are referenced in this document, or other Intel literature may be obtained by calling 1-800-548-4725 or by visiting Intel's website at <http://www.intel.com>.

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## **1.0 SA-1110 Development Board Schematics**

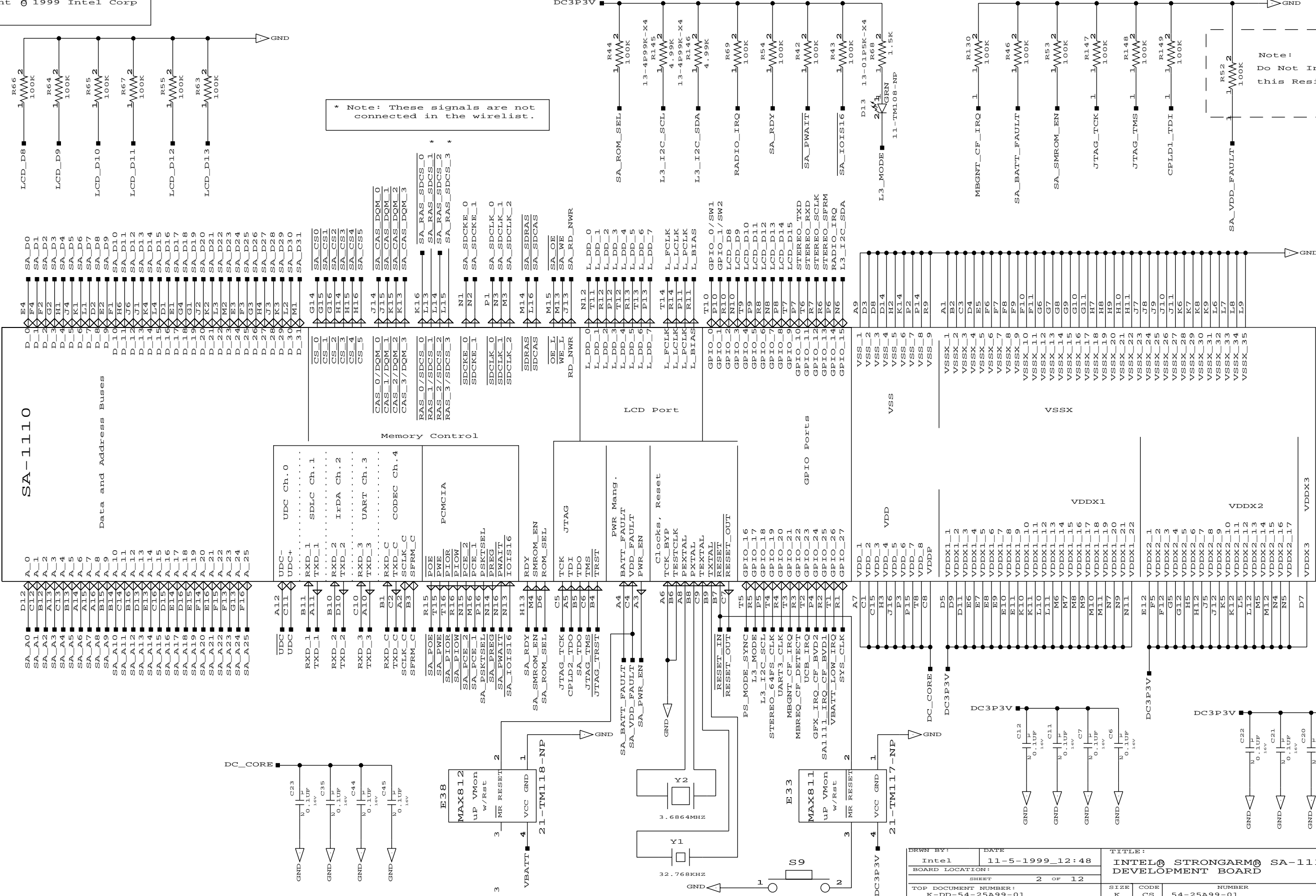
This document contains the electrical schematics and revision information for the Intel® StrongARM® SA-1110 Development Board (SA-1110 Development Board).

**Note:** This document and module are for the Phase 4 hardware build of this product. For the latest information and updates, see the hardware release notes that are provided in hardcopy format, and the software readme.txt files that are provided in the software kits.  
Sheet 12 of 12 has been omitted because it contains historical information.

# Intel® StrongARM® SA-1110 CPU Development Board

1. Contents
2. Intel® StrongARM® SA-1110 CPU
3. SDRAM and Intel Flash
4. Control CPLD, Address Buffers, Data Transceivers
5. 16-Bit D-FF, Momentary Switches
6. LCD Interface, PZ3128 CPLD, Touch Screen
7. AUDIO - UCB1300, UDA1341TS, Stereo Jack, Headphone Jack, Microphone
8. DAA chipset, RS232 XCVR, Vibration Motor
9. Radio Hdr, USB Conn, IrDA, LCD Scaling, Compact Flash II hdr.
10. Power Regs, Battery Charger, LCD Power
11. 2- 140 Pin Bus Connectors
12. ADV7171KSU Video Encoder

DRWN BY: Intel	DATE 11-5-1999_12:49	TITLE: INTEL® STRONGARM® SA-1110 CPU DEVELOPMENT BOARD			
BOARD LOCATION:		SHEET 1 of 12			
TOP DOCUMENT NUMBER: K-DD-54-25A99-01		SIZE B	CODE CS	NUMBER 54-25A99-01	REV 2.00



SA-1110

Data and Address Buses

Memory Control

LCD Port

GPIO Ports

VSS

VSSX

VDDX1

VDDX2

VDDX3

\* Note: These signals are not connected in the Brelist.

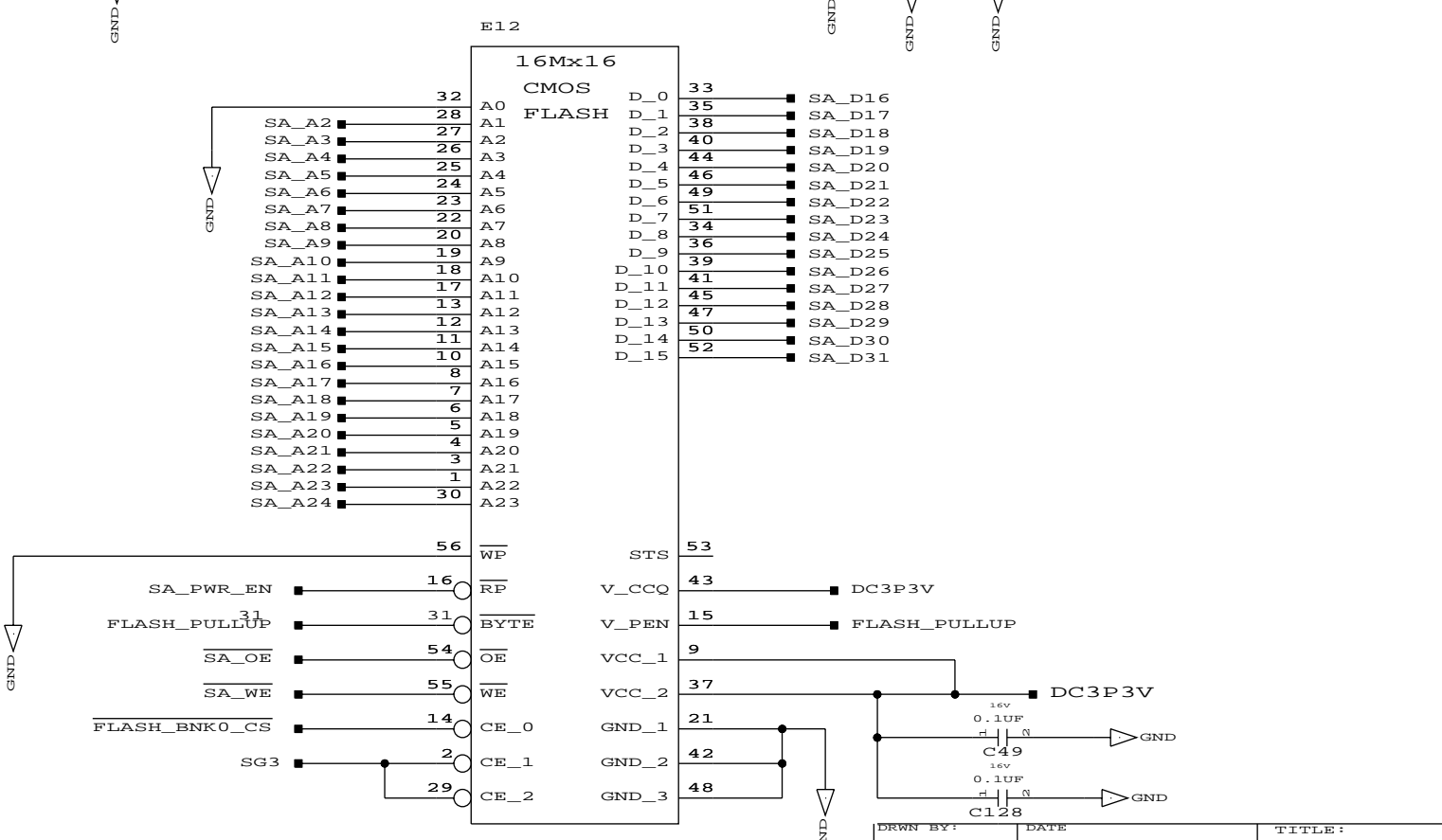
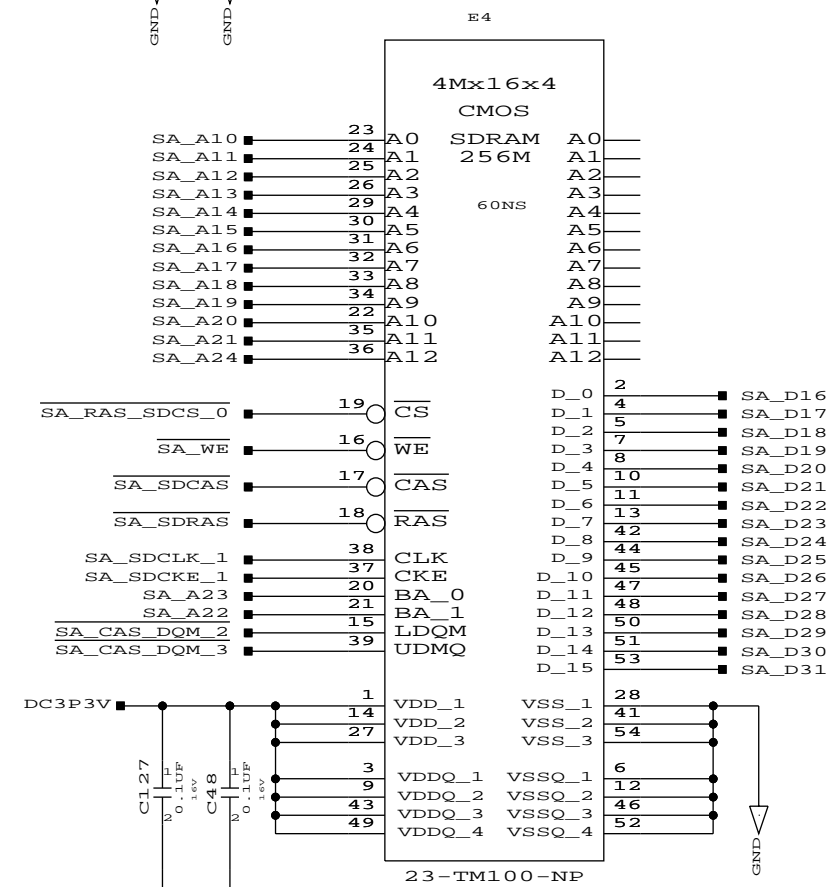
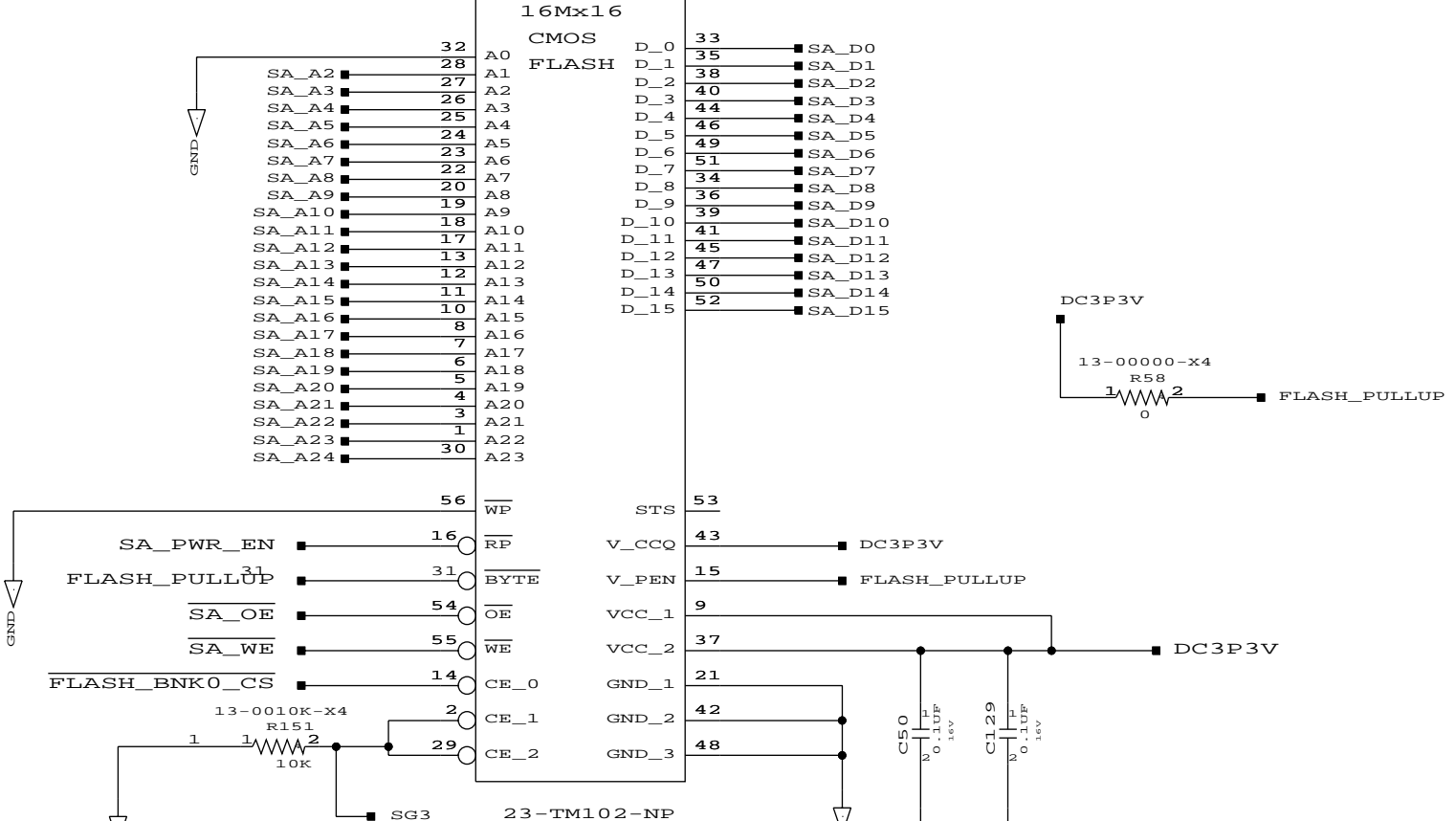
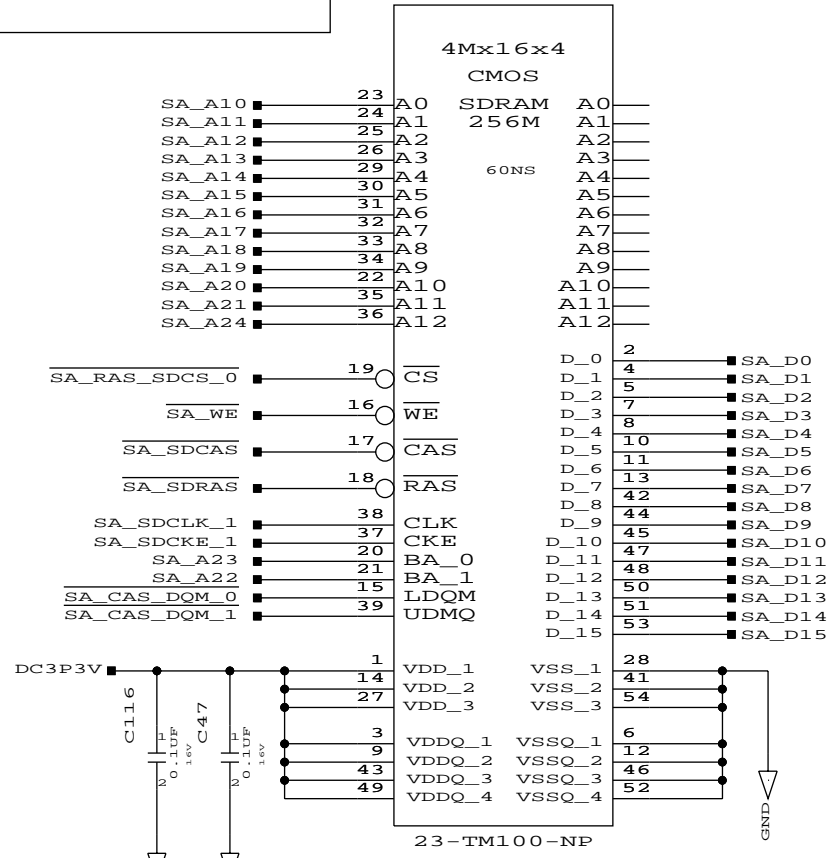
Note:  
Do Not Install  
this Resistor.

DRWN BY: Intel	DATE 11-5-1999 12:48
BOARD LOCATION: SHEET 2 OF 12	
TOP DOCUMENT NUMBER: K-DD-54-25A99-01	

TITLE: INTEL® STRONGARM® SA-1110 CPU DEVELOPMENT BOARD			
SIZE K	CODE CS	NUMBER 54-25A99-01	REV 2.00

E1

21-TM100-NP



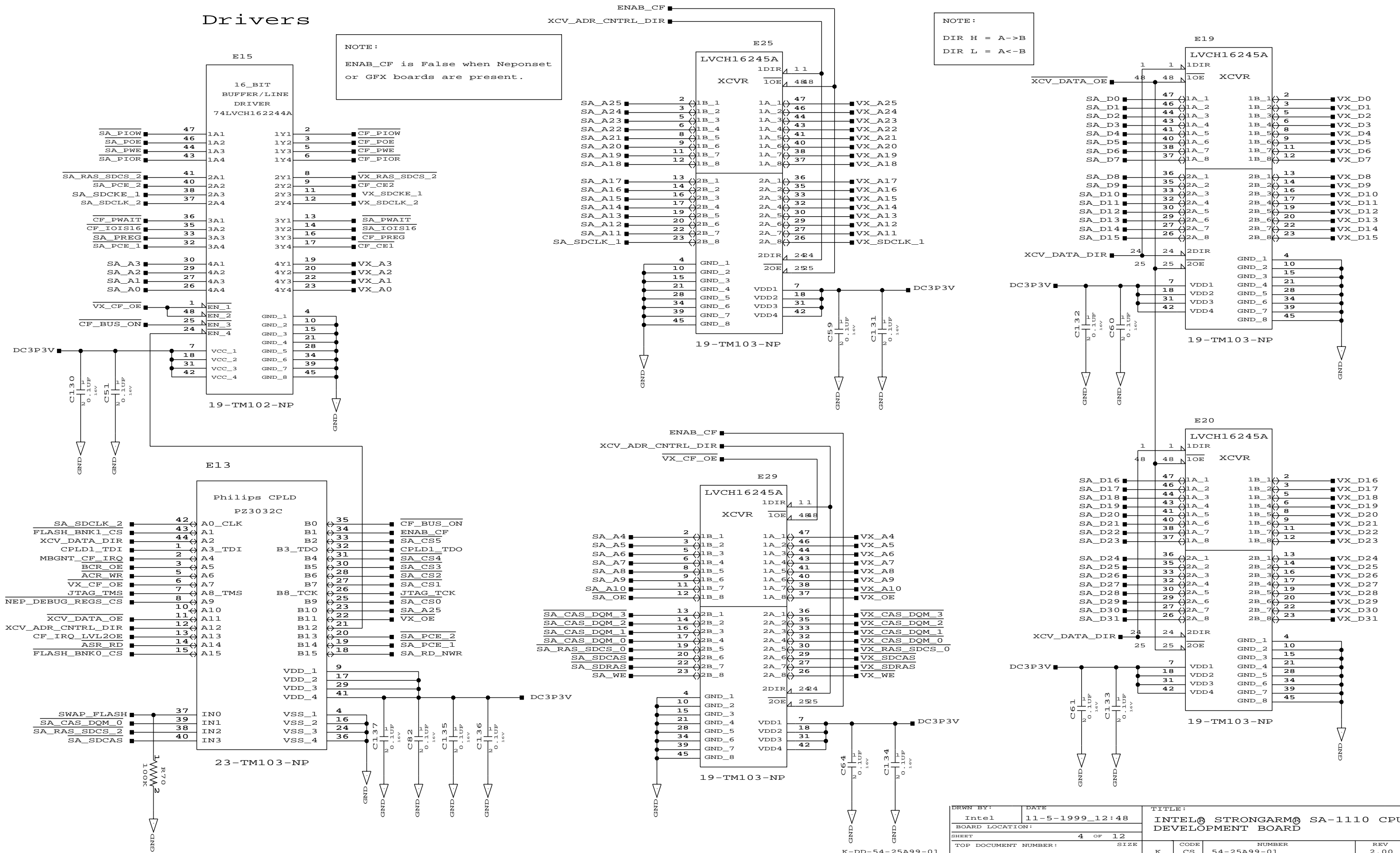
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SHEET:	3 OF 12	
TOP DOCUMENT NUMBER:	SIZE:	NUMBER:
K-DD-54-25A99-01		54-25A99-01
	K	REV:
		2.00

# Tranceivers

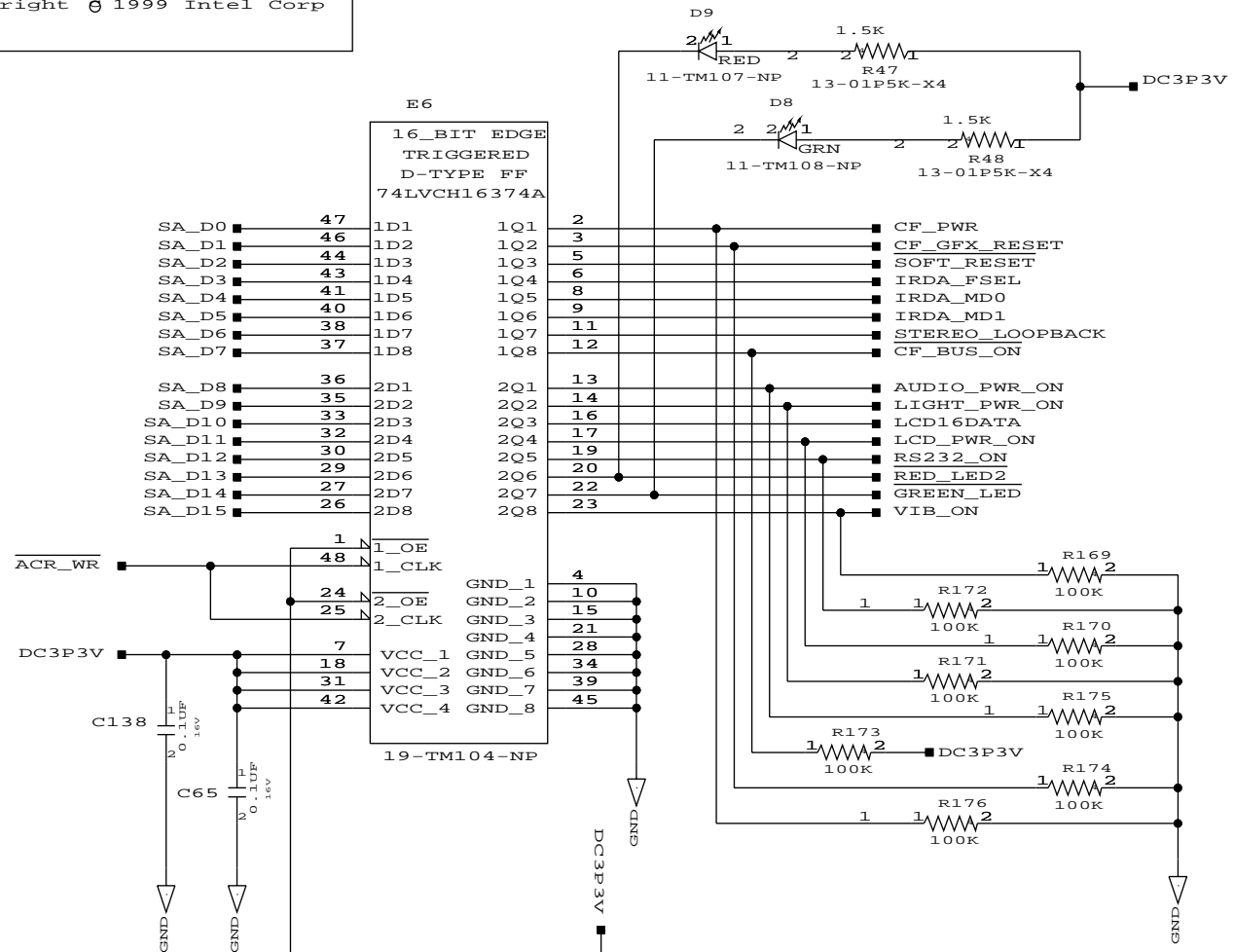
## Drivers

NOTE:  
ENAB\_CF is False when Neponset  
or GFX boards are present.

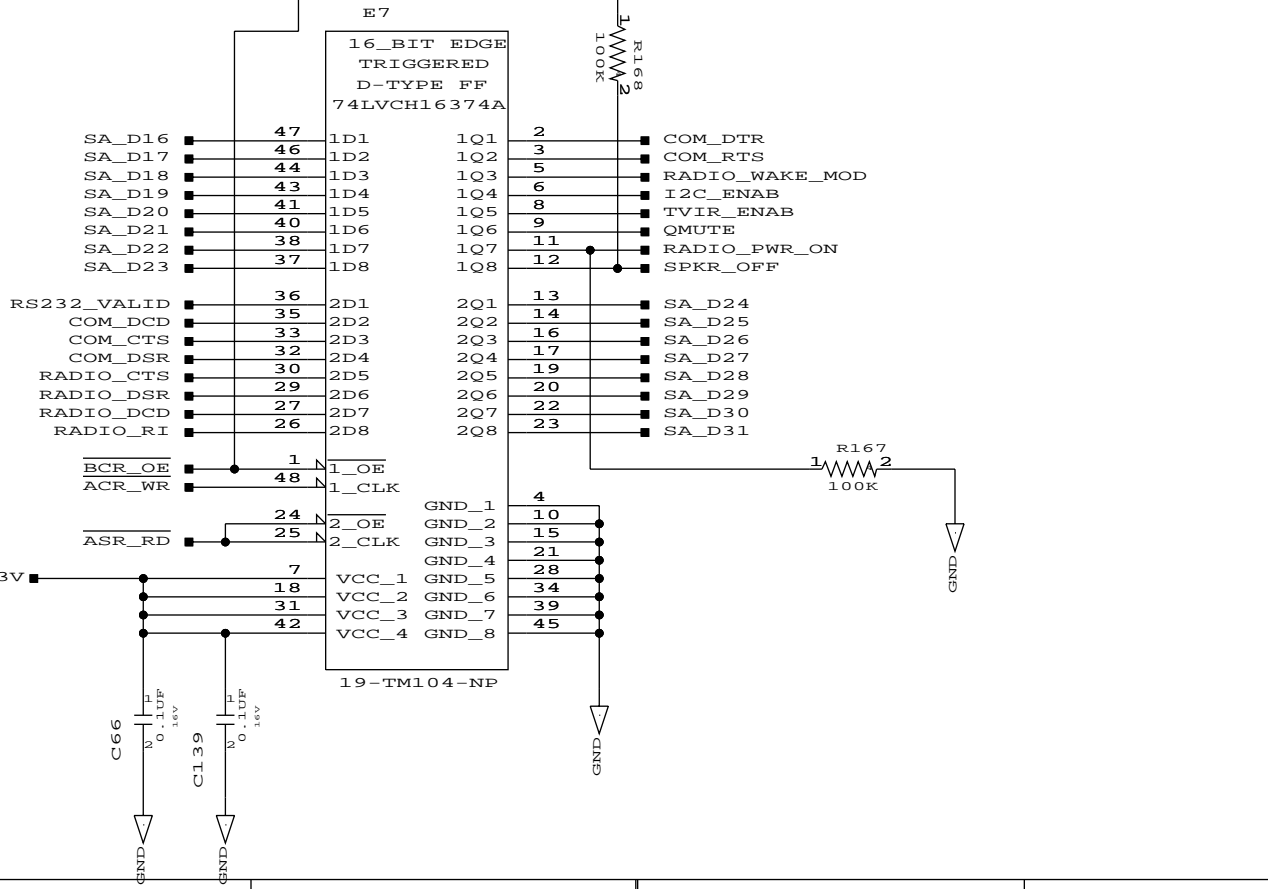
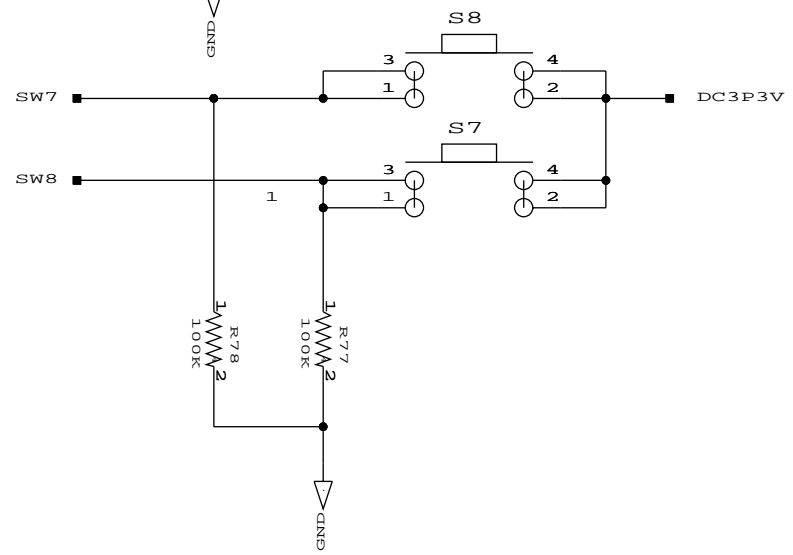
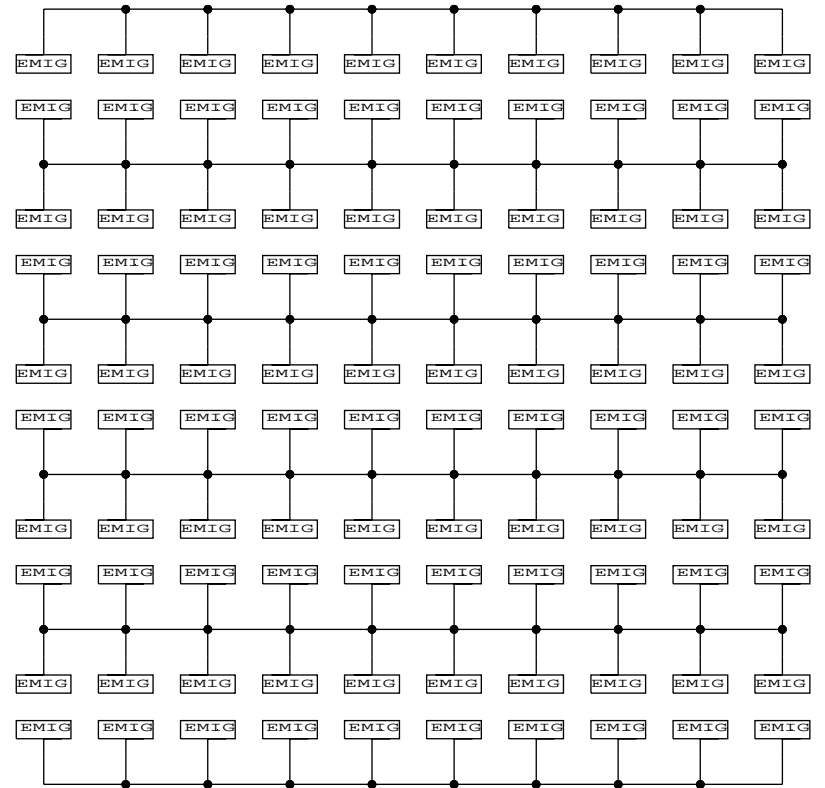
NOTE:  
DIR H = A->B  
DIR L = A<-B



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SHEET	4 OF 12	
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	CS	REV
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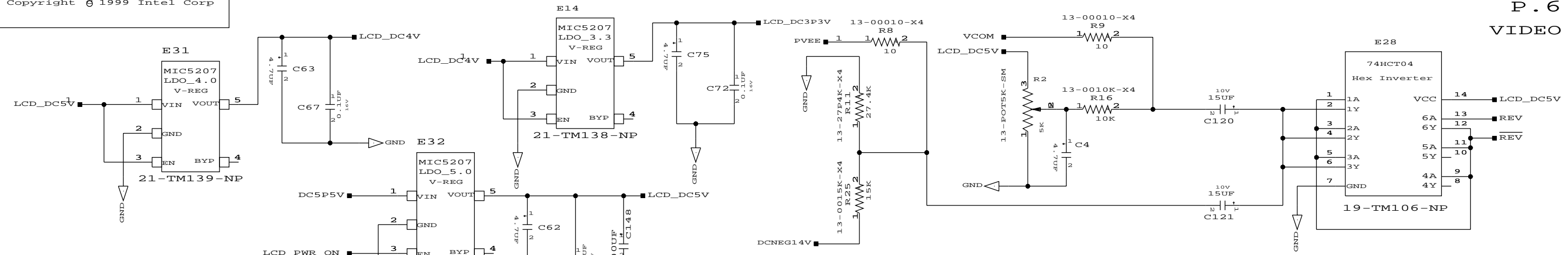


EMI Ground Perimeter Ring



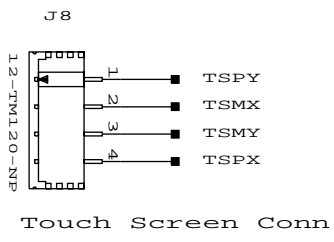
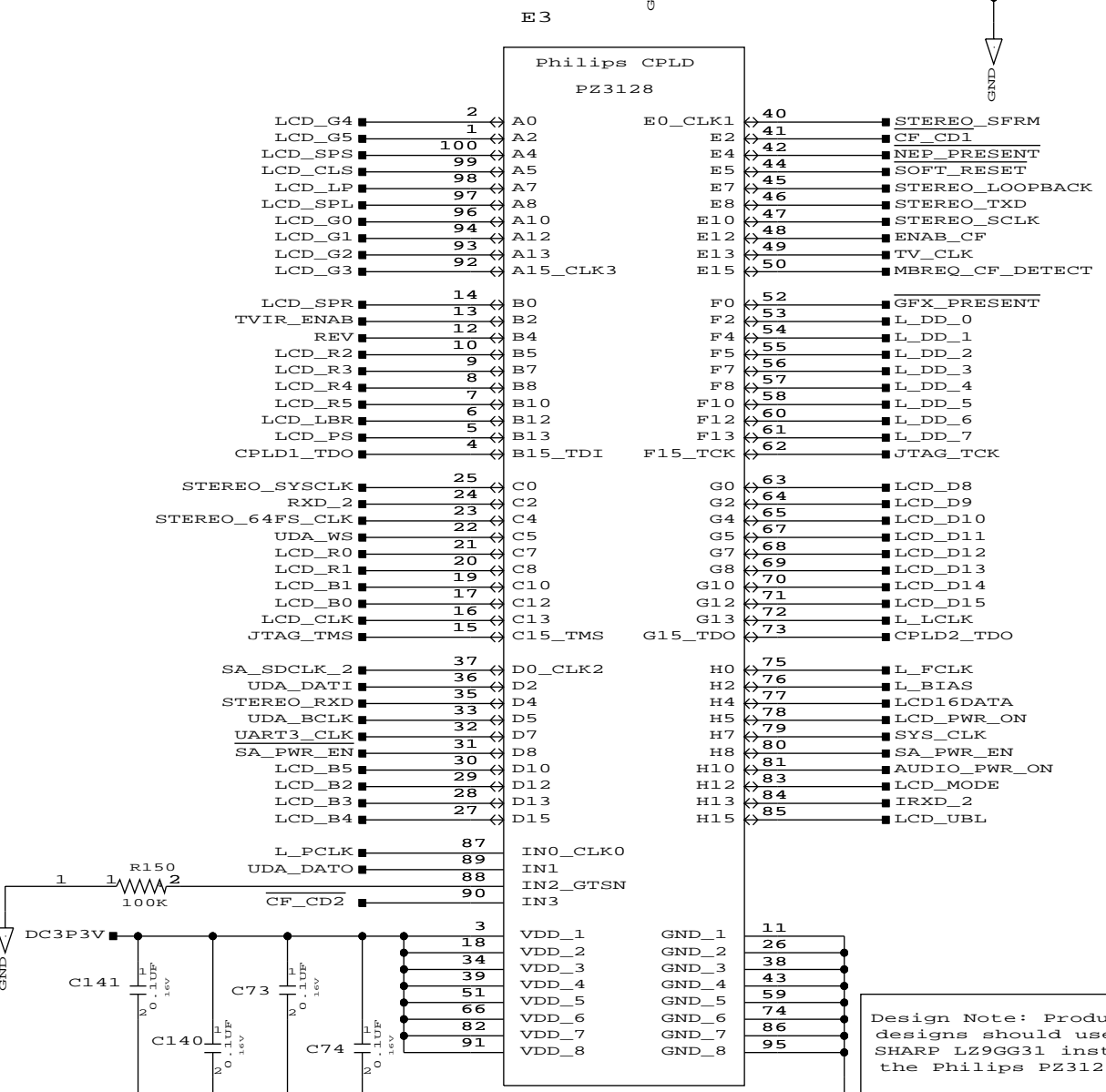
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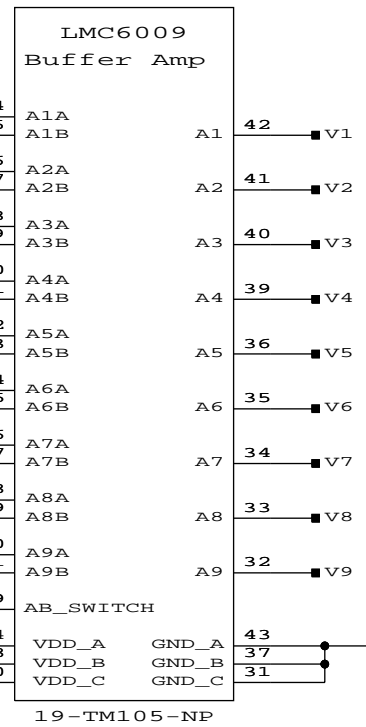
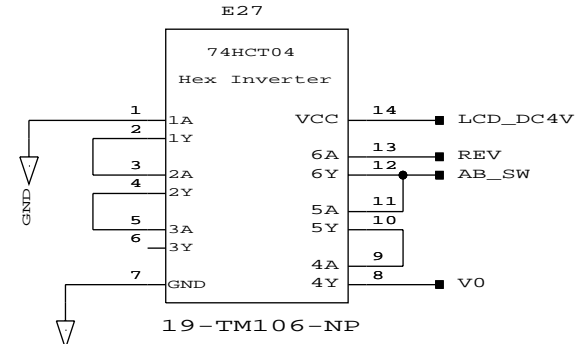


LCD GRAY SCALE SIGNALS

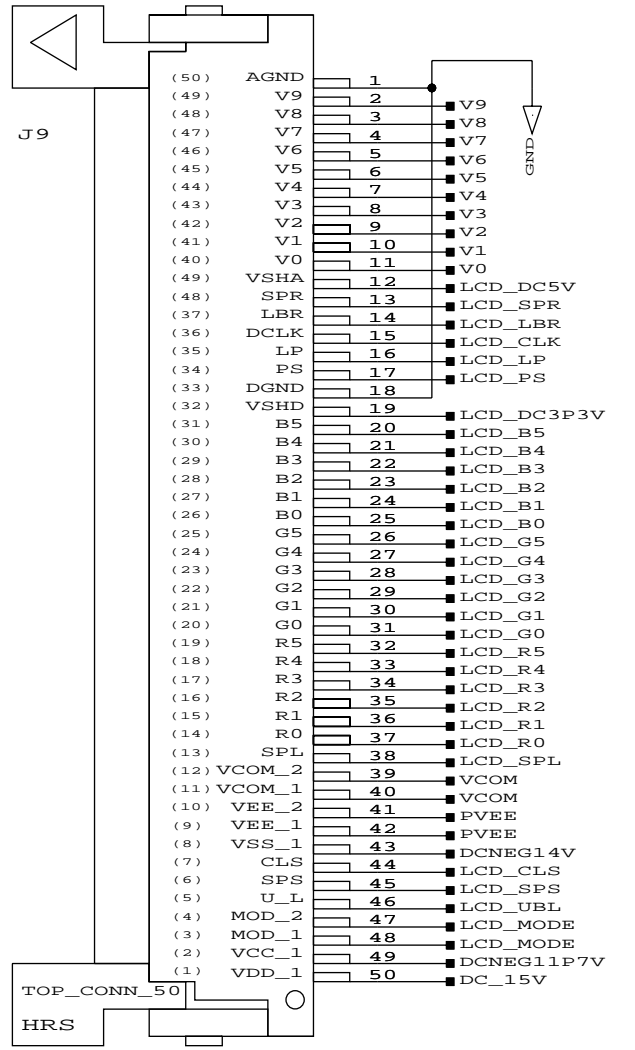
**LCD CABLE Connector**  
 NOTE: The LCD connector is pinned inverse to the SHARP 3.9" HR-TFT Specification.  
 NOTE: The pin numbers in the parenthesis reflect the proper spec pinning.



Touch Screen Conn



Design Note: Production designs should use the SHARP LZ9GG31 instead of the Philips PZ3128 CPLD



DRWN BY:	DATE	TITLE:
Intel	11-5-1999_12:48	INTEL® STRONGARM® SA-1110 CPU DEVELOPMENT BOARD
BOARD LOCATION:		
SHEET	6 OF 12	
TOP DOCUMENT NUMBER:	SIZE	NUMBER
		54-25A99-01
		REV
		2.00

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NOTE: These 3 Components must be placed near UCB1300 Pin 21

13-0010K-X4  
R90 10K

16V  
0.1UF  
C10

1K  
R100

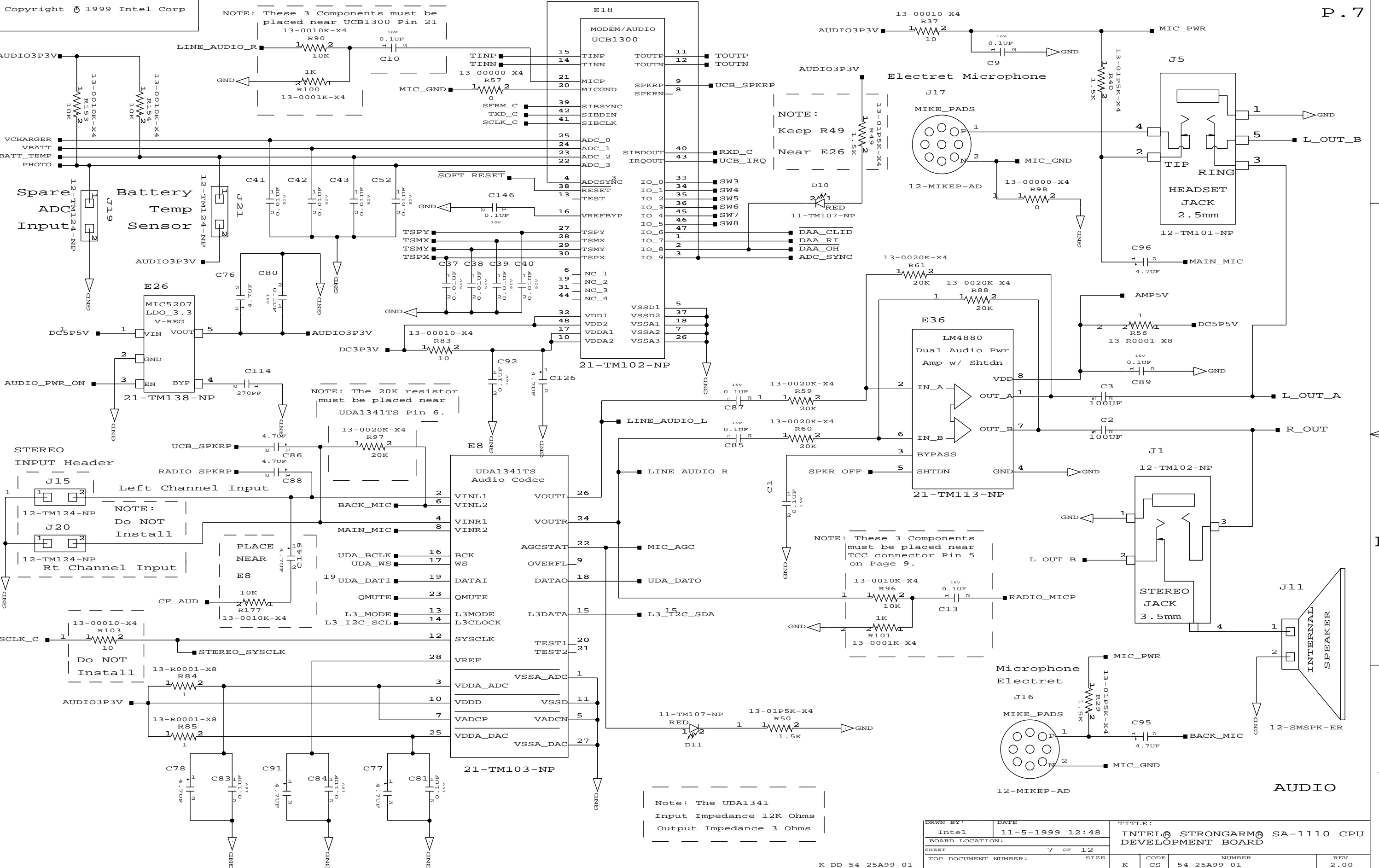
13-0001K-X4

NOTE:  
Keep R49  
Near E26

NOTE: The 20K resistor must be placed near UDA1341TS Pin 6.

NOTE: These 3 Components must be placed near TCC connector Pin 5 on Page 9.

Note: The UDA1341  
Input Impedance 12K Ohms  
Output Impedance 3 Ohms



DRWN BY:	DATE	TITLE:
Intel	11-5-1999 12:48	INTEL® STRONGARM® SA-1110 CPU DEVELOPMENT BOARD
BOARD LOCATION:		
SHEET	7 OF 12	
TOP DOCUMENT NUMBER:	SIZE	NUMBER
		54-25A99-01
	K	REV
	CS	2.00

K-DD-54-25A99-01

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D

D

C

C

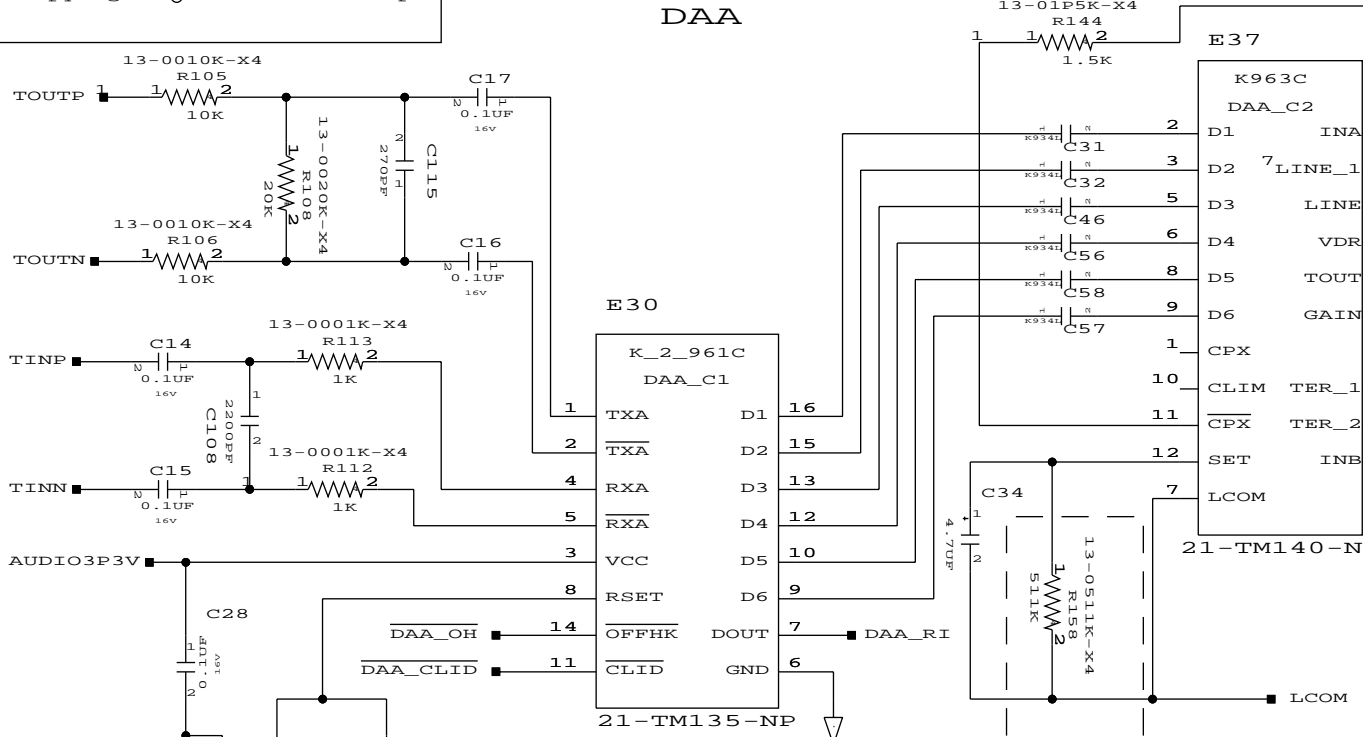
B

B

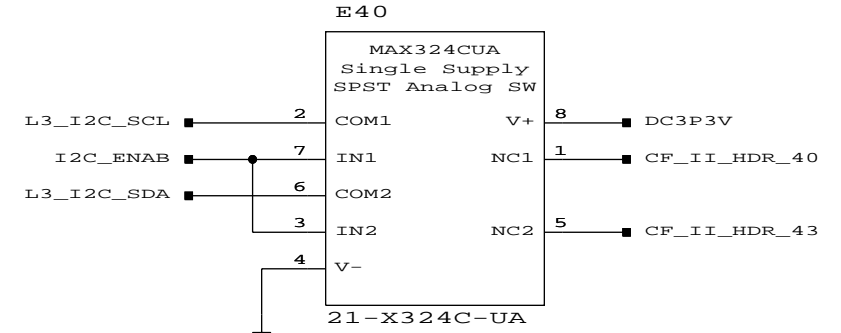
A

A

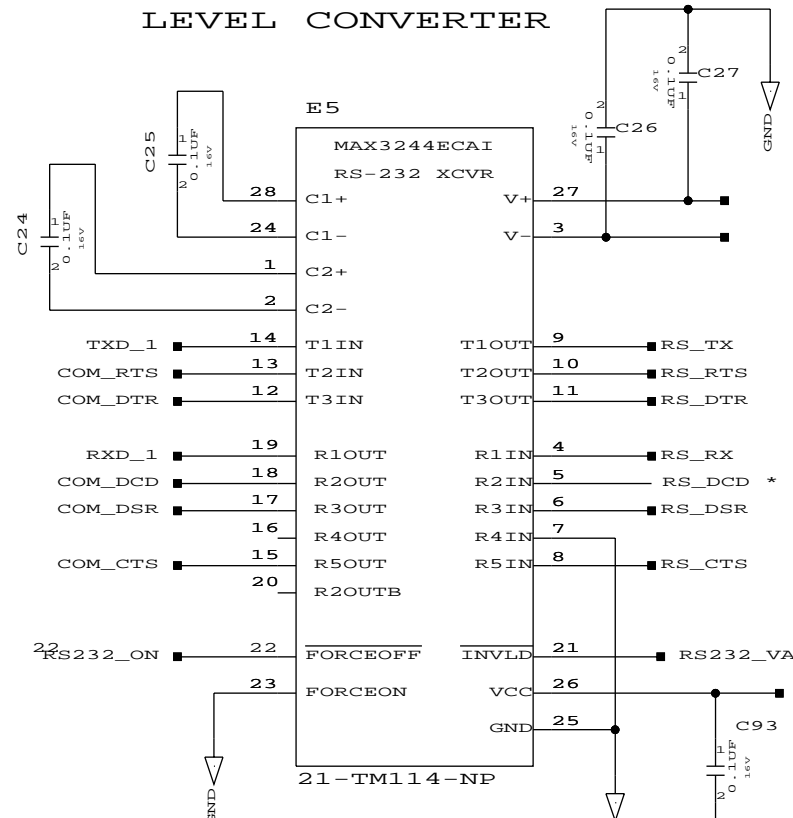
### DAA



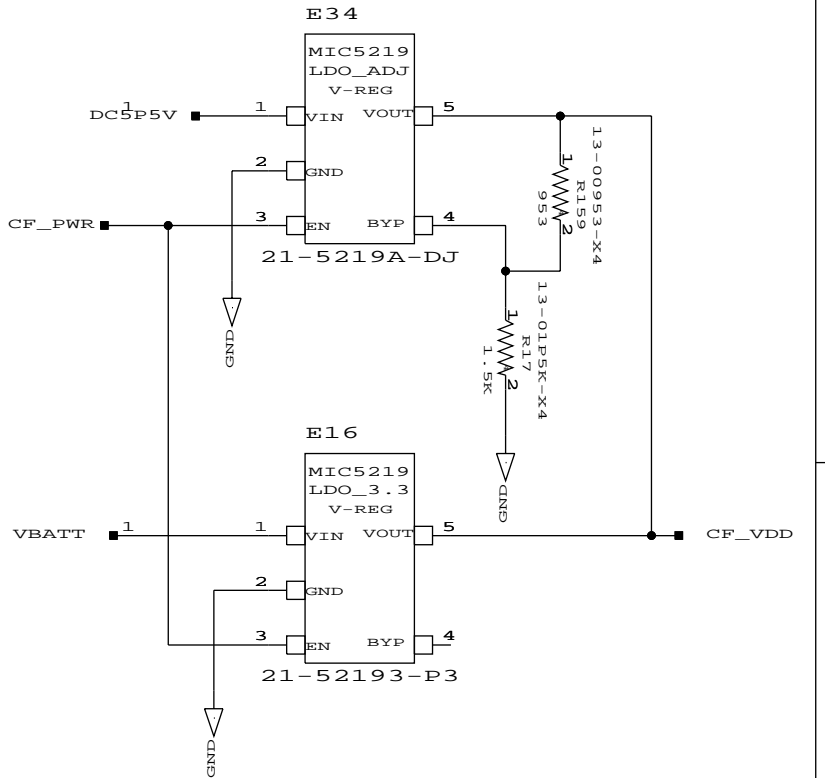
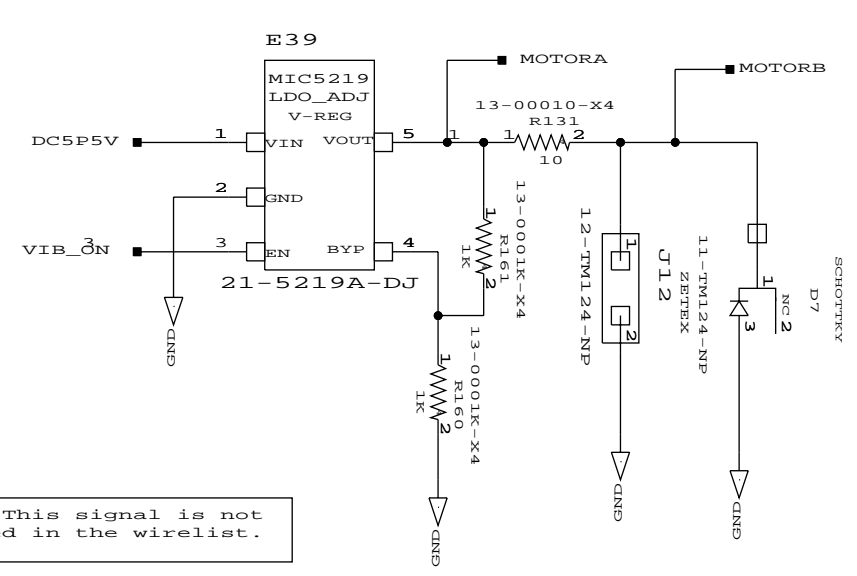
### I2C CFII SWITCH



### LEVEL CONVERTER



### SILENT ALERT

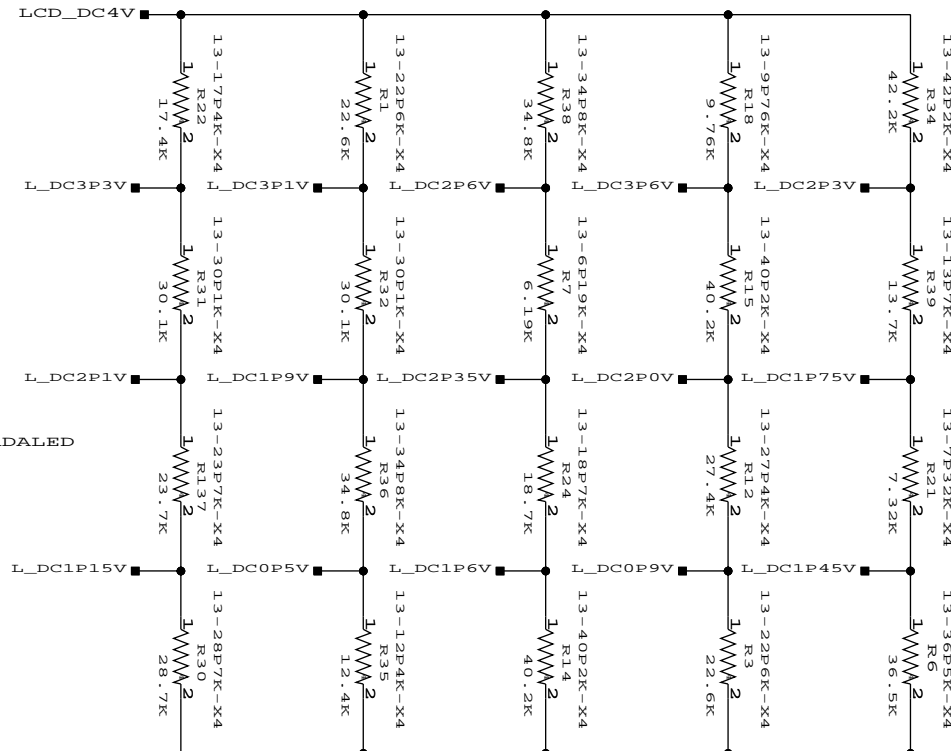
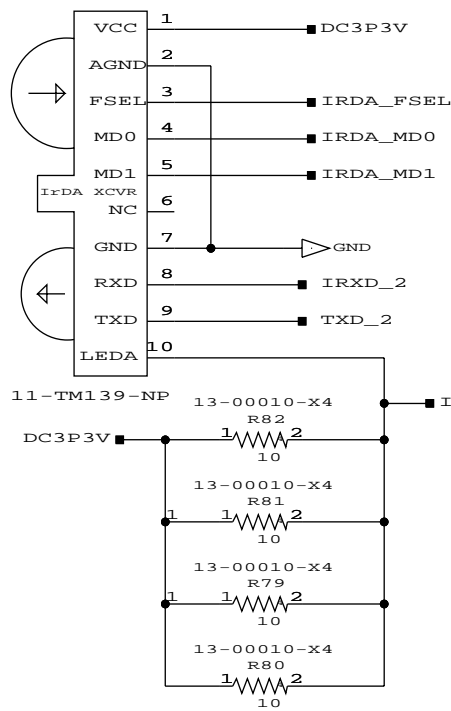


\* Note: This signal is not connected in the wirelist.

Note: Signal HOT COLLECTOR requires 0.2 Inch Sq Min Copper Pad for NPN Collector

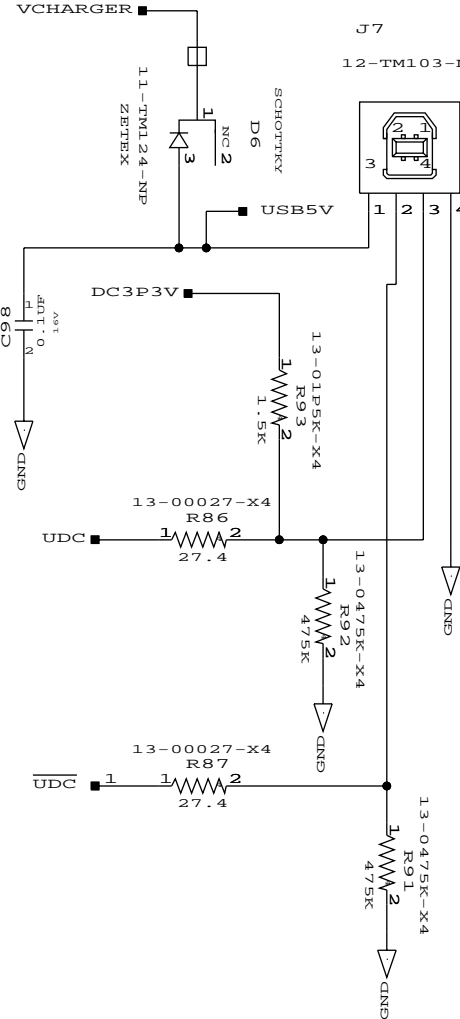
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Intel	11-5-1999_12:47	INTEL® STRONGARM® SA-1110 CPU DEVELOPMENT BOARD			
BOARD LOCATION:					
SHEET	8 of 12				
TOP DOCUMENT NUMBER:	SIZE	K	CODE CS	NUMBER	REV
K-DD-54-25A99-01			54-25A99-01	54-25A99-01	2.00

**IrDA Xcvr**

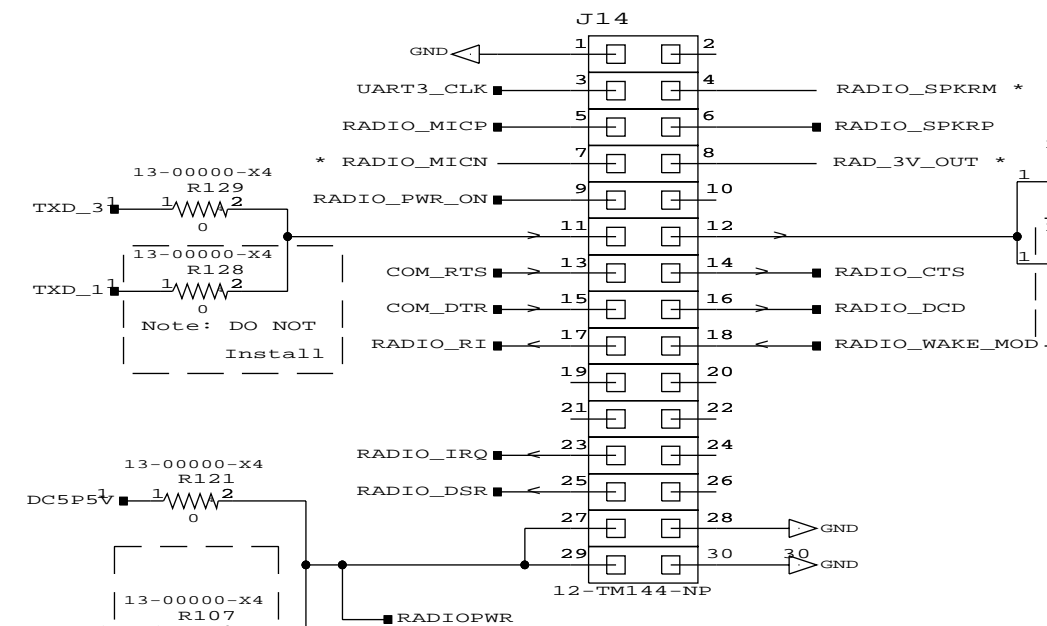


LCD Grey Scale Levels  
Each Stack adds to 100K

**USB TYPE B Connector**



**Radio Connector**

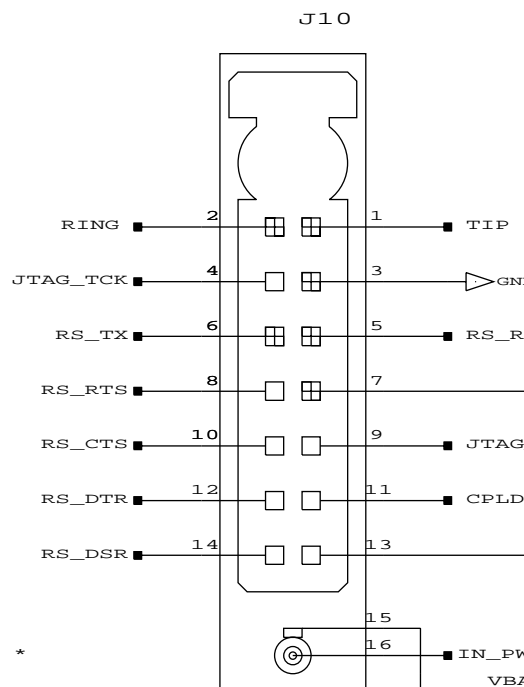


WARNING: DO NOT Intstall the VBATT Resistor

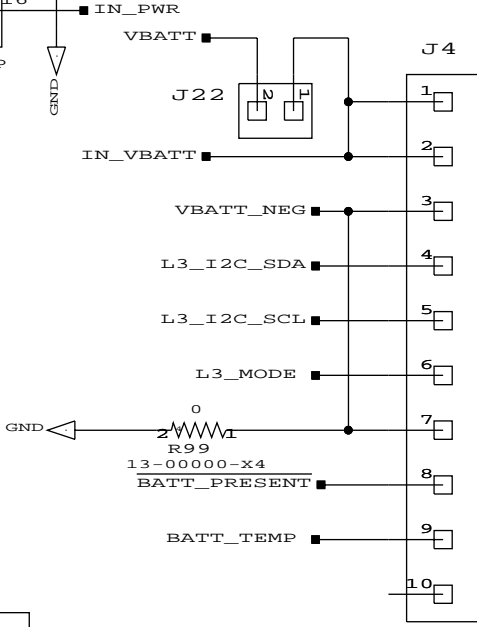
\* Note: These signals are not connected in the wirelist.

NOTE: Use wide Etch on Signals, "VBATT", IN\_VBATT & VBATT\_NEG

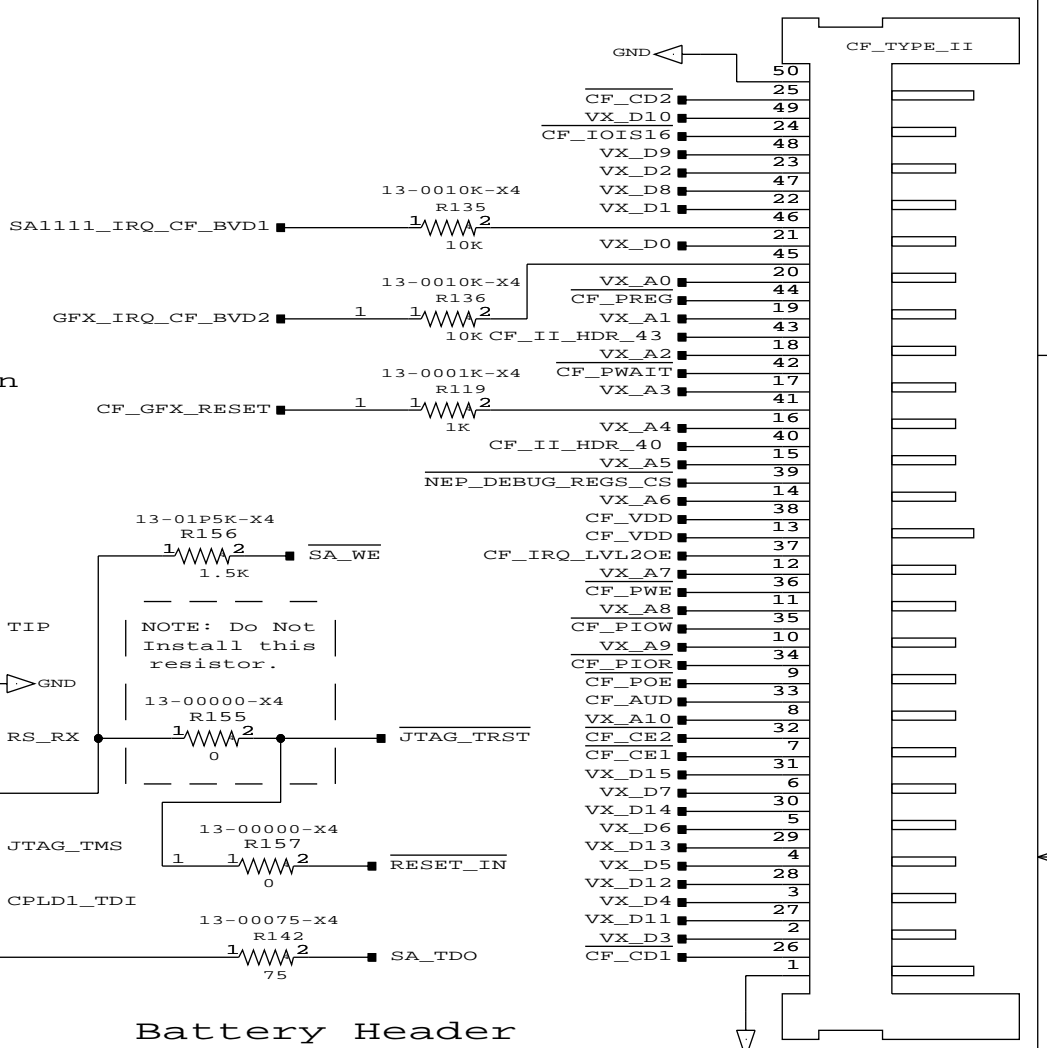
**BASE STATION Conn**



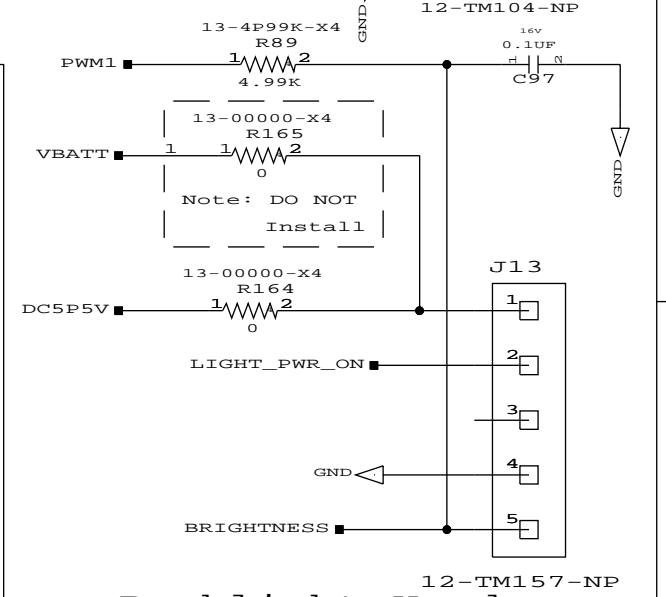
**Battery Header**



**Compact Flash II Header**

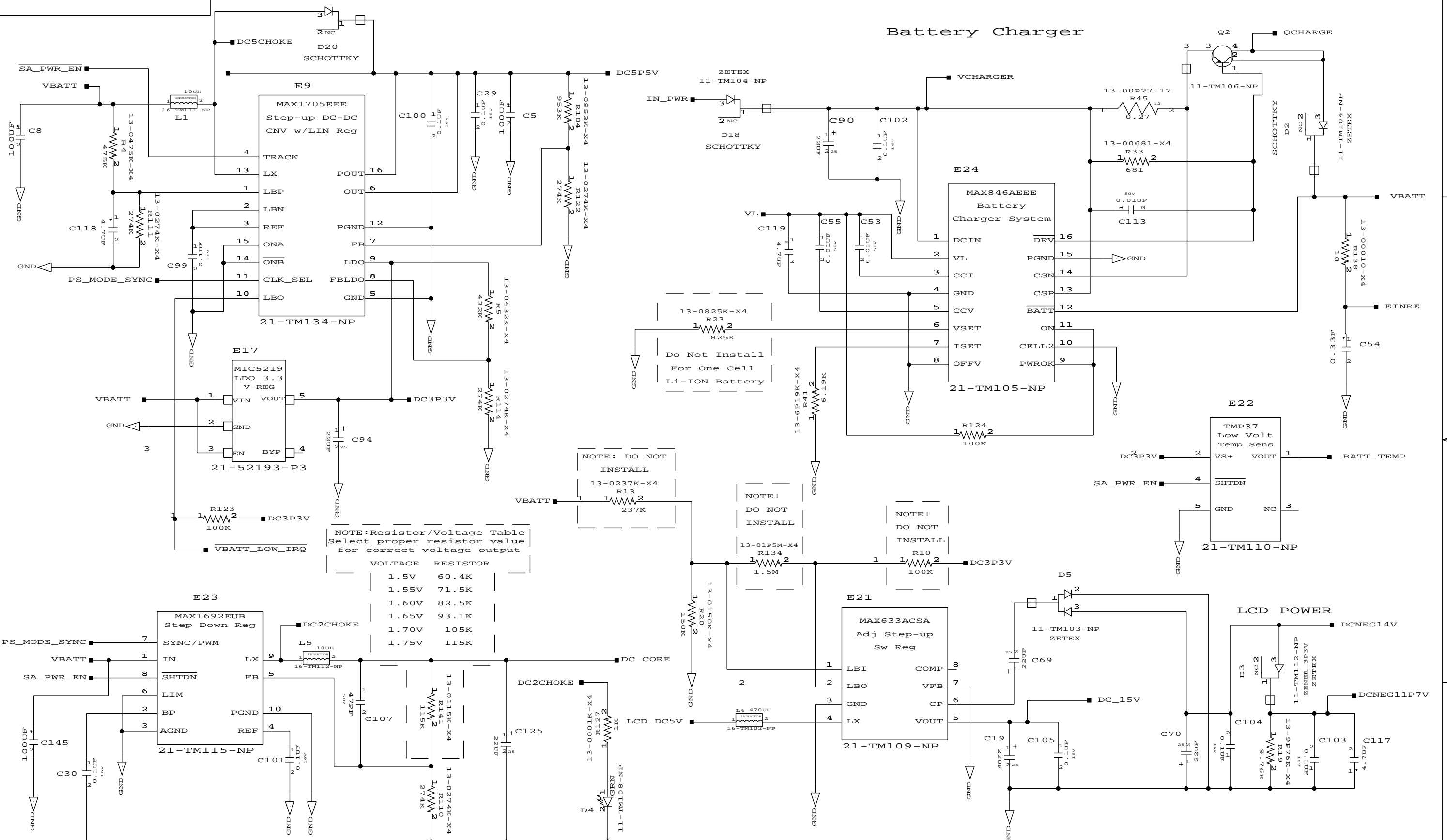


**Backlight Header**



DRWN BY:	DATE	TITLE:
Intel	11-5-1999_12:47	INTEL® STRONGARM® SA-1110 CPU DEVELOPMENT BOARD
BOARD LOCATION:		
SHEET	9 OF 12	
TOP DOCUMENT NUMBER:	SIZE	NUMBER
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		REV
		2.00

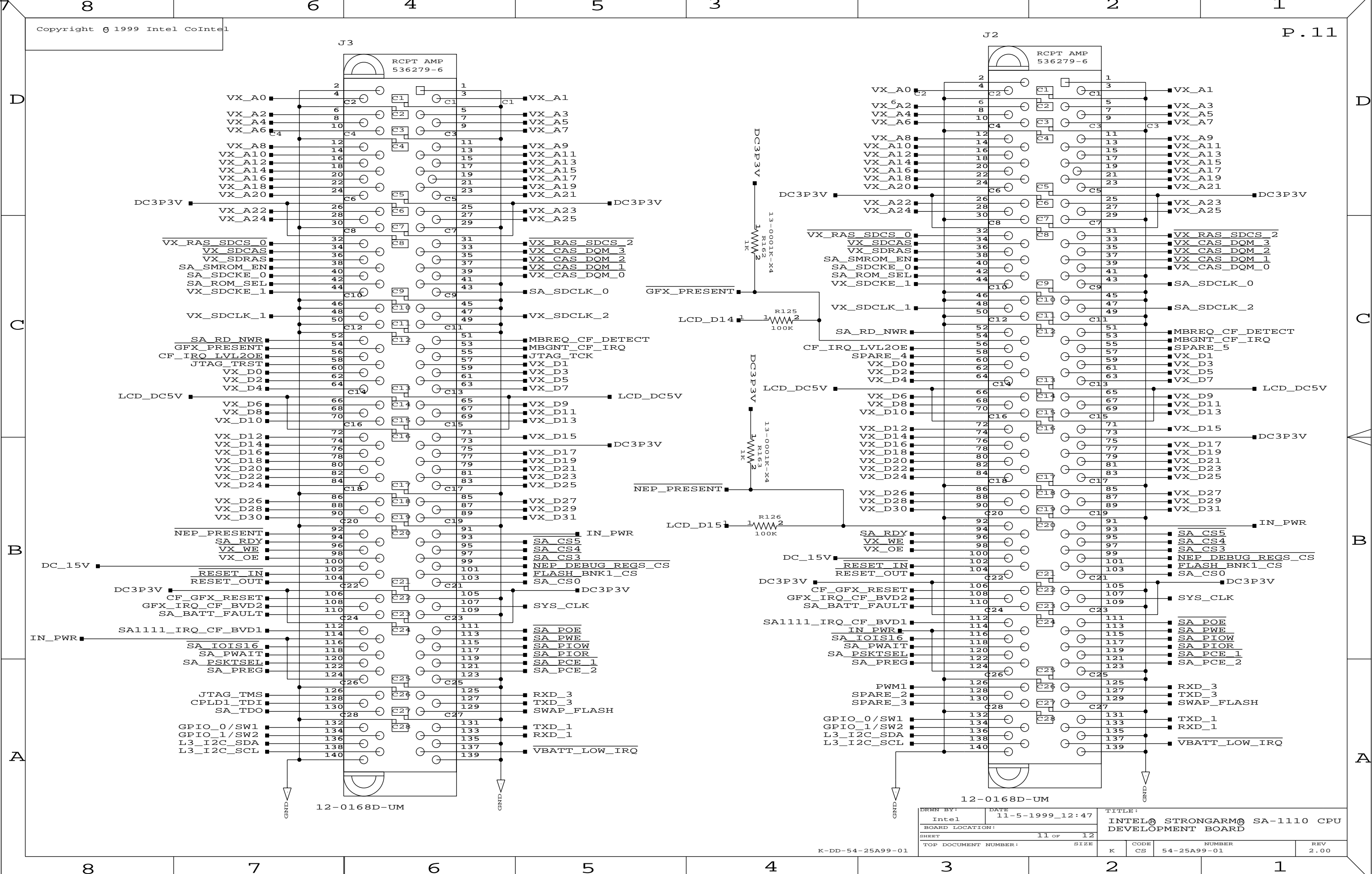
### Battery Charger



NOTE: Resistor/Voltage Table  
Select proper resistor value  
for correct voltage output

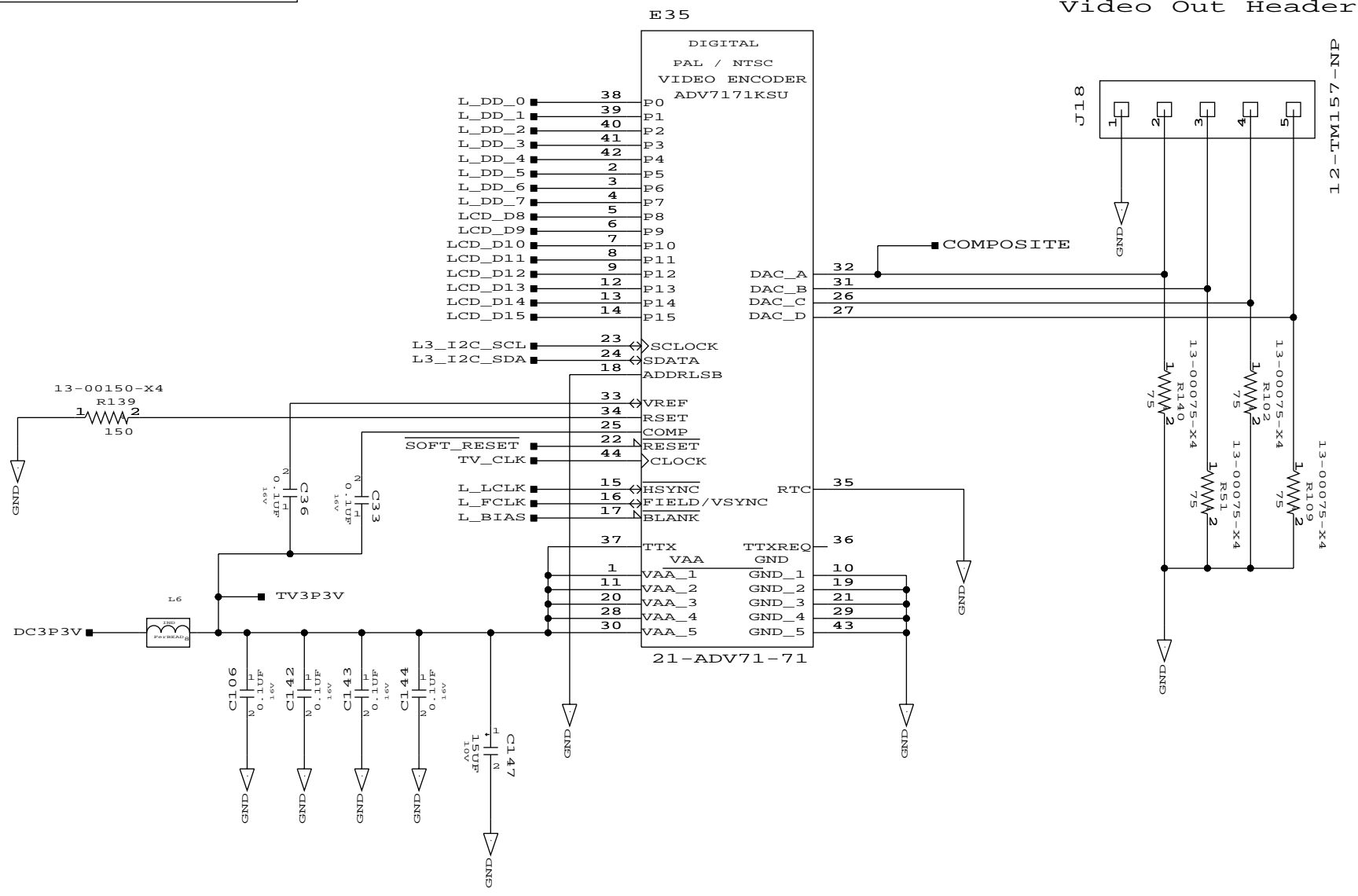
VOLTAGE	RESISTOR
1.5V	60.4K
1.55V	71.5K
1.60V	82.5K
1.65V	93.1K
1.70V	105K
1.75V	115K

Switchers for 5.5V, 3V and 2V



12-0168D-UM		TITLE:	
DRWN BY:	DATE:	INTEL® STRONGARM® SA-1110 CPU DEVELOPMENT BOARD	
Intel	11-5-1999_12:47		
BOARD LOCATION:			
SHEET	11 of 12		
TOP DOCUMENT NUMBER:	SIZE	CODE	NUMBER
K-DD-54-25A99-01		CS	54-25A99-01
		REV	2.00

Video Out Header



DRWN BY: Intel	DATE 11-5-1999_12:46	TITLE: INTEL® STRONGARM® SA-1110 CPU DEVELOPMENT BOARD		
BOARD LOCATION:		SHEET 12 of 12		
TOP DOCUMENT NUMBER: K-DD-54-25A99-01	SIZE K	CODE CS	NUMBER 54-25A99-01	REV 2.00

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