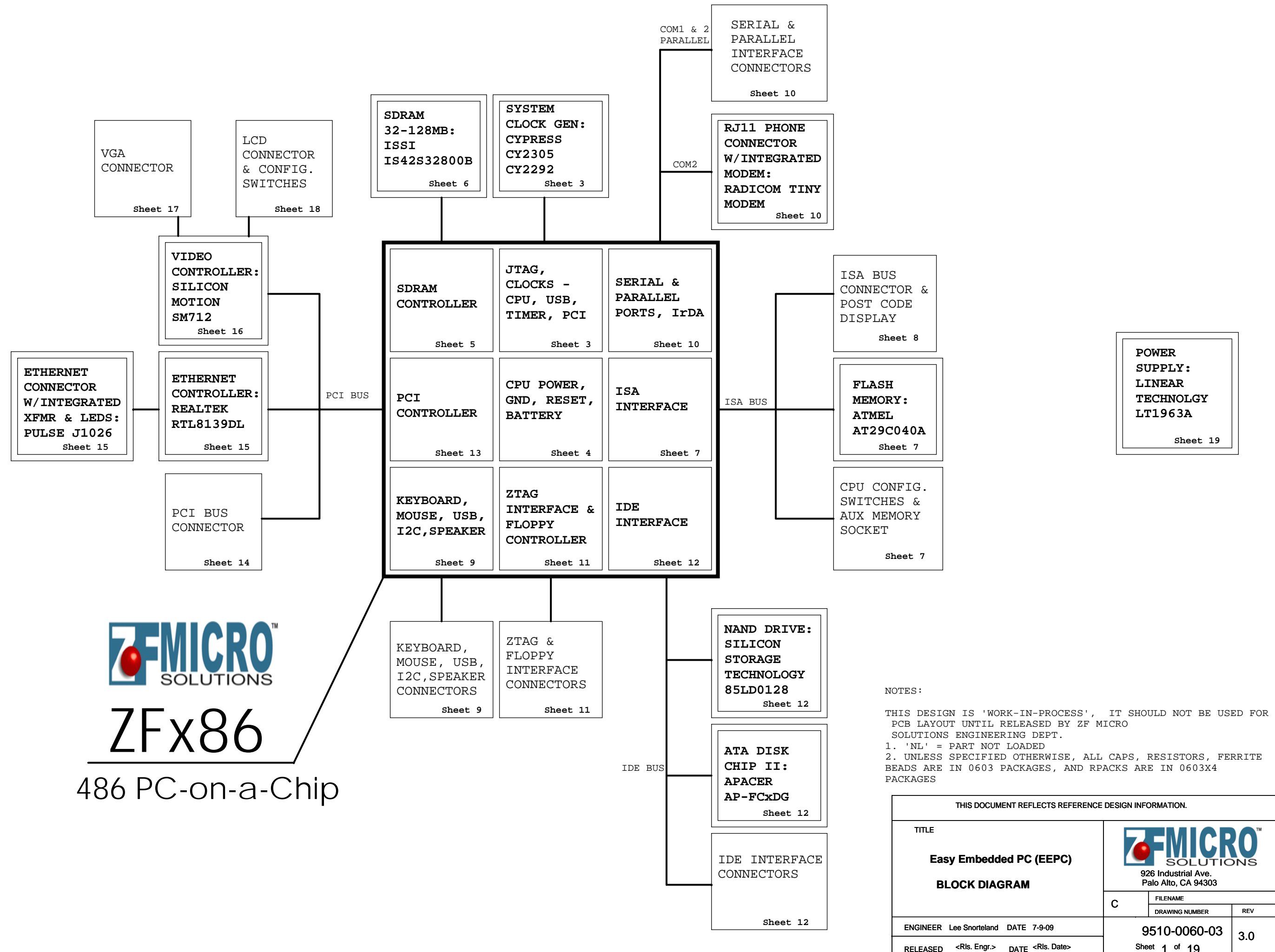




ZFx86

486 PC-on-a-Chip



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THIS DOCUMENT REFLECTS REFERENCE DESIGN INFORMATION.			
TITLE			
Easy Embedded PC (EPEC)		926 Industrial Ave. Palo Alto, CA 94303	
BLOCK DIAGRAM		FILENAME	REV
		C	
ENGINEER Lee Snorteland	DATE 7-9-09	9510-0060-03	
RELEASED <Rls. Engr.>	DATE <Rls. Date>	Sheet 1 of 19	3.0

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Revision Notes:

Rev 3.0 (seeded from rev 2.4) 7-9-09

All sheets- changed document number to 9510-0060-03

Sh 1- changed boot FLASH memory device

Sh 7- changed boot memory location to SKTU22

Sh 7- modified bootstrap resistor connections

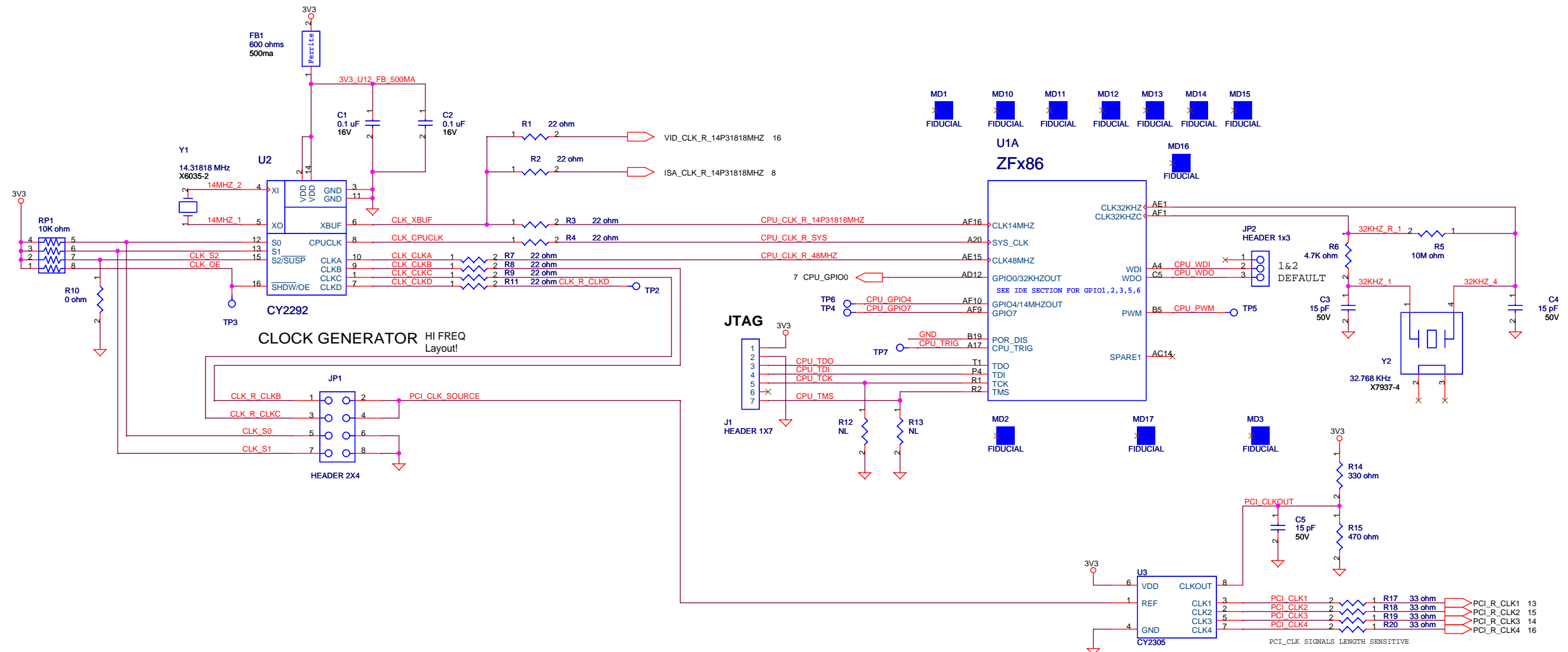
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ZF Micro Solutions, Palo Alto			
Title Easy Embedded PC NOTES			
Size C	Document Number 9510-0060-03	2	Rev 3.0
Date: Thursday, July 09, 2009 Sheet of 19			



SYSTEM SPEED SETTINGS:

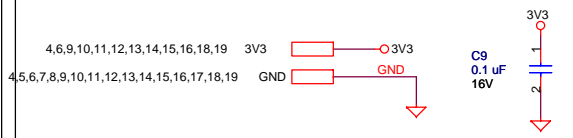
CPU SPEED	SDRAM SPEED	SYSCLK& PCI SPEED	JP1- 1&2	JP1- 3&4	JP1- 5&6	JP1- 7&8	CPUCCLK MULT*	SW2- 3:2	PCI FRONT DIVIDE*	SW2- 4
25MHz	25MHz	25MHz	OUT	IN	OUT	OUT	x1	on:on	/1	on
33MHz	33MHz	33MHz	OUT	IN	IN	OUT	x1	on:on	/1	on
50MHz	50MHz	25MHz	IN	OUT	IN	IN	x1	on:on	/2	off
66MHz	66MHz	33MHz	IN	OUT	OUT	IN	x1	on:on	/2	off
100MHz	33MHz	33MHz	OUT	IN	IN	OUT	x3	off:off	/1	on
100MHz	50MHz	25MHz	IN	OUT	IN	IN	x2	on:off	/2	off

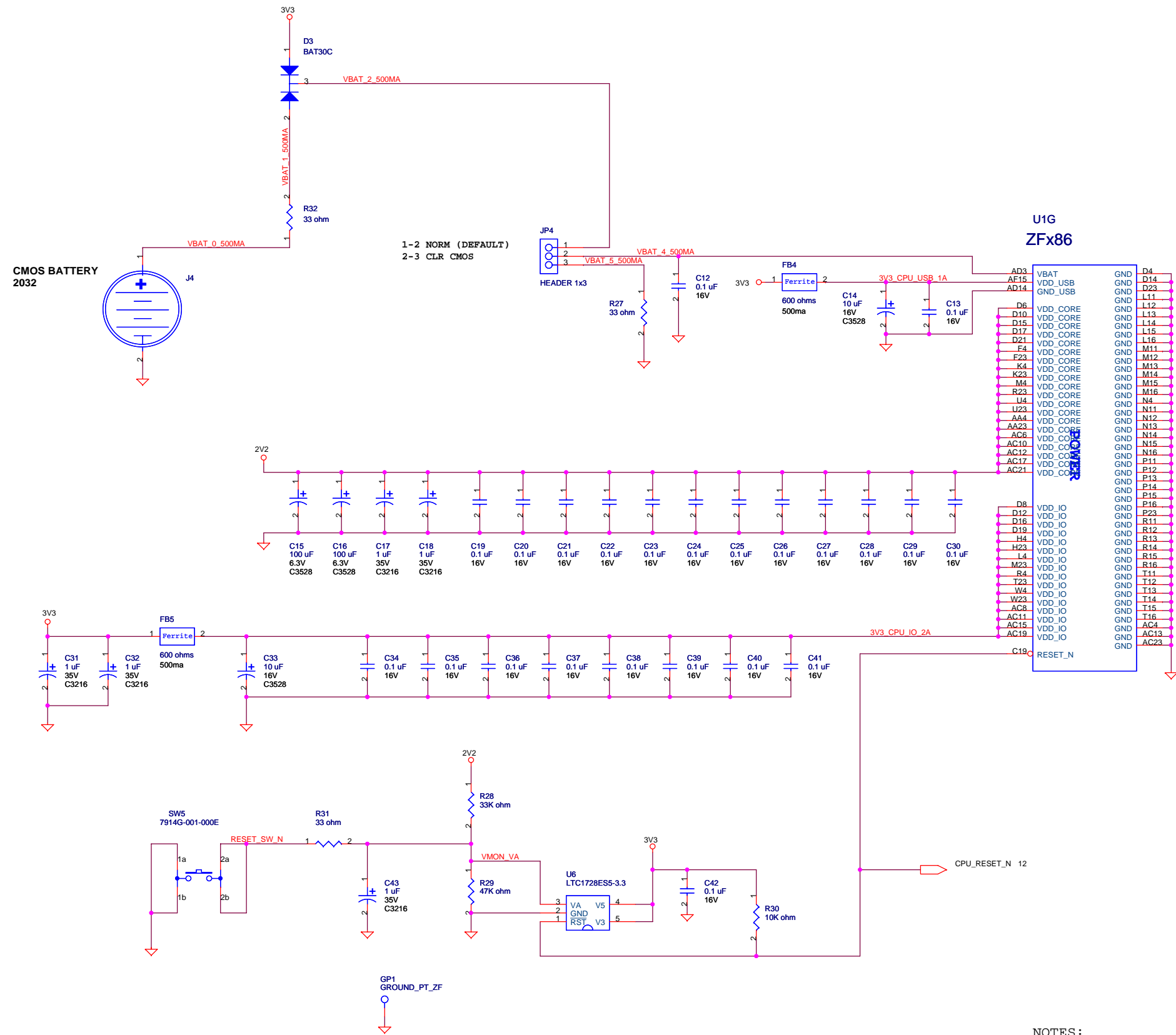
*NOTE: SEE ZFx86 CONFIGURATION TABLE ON SHEET 7 FOR ADDITIONAL INFO ON SW2 (8 position) BOOTSTRAP SETTINGS

THE FREQUENCIES LISTED ABOVE ARE BASED ON REV 7 OF THE PROGRAM IN THE CY2292F CLOCK GENERATOR (U2).

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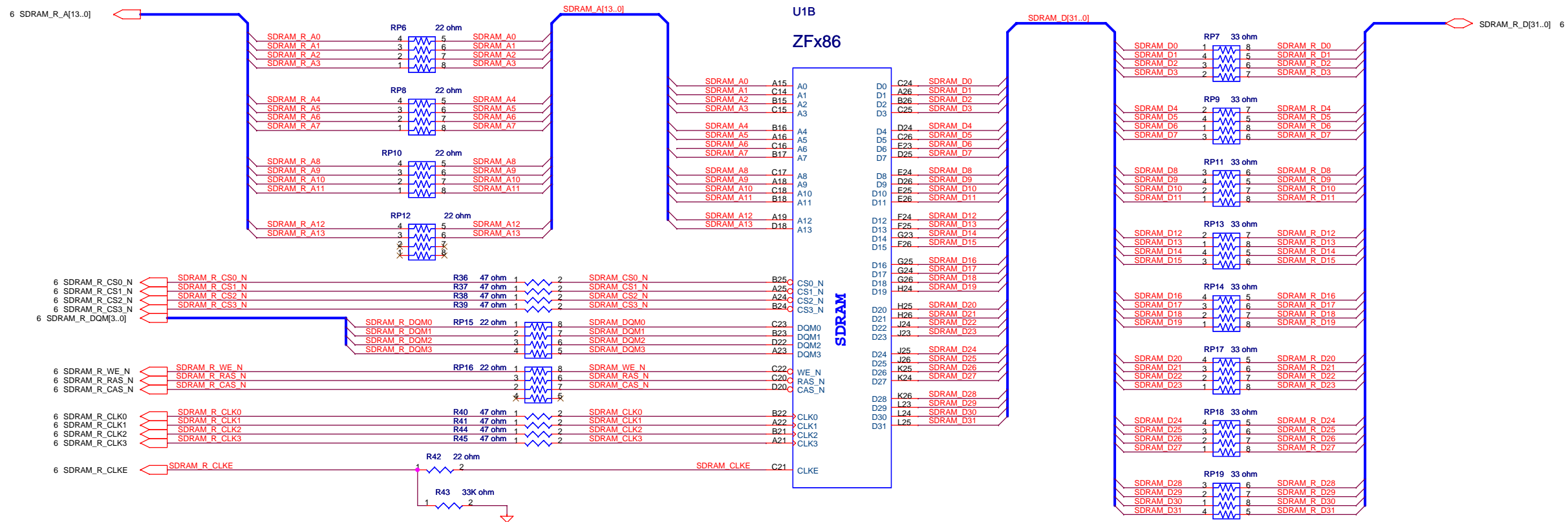




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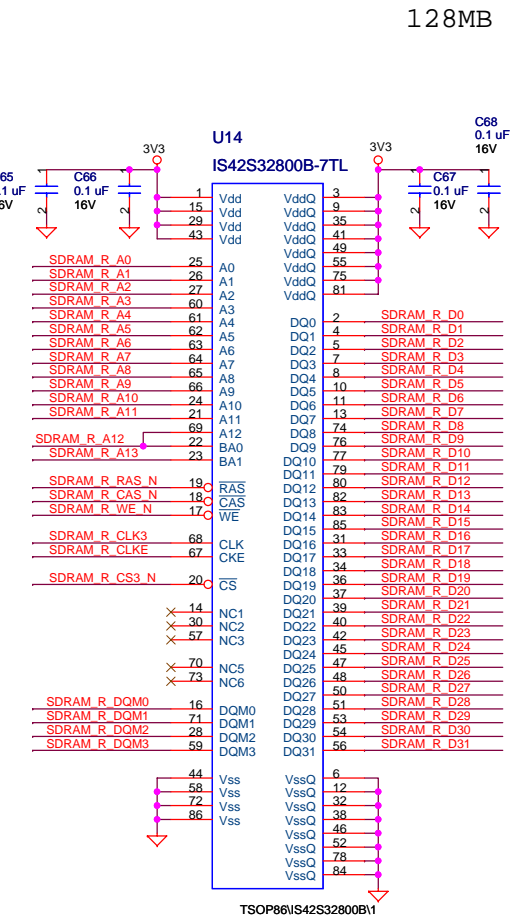
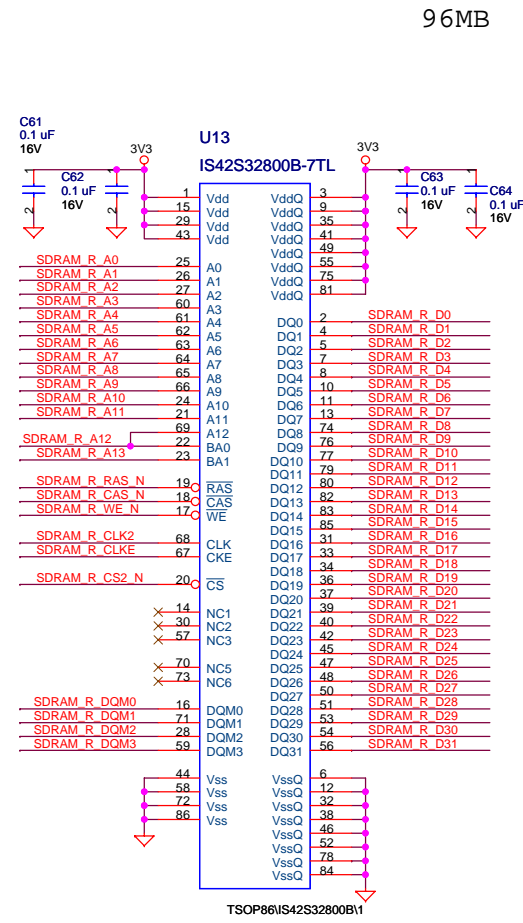
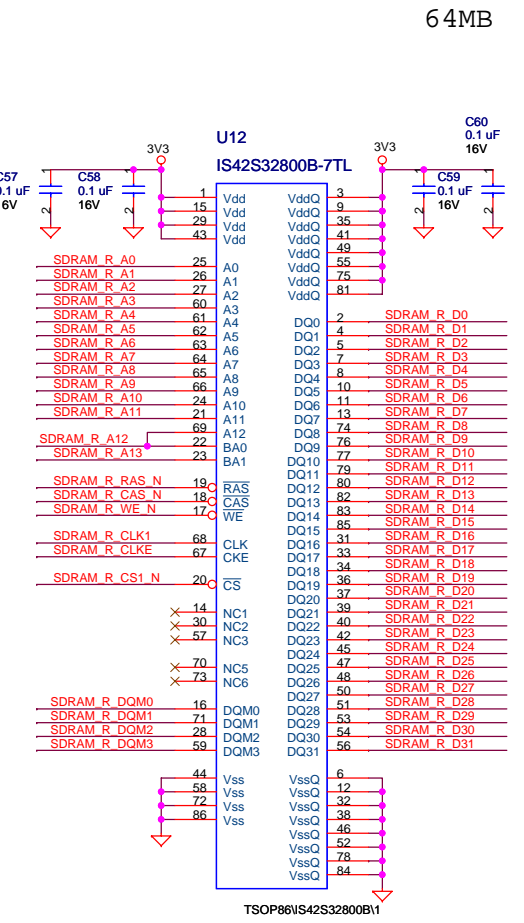
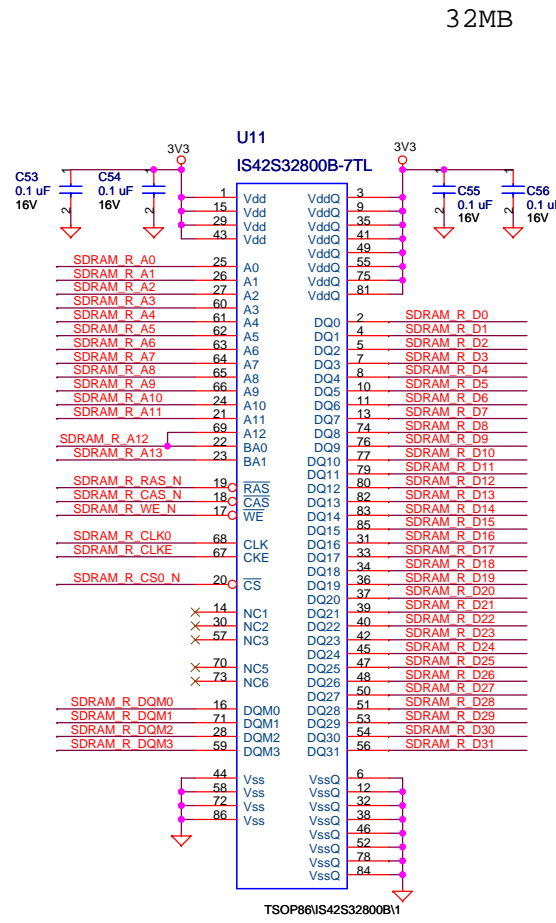
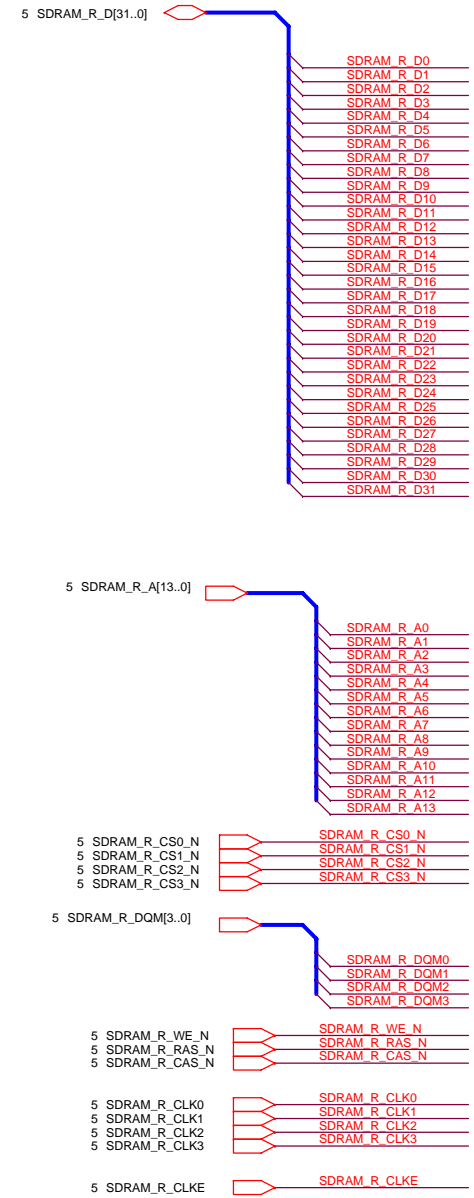


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3,4,6,7,8,9,10,11,12,13,14,15,16,17,18,19 GND

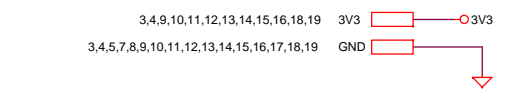
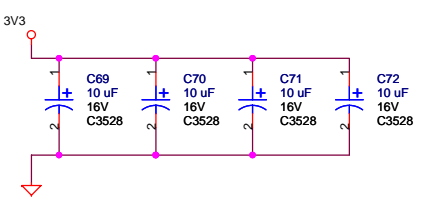
ZF Micro Solutions, Palo Alto			
Title: Easy Embedded PC CPU SDRAM			
Size C	Document Number	Rev	
	9510-0060-03	5	3.0
Date:	Thursday, July 02, 2009	Sheet	of 19



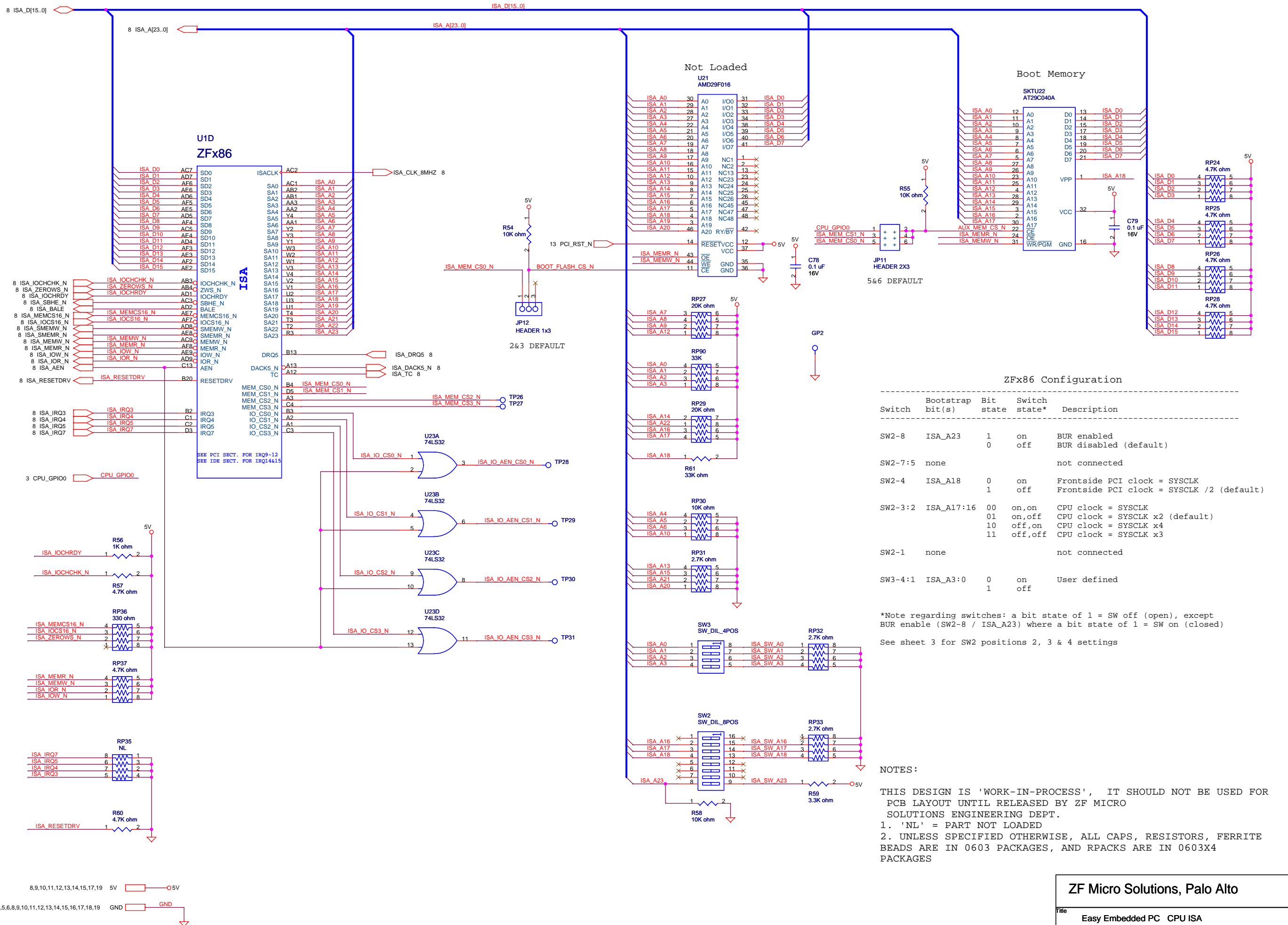
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Size C	Document Number	Rev	
	9510-0060-03	6	3.0
Date:	Thursday, July 02, 2008	Sheet	of 19



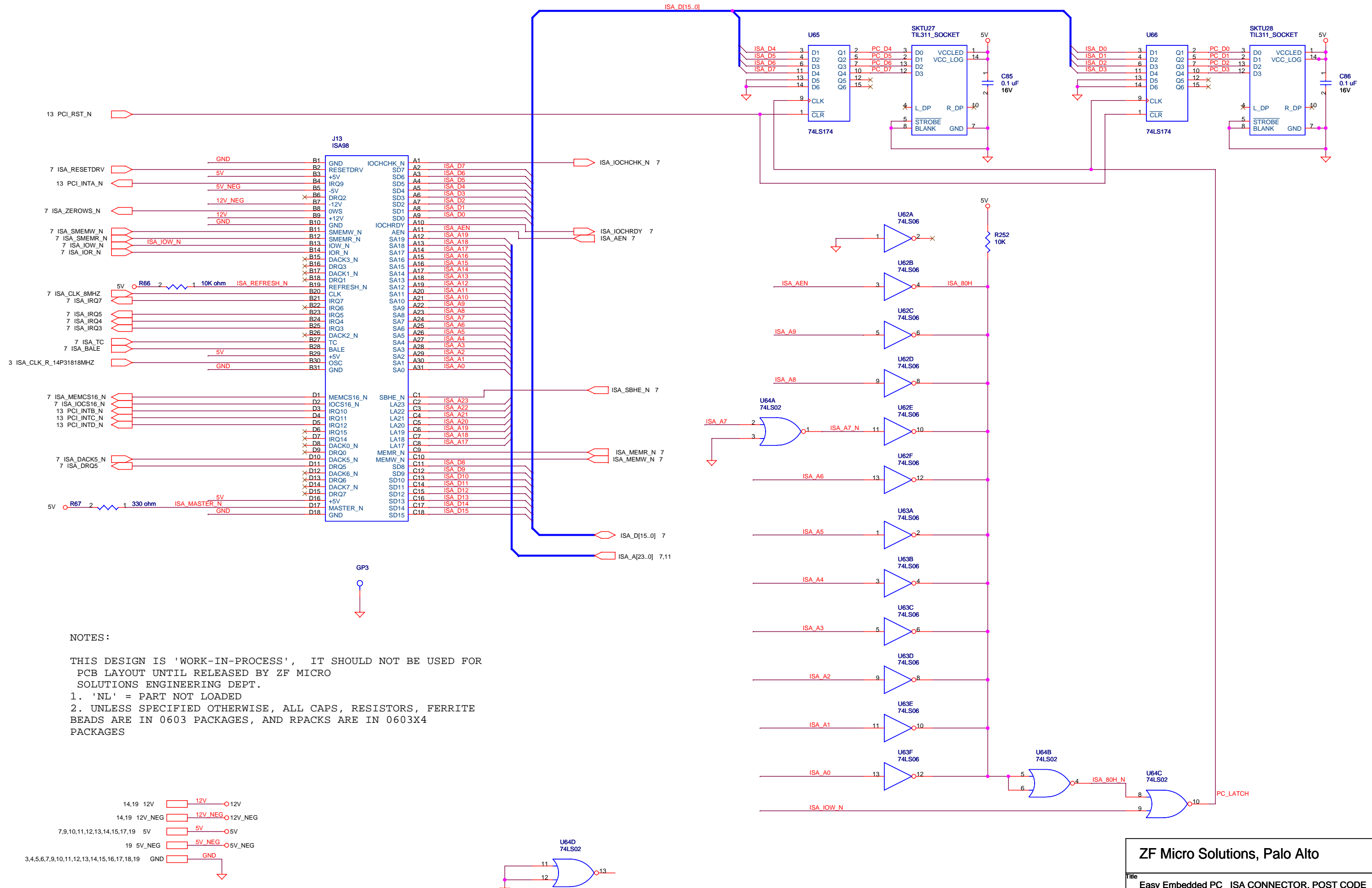
ZF86 Configuration

Switch	Bootstrap bit(s)	Bit state	Switch state*	Description
SW2-8	ISA_A23	1	on	BUR enabled
		0	off	BUR disabled (default)
SW2-7:5	none			not connected
SW2-4	ISA_A18	0	on	Frontside PCI clock = SYSCLK
		1	off	Frontside PCI clock = SYSCLK / 2 (default)
SW2-3:2	ISA_A17:16	00	on,on	CPU clock = SYSCLK
		01	on,off	CPU clock = SYSCLK x2 (default)
		10	off,on	CPU clock = SYSCLK x4
		11	off,off	CPU clock = SYSCLK x8
SW2-1	none			not connected
SW3-4:1	ISA_A3:0	0	on	User defined
		1	off	

*Note regarding switches: a bit state of 1 = SW off (open), except BUR enable (SW2-8 / ISA_A23) where a bit state of 1 = SW on (closed)
See sheet 3 for SW2 positions 2, 3 & 4 settings

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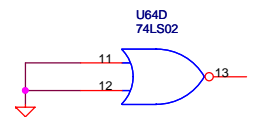
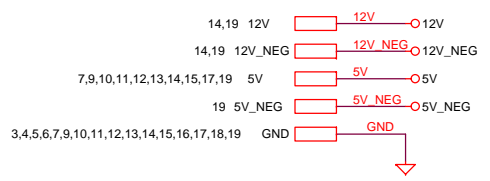
POSTCODE DISPLAY



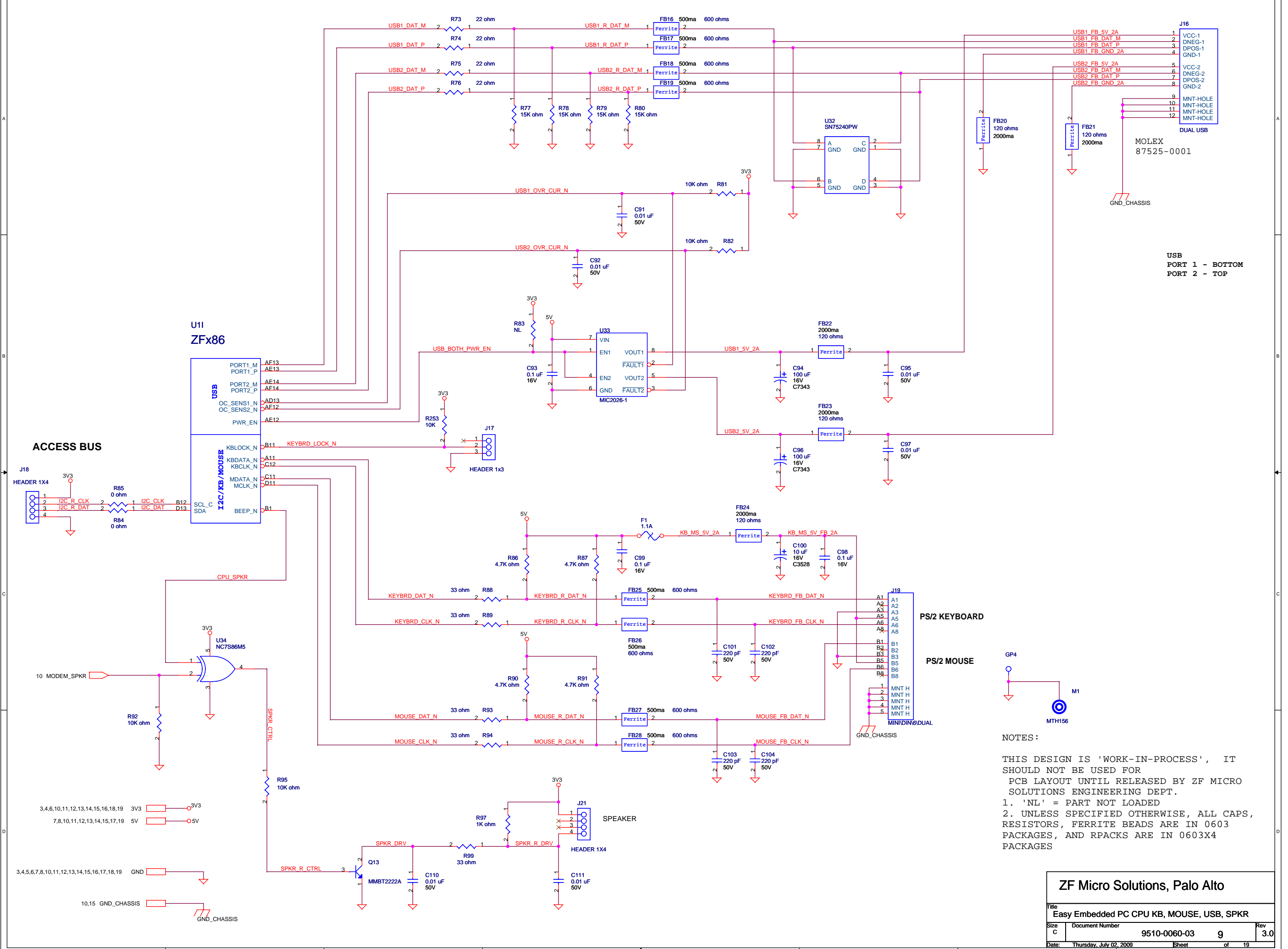
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Title: Easy Embedded PC ISA CONNECTOR, POST CODE			
Size C	Document Number	9510-0060-03	Rev 3.0
Date:	Thursday, July 02, 2009	Sheet	of 19

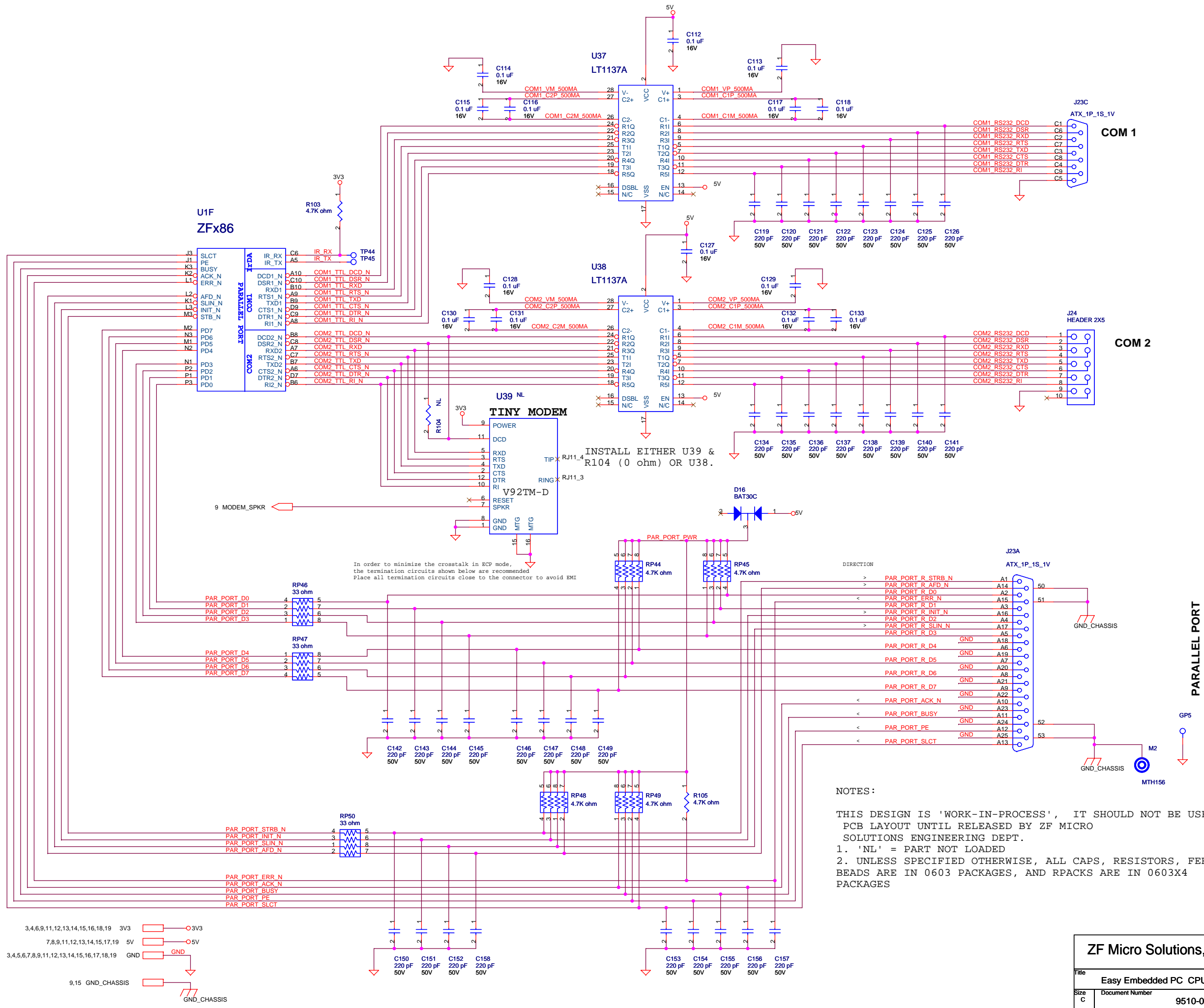


USB
PORT 1 - BOTTOM
PORT 2 - TOP

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Title Easy Embedded PC CPU KB, MOUSE, USB, SPKR			
Size C	Document Number 9510-0060-03	Rev 9	Rev 3.0
Date: Thursday, July 02, 2009	Sheet of 19		

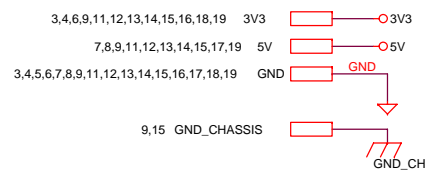


INSTALL EITHER U39 & R104 (0 ohm) OR U38.

In order to minimize the crosstalk in ECP mode, the termination circuits shown below are recommended. Place all termination circuits close to the connector to avoid EMI

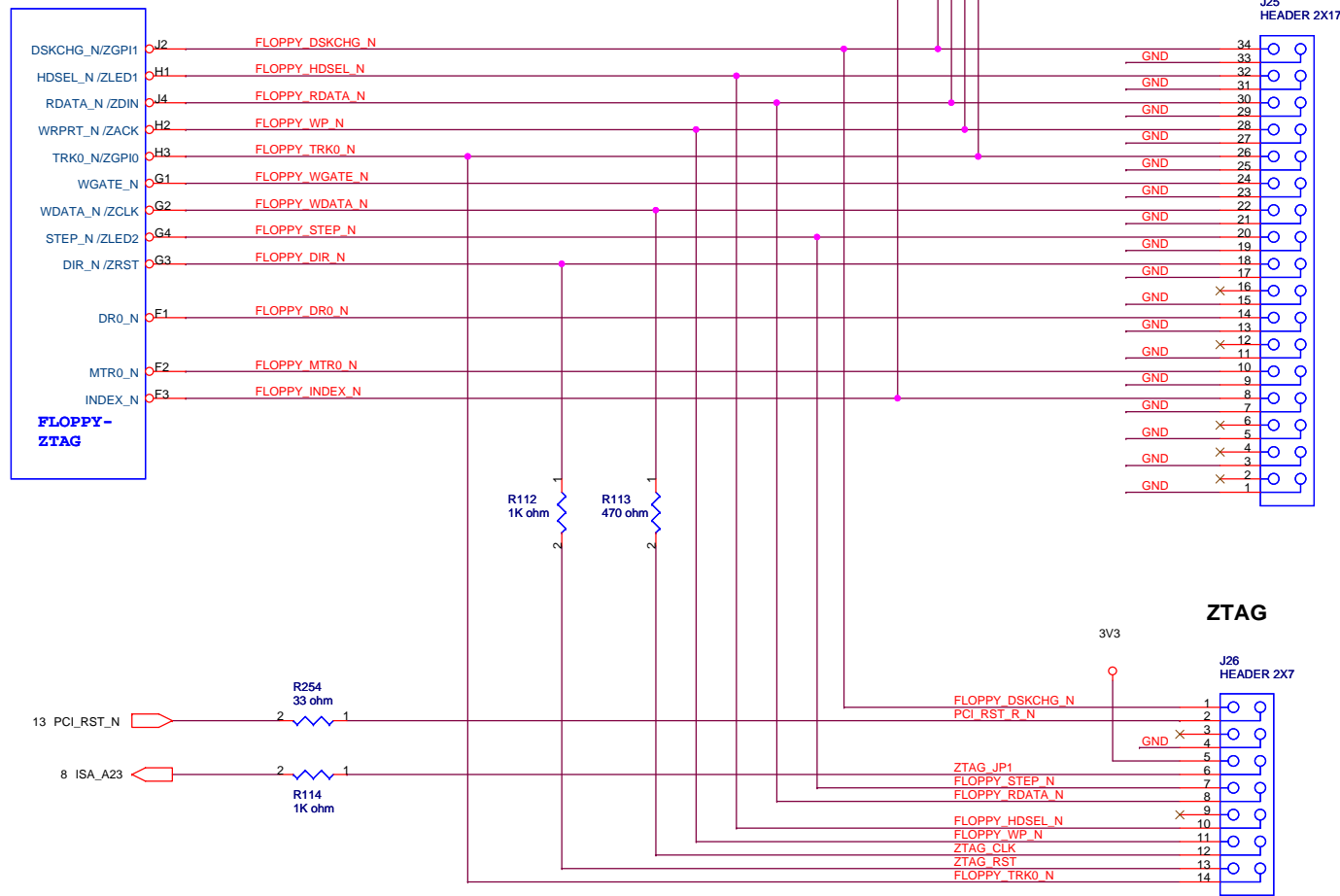
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Title Easy Embedded PC CPU RS232, PARALLEL PORT			
Size C	Document Number 9510-0060-03	Rev 10	3.0
Date: Thursday, July 02, 2008	Sheet	of	19

**U1H
ZFx86**



**FLOPPY-
ZTAG**

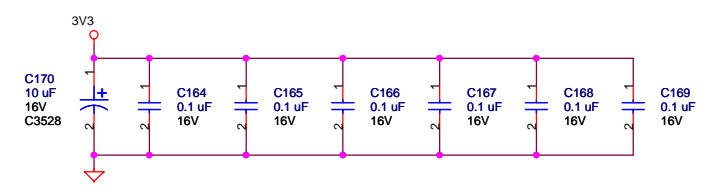
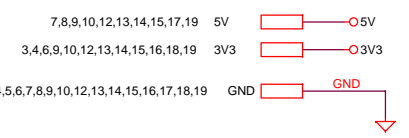
FLOPPY_DISK

ZTAG

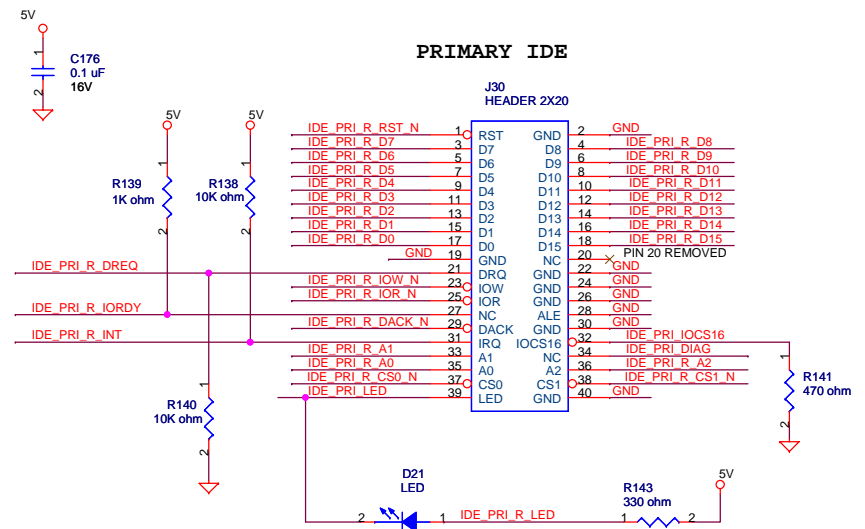
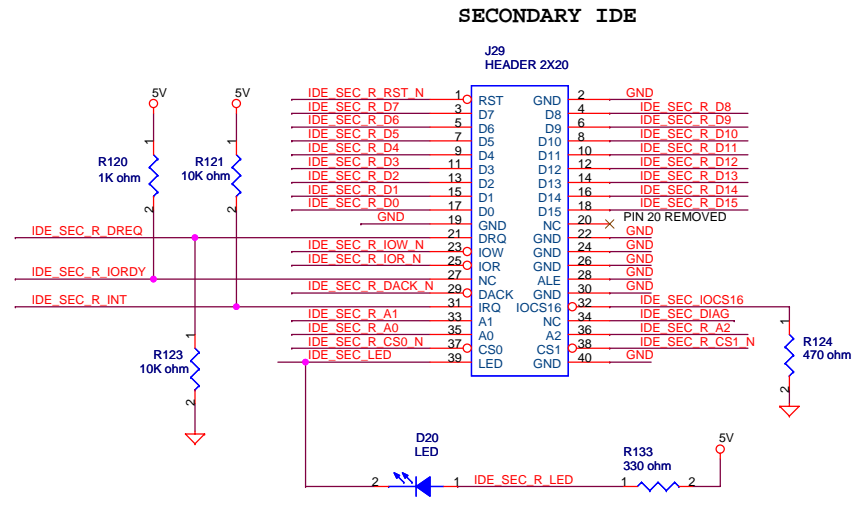
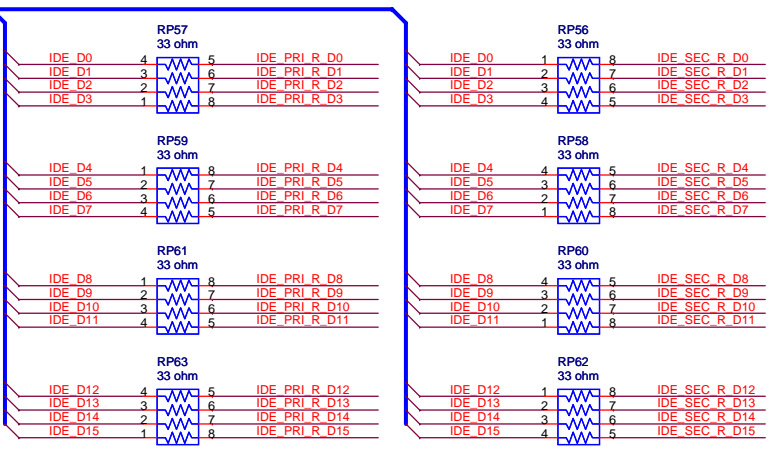
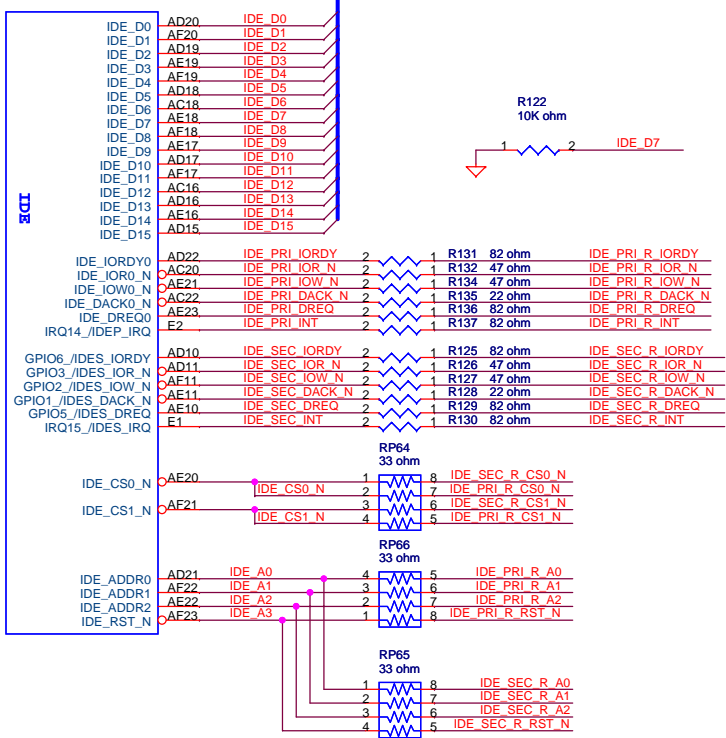
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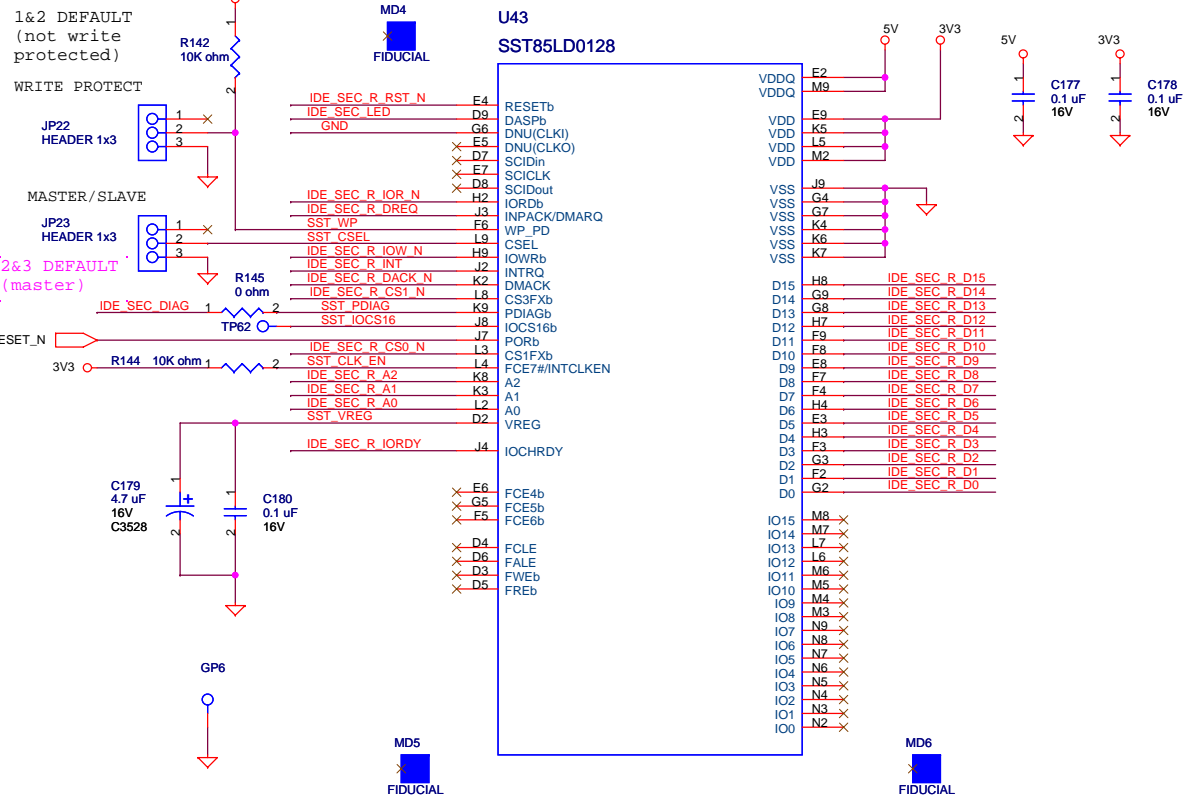
ZF Micro Solutions, Palo Alto			
Title Easy Embedded PC CPU FLOPPY, ZTAG			
Size C	Document Number 9510-0060-03	11	Rev 3.0
Date: Thursday, July 02, 2009		Sheet of	19



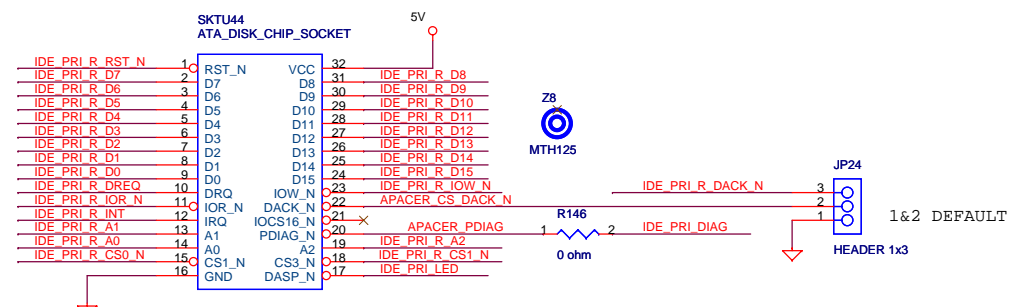
**U1E
ZFx86**



SILICON STORAGE TECHNOLOGY NAND DRIVE

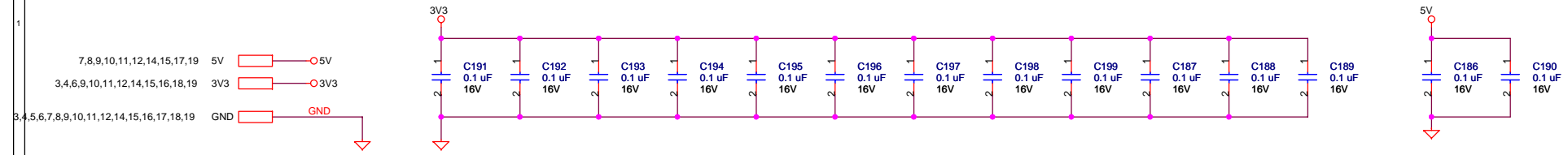
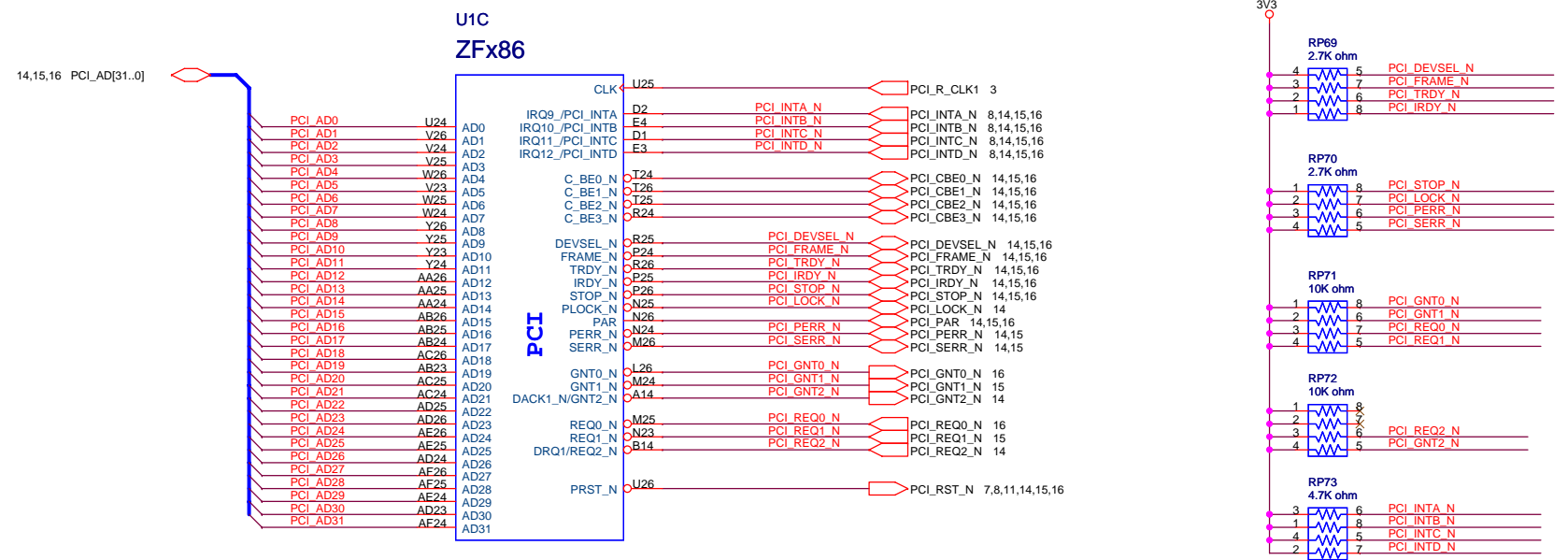


APACER ATA DISK CHIP II



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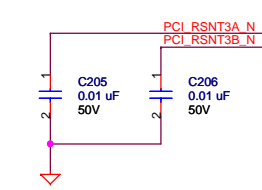
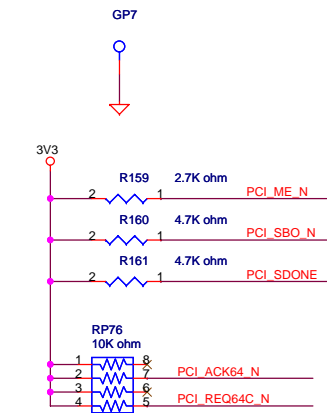
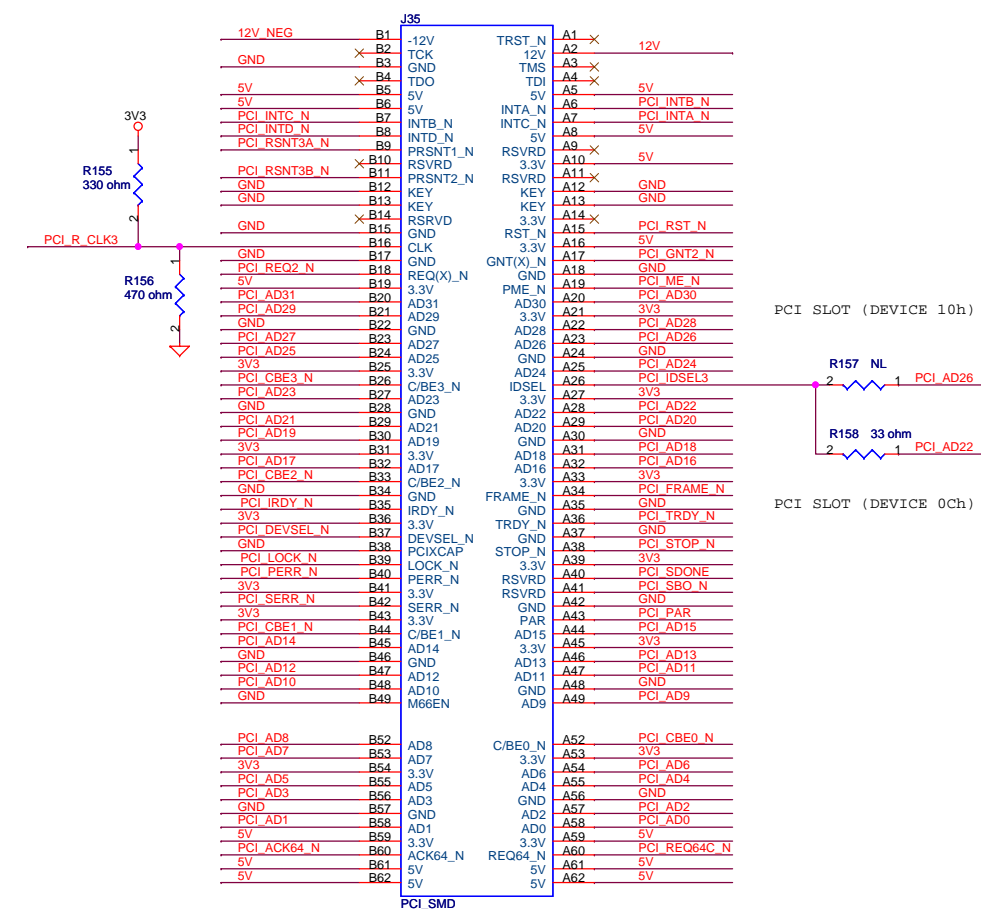
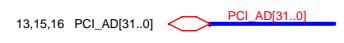
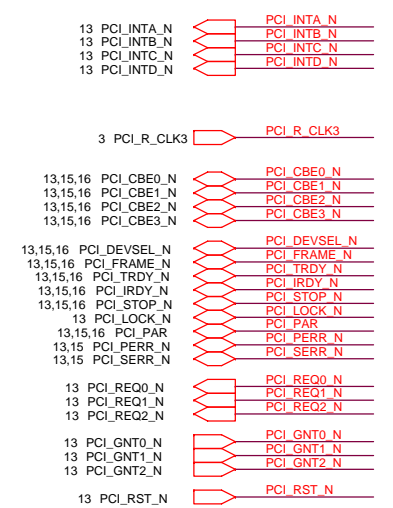


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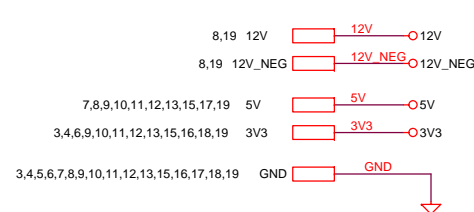
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Title: Easy Embedded PC CPU-PCI			
Size C	Document Number	Rev	
	9510-0060-03	13	3.0
Date:	Thursday, July 02, 2008	Sheet	of 19

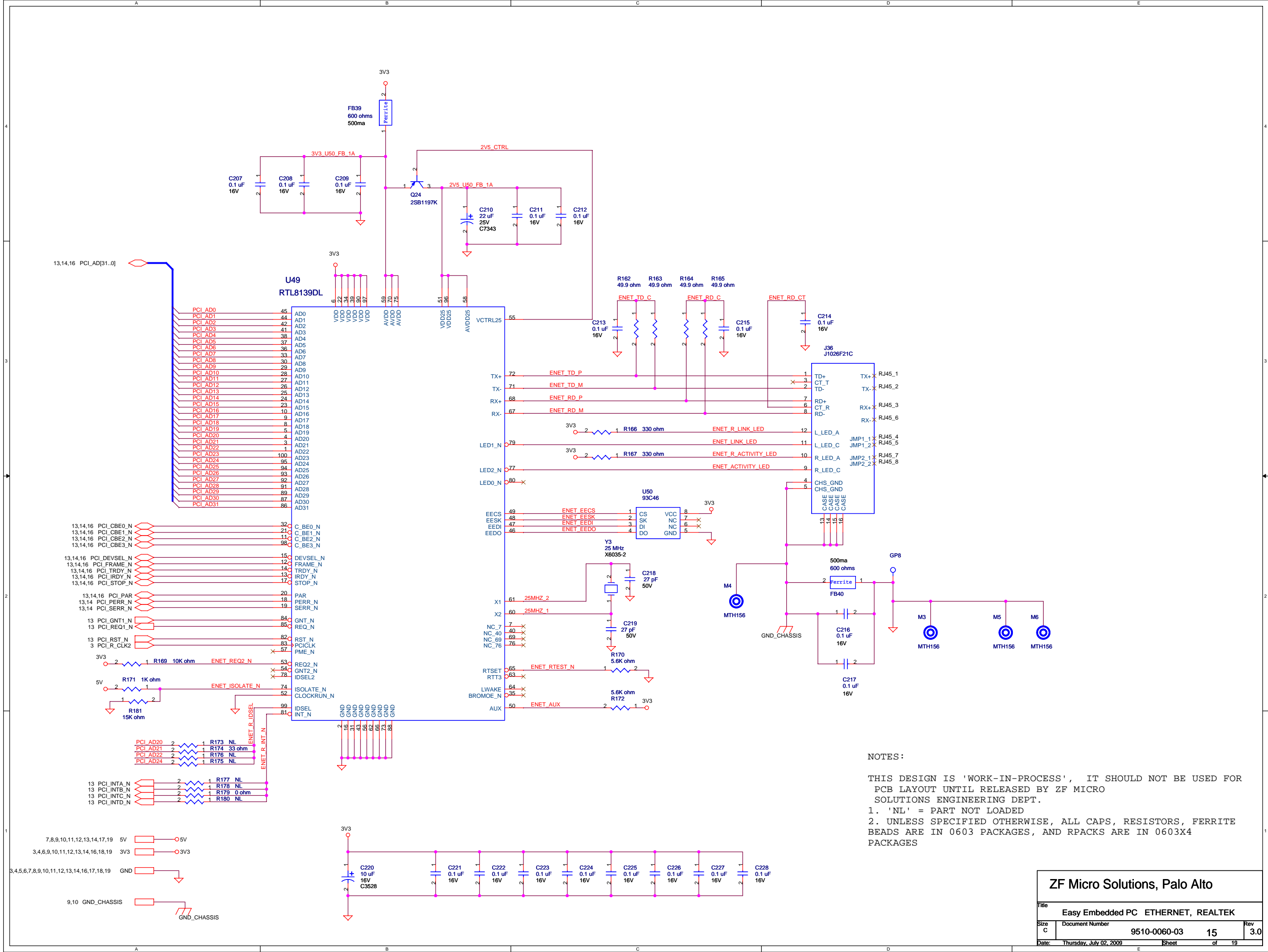


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Title Easy Embedded PC PCI CONNECTOR			
Size C	Document Number 9510-0060-03	Rev 14	3.0
Date: Thursday, July 02, 2009	Sheet	of	19



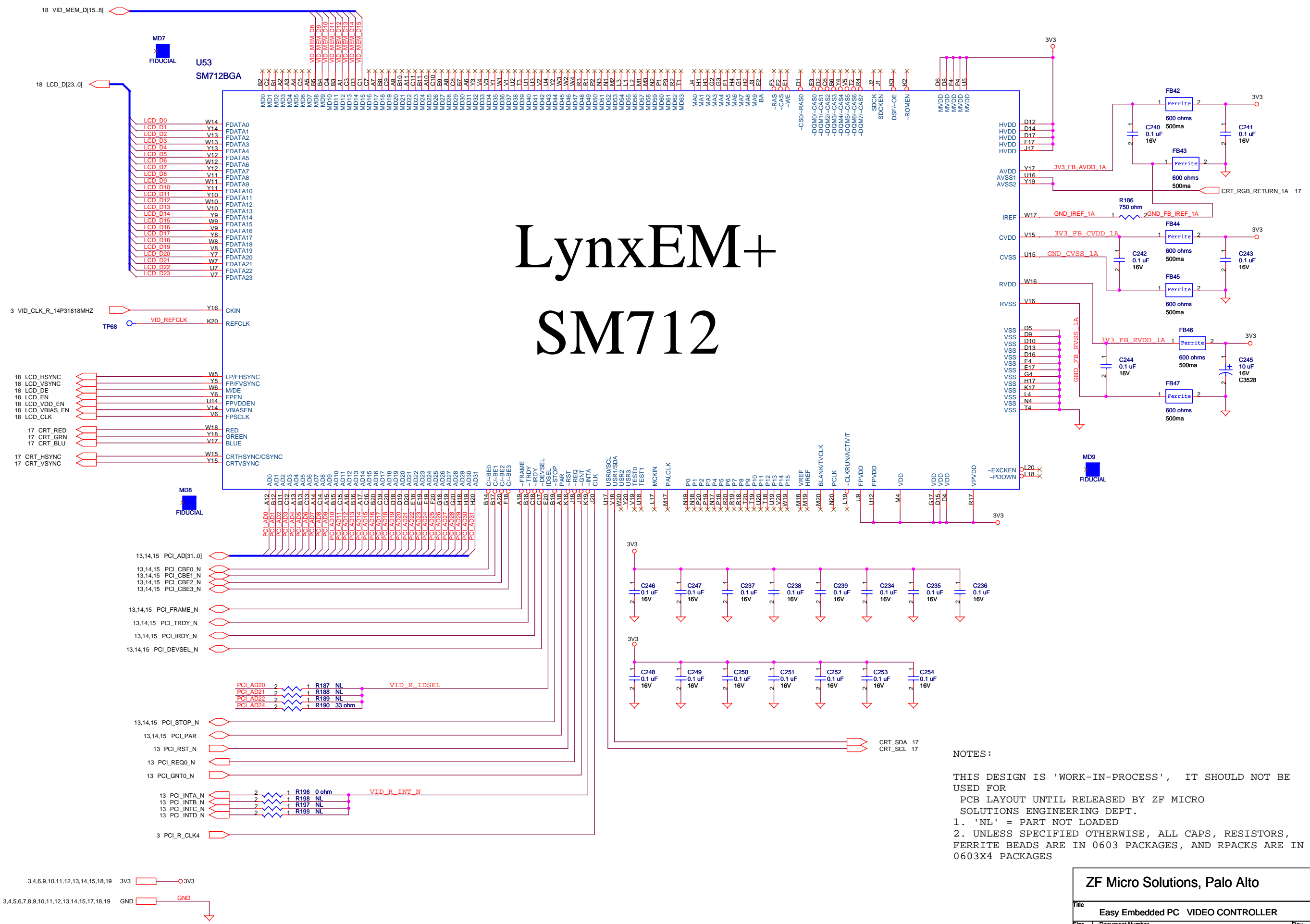
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Title: Easy Embedded PC ETHERNET, REALTEK			
Size C	Document Number	Rev	
	9510-0060-03	15	3.0
Date:	Thursday, July 02, 2009	Sheet	of 19

LynxEM+ SM712

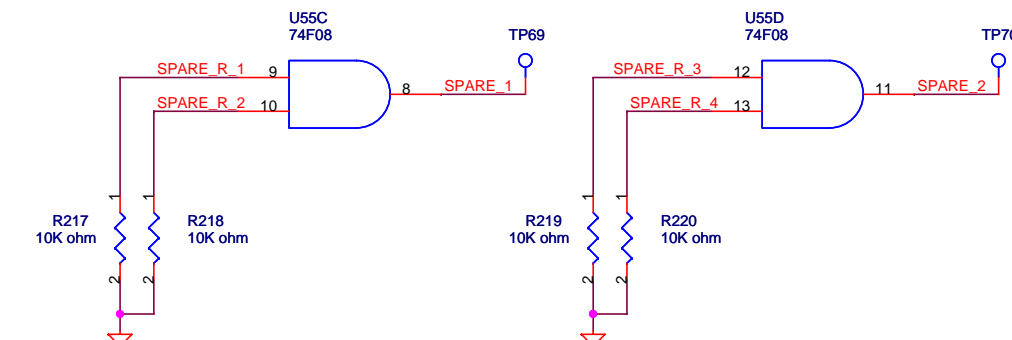
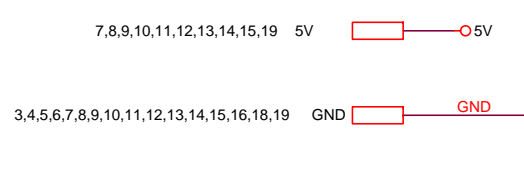
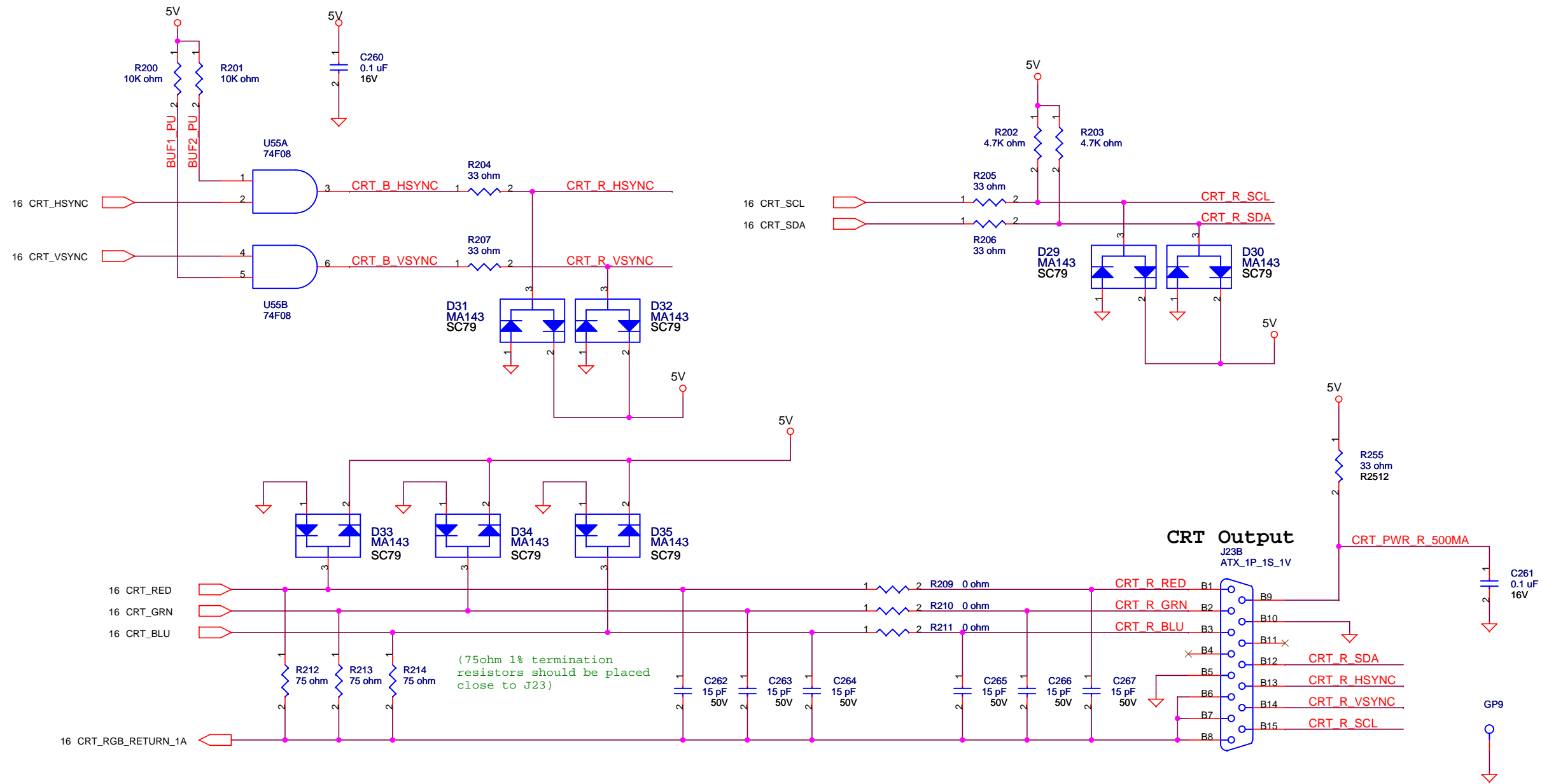


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Size C	Document Number: 9510-0060-03	16	Rev 3.0
Date: Thursday, July 02, 2009	Sheet of 19		



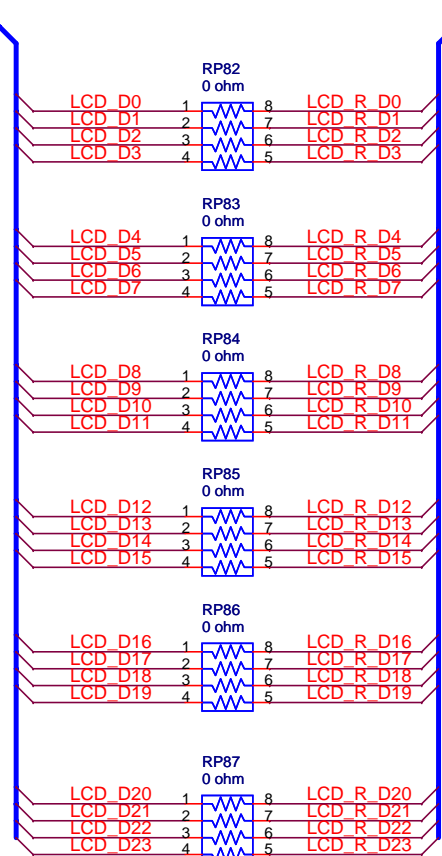
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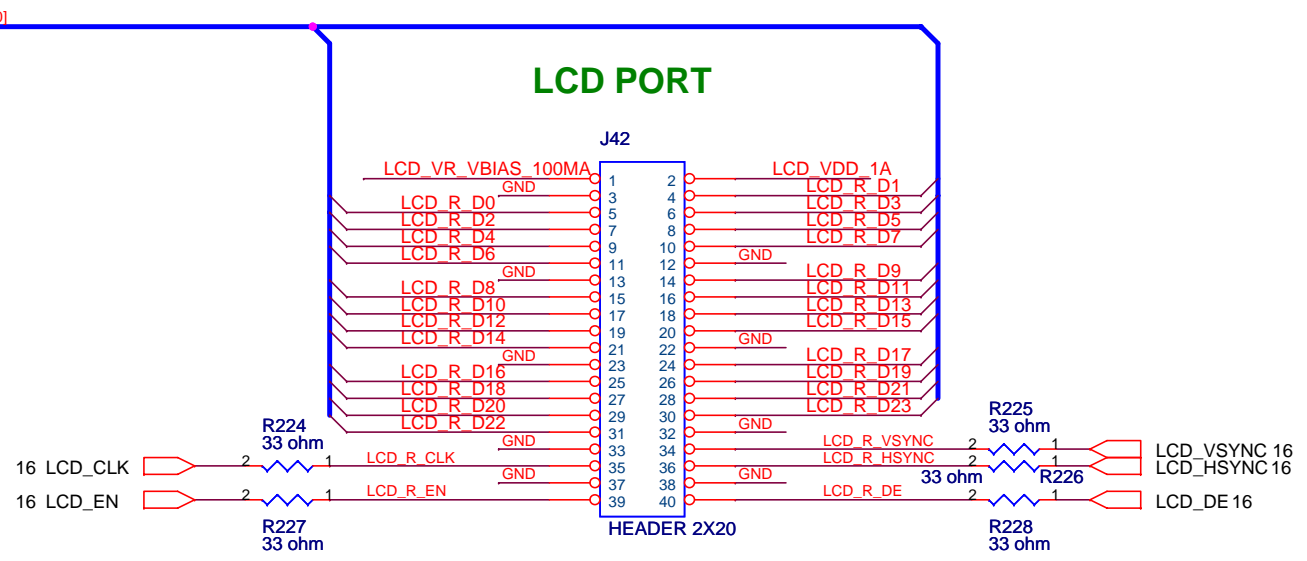
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Title: Easy Embedded PC VGA CONNECTOR			
Size: Custom	Document Number: 9510-0060-03	Rev: 17	Rev: 3.0
Date: Thursday, July 02, 2009	Sheet 1 of 19		

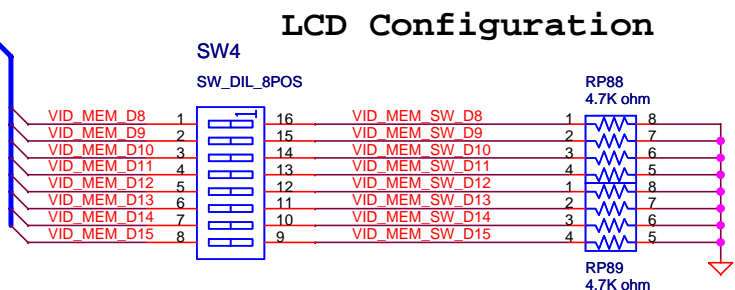
16 LCD_D[23..0]



LCD_R_D[23..0]



16 VID_MEM_D[15..8]

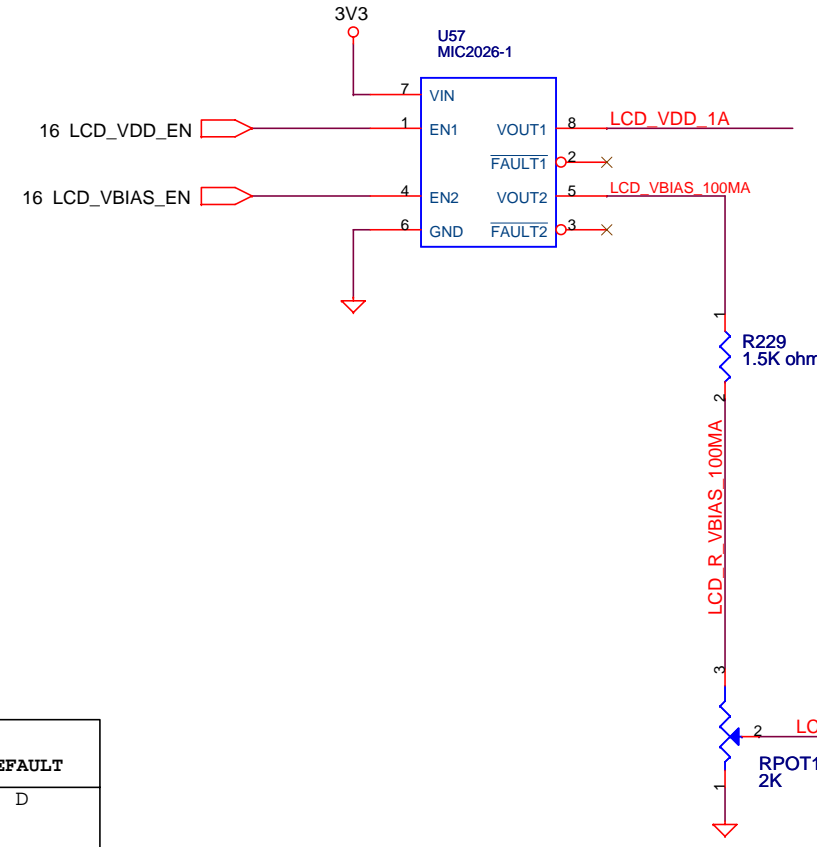


LCD Configuration

LCD Display Settings:

SW3	VID_MEM_D	STATE	SETTING	DEFAULT
1	D8	0	TFT	D
		1	DSTN	
		0	FPCLK Normal	
		1	FPCLK Inverted	
4:3	D[11:10]	0 0	640 x 480	D
		0 1	800 x 600	
		1 0	1024 x 768	
		1 1	1280 x 1024	
		0 0 0	9-BIT TFT	
0 0 1	12-BIT TFT			
0 1 0	18-BIT TFT			
0 1 1	24-BIT TFT			
1 0 0	12x2 - BIT TFT			
1 0 1	D[14:12]	1 0 1	ANALOGTFT	D
		1 1 0	18x2 - BIT TFT	
		0	16-BIT DSTN	
1	24-BIT DSTN			

Notes:
 (1) VID_MEM_D pins have internal pull-up resistors
 (2) 0 = Switch is ON (closed); 1 = Switch is OFF (open)



NOTES :

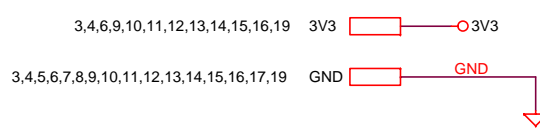
THIS DESIGN IS 'WORK-IN-PROCESS', IT SHOULD NOT BE USED FOR PCB LAYOUT UNTIL RELEASED BY ZF MICRO SOLUTIONS ENGINEERING DEPT.
 1. 'NL' = PART NOT LOADED
 2. UNLESS SPECIFIED OTHERWISE, ALL CAPS, RESISTORS, FERRITE BEADS ARE IN 0603 PACKAGES, AND RPACKS ARE IN 0603X4 PACKAGES

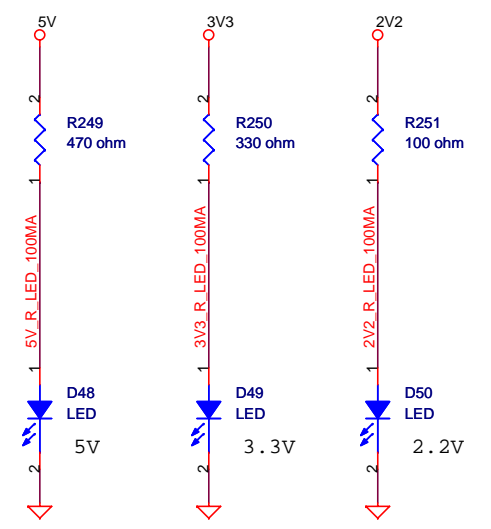
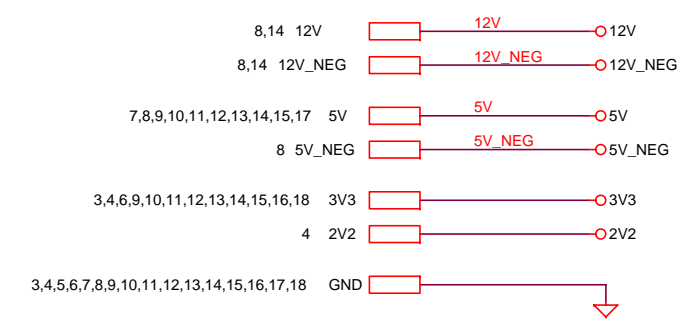
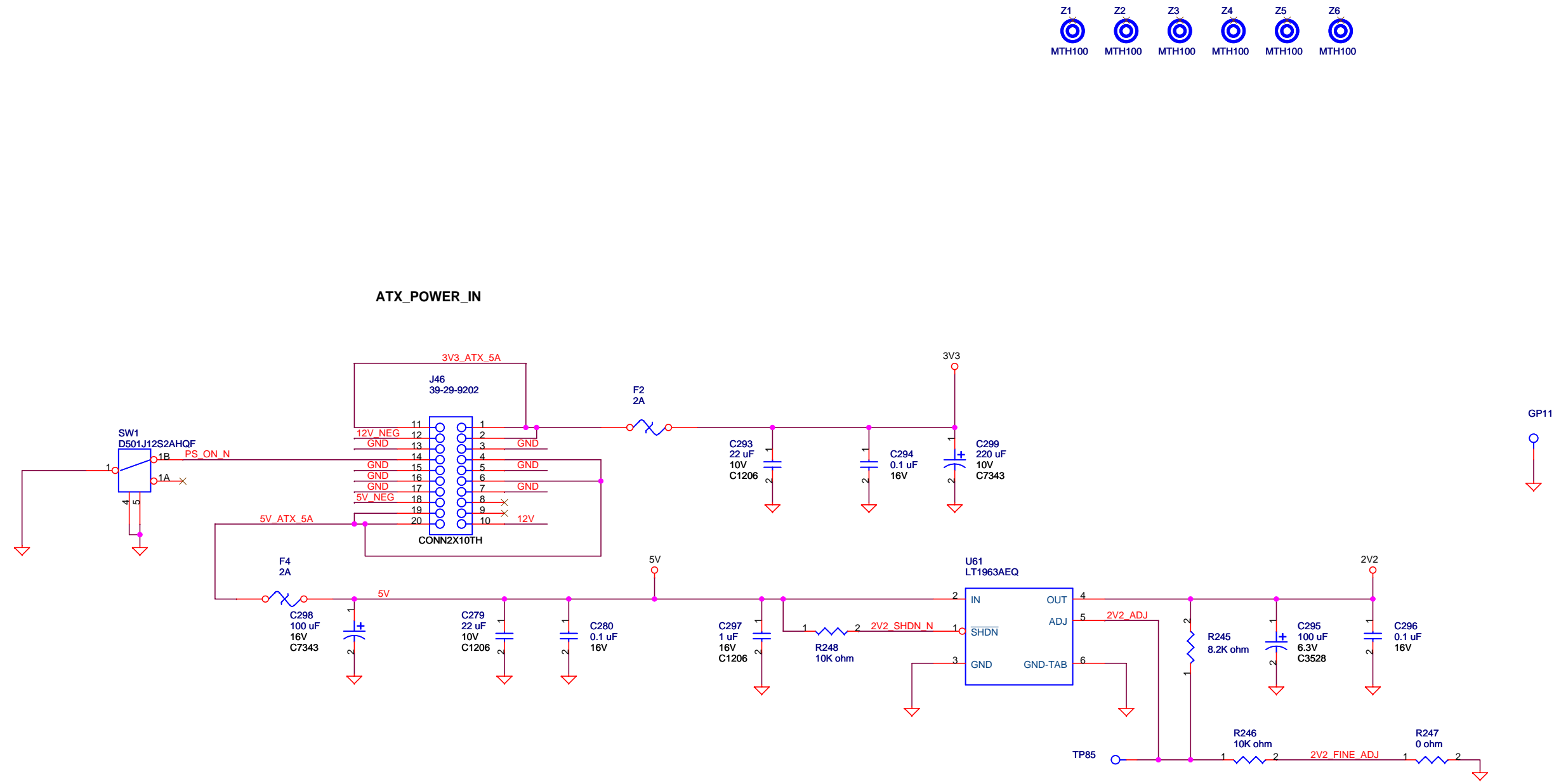
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Custom	9510-0060-03 18	3.0

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Title	99 POWER SUPPLIES		
Size	Document Number	Rev	
Custom	9510-0060-03	19	3.0
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