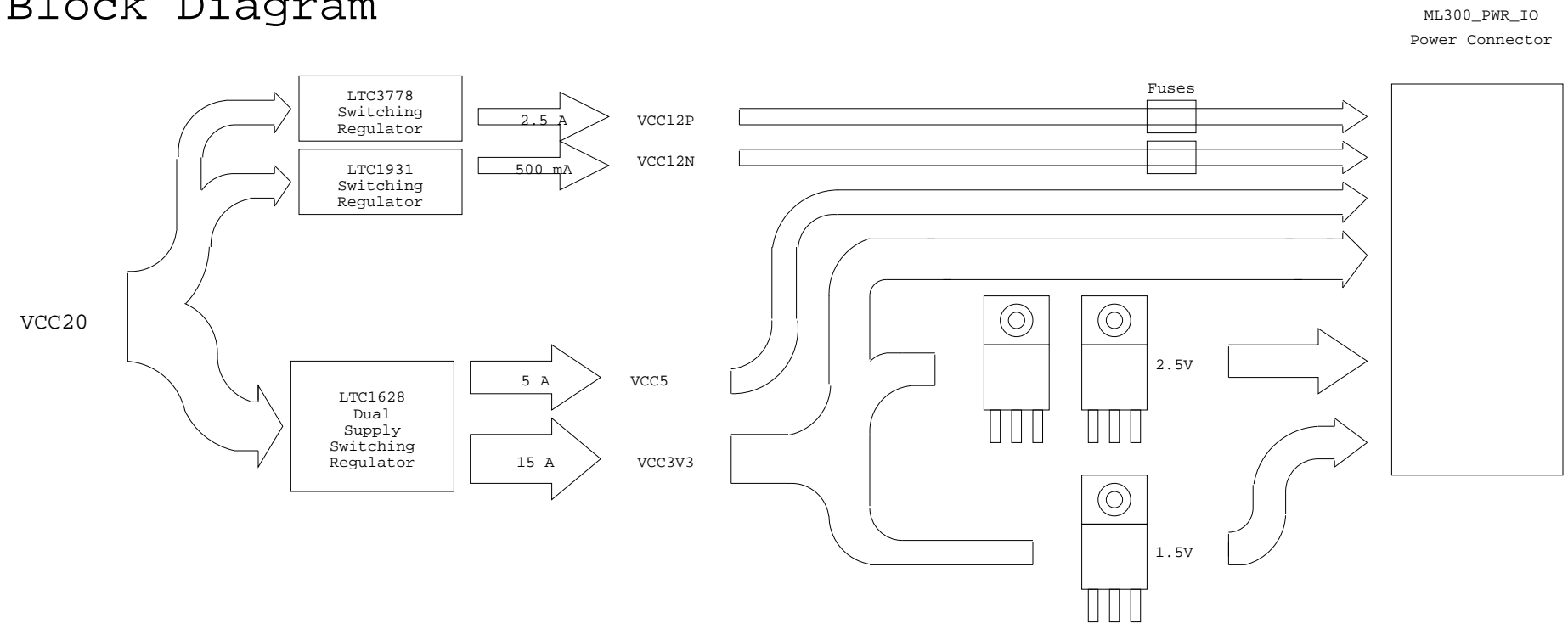
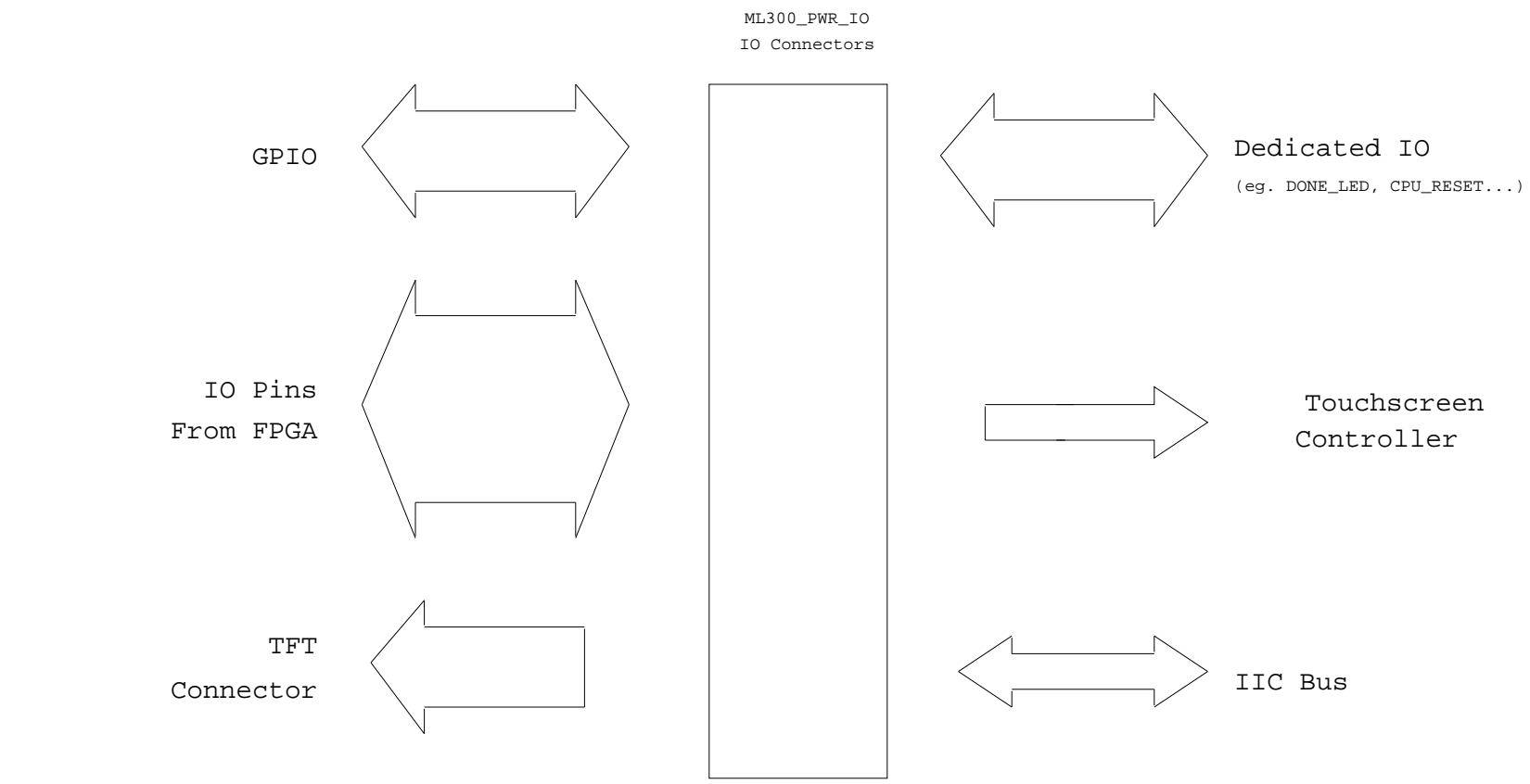


# ML300\_PWR\_IO Board Block Diagram



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## Int. Circuit Index (U\*)

Ref Des	PG	Manufacturer's Part Number	Part Description
U1	13	ADS7846E	Touchscreen A/D Converter
U4	14	MAX6683	IIC Power Monitor for 1.5V - 5V
U3	14	DS1845	II Trimpot for TFT Bright and Tchsrm Sens
U4	14	MAX6652	IIC Power Monitor for 2.5V - 12V
U5	15	74AVC16646	GPIO Bi-Dir Registers
U6	16	74AVC16646	GPIO Bi-Dir Registers
U7	20	74HCT20_SINGLE	Soft Power Switch 4-Input NAND Gate
U8	20	74HC14_SINGLE	Soft Power Switch Schmitt Inverter
U9	20	74HCT20_SINGLE	Soft Power Switch 4-Input NAND Gate
U10	20	74HC74_SINGLE	Soft Power Switch Flip-Flop
U11	20	LT1963ES8	3.3V Standby Linear Regulator
U12	20	74ALVC125	Soft Power Switch Buffer for Regulators
U13	21	LTC3778	12V Switching Regulator
U14	21	LT1931	-12V Inverting Switching Regulator
U15	22	LTCL628	3.3V and 5V Switching Regulator
U16	23	LT1764EQ	2.5V Linear Regulator
U17	23	LT1764EQ	2.5V Linear Regulator
U18	23	LT1366	Op-Amp for 2.5V Load Balancing
U19	24	LT1085	1.65V Linear Regulator
U20	25	LM339	FET for Driving LED
U21	25	LM339	FET for Driving LED
U22	25	LM339	FET for Driving LED
U23	25	LM2937IMP-15	15V Standby Linear Regulator
U24	14	X1226	IIC Real Time Clock
U25	25	LM2937IMP-15	5V Standby Linear Regulator

## Oscillator Index (X\*)

Ref Des	PG	Manufacturer's Part Number	Part Description
X1	14	XTAL_2	Real Time Clock Crystal

## Header Index (J\*)

Ref Des	PG	Manufacturer's Part Number	Part Description
J1	11	SSQ-132-01-S-D	2X32 Digital Connectot #1 to ML300_CPU
J2	11	SSQ-132-01-S-D	2X32 Digital Connectot #2 to ML300_CPU
J3	11	SSQ-125-01-S-D	2X25 Power Connector to ML300_CPU
J4	11	RP34-BR-3PDLA	Primary Power Jack - Dell Power Supply
J5	12	DF9-31S-1V	TFT Connector
J6	12	1L-Z-6S-S125C3	TFT Inverter Connector
J7	13	22-12-2044	Touchscreen Connector
J9	19	P2C32SAAN	1X32 Ground Connector for GPIO
J10	19	P2C32SAAN	1X32 GPIO Connector
J11	20	1X2 Header	Soft Power Switch Jumper
J12	20	1X2 Header	Soft Power Switch Disable Jumper

## Switch Index (SW\*)

Ref Des	PG	Manufacturer's Part Number	Part Description
SW1	17	SW_SLIDE_SPDT	Main Power Supply Switch
SW2	17	SW_ROTARY_8POS	System ACE Configuration Address
SW3	17	BTN_MOMENT_RA	System ACE Reset Button
SW4	17	BTN_MOMENT_RA	CPU Reset Button
SW5	17	BTN_MOMENT_RA	FPGA Program Button
SW6	17	BTN_MOMENT	Left-Side Thumb Button (Top)
SW7	17	BTN_MOMENT	Left-Side Thumb Button (Left)
SW8	17	BTN_MOMENT	Left-Side Thumb Button (Right)
SW9	17	BTN_MOMENT	Left-Side Thumb Button (Bottom)
SW10	17	BTN_MOMENT	Left-Side Button - Top
SW11	17	BTN_MOMENT	Left-Side Button - Middle
SW12	17	BTN_MOMENT	Left-Side Button - Bottom
SW13	17	BTN_MOMENT	Right-Side Thumb Button (Top)
SW14	17	BTN_MOMENT	Right-Side Thumb Button (Left)
SW15	17	BTN_MOMENT	Right-Side Thumb Button (Right)
SW16	17	BTN_MOMENT	Right-Side Thumb Button (Bottom)
SW17	17	BTN_MOMENT	Right-Side Button - Top
SW18	17	BTN_MOMENT	Right-Side Button - Middle
SW19	17	BTN_MOMENT	Right-Side Button - Bottom

## LED Index (DS\*)

Ref Des	PG	Manufacturer's Part Number	Part Description
DS1	18	LNJ115W8PRA	PLB Bus Error Dual LED
DS2	18	LNJ115W8PRA	OPB Bus Error Dual LED
DS3	25	LNJ115W8PRA	1.5V Power Good Dual LED
DS4	25	LNJ115W8PRA	2.5V Power Good Dual LED
DS5	25	LNJ115W8PRA	3.3V Power Good Dual LED
DS6	25	LNJ115W8PRA	5V Power Good Dual LED
DS7	25	LNJ115W8PRA	+12V Power Good Dual LED
DS8	19	SML-LX0603GW-TR	GPIO2/Test Bit 0 Green LED (LSB)
DS9	19	SML-LX0603GW-TR	GPIO2/Test Bit 1 Green LED
DS10	19	SML-LX0603GW-TR	GPIO2/Test Bit 2 Green LED
DS11	19	SML-LX0603GW-TR	GPIO2/Test Bit 3 Green LED
DS12	19	SML-LX0603GW-TR	GPIO2/Test Bit 4 Green LED
DS13	19	SML-LX0603GW-TR	GPIO2/Test Bit 5 Green LED
DS14	19	SML-LX0603GW-TR	GPIO2/Test Bit 6 Green LED
DS15	19	SML-LX0603GW-TR	GPIO2/Test Bit 7 Green LED
DS16	19	SML-LX0603GW-TR	GPIO2/Test Bit 8 Green LED
DS17	19	SML-LX0603GW-TR	GPIO2/Test Bit 9 Green LED
DS18	19	SML-LX0603GW-TR	GPIO2/Test Bit 10 Green LED
DS19	19	SML-LX0603GW-TR	GPIO2/Test Bit 11 Green LED
DS20	19	SML-LX0603GW-TR	GPIO2/Test Bit 12 Green LED
DS21	19	SML-LX0603GW-TR	GPIO2/Test Bit 13 Green LED
DS22	19	SML-LX0603GW-TR	GPIO2/Test Bit 14 Green LED
DS23	19	SML-LX0603GW-TR	GPIO2/Test Bit 15 Green LED
DS24	19	SML-LX0603GW-TR	GPIO2/Test Bit 16 Green LED
DS25	19	SML-LX0603GW-TR	GPIO2/Test Bit 17 Green LED
DS26	19	SML-LX0603GW-TR	GPIO2/Test Bit 18 Green LED
DS27	19	SML-LX0603GW-TR	GPIO2/Test Bit 19 Green LED
DS28	19	SML-LX0603GW-TR	GPIO2/Test Bit 20 Green LED
DS29	19	SML-LX0603GW-TR	GPIO2/Test Bit 21 Green LED
DS30	19	SML-LX0603GW-TR	GPIO2/Test Bit 22 Green LED
DS31	19	SML-LX0603GW-TR	GPIO2/Test Bit 23 Green LED
DS32	19	SML-LX0603GW-TR	GPIO2/Test Bit 24 Green LED
DS33	19	SML-LX0603GW-TR	GPIO2/Test Bit 25 Green LED
DS34	19	SML-LX0603GW-TR	GPIO2/Test Bit 26 Green LED
DS35	19	SML-LX0603GW-TR	GPIO2/Test Bit 27 Green LED
DS36	19	SML-LX0603GW-TR	GPIO2/Test Bit 28 Green LED
DS37	19	SML-LX0603GW-TR	GPIO2/Test Bit 29 Green LED
DS38	19	SML-LX0603GW-TR	GPIO2/Test Bit 30 Green LED
DS39	19	SML-LX0603GW-TR	GPIO2/Test Bit 31 Green LED (MSB)
DS40	18	SML-LX0603IW-TR	SystemACE Error Red LED
DS41	18	SML-LX0603GW-TR	SystemACE Status Green LED
DS42	18	SML-LX0603YW-TR	GPIO1 Bit 15 Yellow LED, Top Edge
DS43	18	SML-LX0603YW-TR	GPIO1 Bit 14 Yellow LED, Top Edge
DS44	18	SML-LX0603YW-TR	GPIO1 Bit 13 Yellow LED, Top Edge
DS45	18	SML-LX0603YW-TR	GPIO1 Bit 12 Yellow LED, Top Edge
DS46	18	SML-LX0603YW-TR	GPIO1 Bit 11 Yellow LED, Top Edge
DS47	18	SML-LX0603YW-TR	GPIO1 Bit 10 Yellow LED, Top Edge
DS48	18	SML-LX0603YW-TR	GPIO1 Bit 9 Yellow LED, Top Edge
DS49	18	SML-LX0603YW-TR	GPIO1 Bit 8 Yellow LED, Top Edge
DS50	18	SML-LX0603GW-TR	GPIO1 Bit 6 Green LED, Left Top
DS51	18	SML-LX0603GW-TR	GPIO1 Bit 5 Green LED, Left Middle
DS52	18	SML-LX0603GW-TR	GPIO1 Bit 4 Green LED, Left Bottom
DS53	18	SML-LX0603GW-TR	GPIO1 Bit 2 Green LED, Right Top
DS54	18	SML-LX0603GW-TR	GPIO1 Bit 2 Green LED, Right Middle
DS55	18	SML-LX0603GW-TR	GPIO1 Bit 0 Green LED, Right Bottom
DS56	18	SML-LX0603IW-TR	FPGA Red INIT LED
DS57	18	LTST-C190CBKT	FPGA Blue DONE LED
DS58	18	LTST-C190CBKT	GPIO1 Bit 3 Blue LED, Right Thumb
DS59	18	LTST-C190CBKT	GPIO1 Bit 7 Blue LED, Left Thumb
DS60	18	LNJ115W8PRA	20V Power Good Dual LED
DS68	18	LNJ115W8PRA	-12V Power Good Dual LED



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### Diode Index (D\*)

Ref Des	PG	Manufacturer's Part Number	Part Description
D2	21	8360A-13	Shottky Diode - +12V Regulator
D3	21	8360A-13	Shottky Diode - +12V Regulator
D4	21	8360A-13	Shottky Diode - -12V Regulator
D5	22	8360A-13	Shottky Diode - 3.3V Regulator
D6	22	8360A-13	Shottky Diode - 5V Regulator
D7	22	8360A-13	Shottky Diode - 5V Regulator
D8	22	8360A-13	Shottky Diode - 3.3V Regulator
D9	20	1N4148WS-7	Diode for Soft Power Switch
D10	20	1N4148WS-7	Diode for Soft Power Switch
D11	20	1N4148WS-7	Diode for Soft Power Switch
D12	20	1N4148WS-7	Diode for Soft Power Switch
D13	14	1N4148WS-7	Diode for Charging RTC Super-Cap

### Ferrite Bead Index (FB\*)

Ref Des	PG	Manufacturer's Part Number	Part Description
F1	21	SMD100-2	-12V Current Fuse
F2	21	SMD250-S	+12V Current Fuse
FB1	13	BLM21AH102SN1D	GND Filter for Touchscreen A/D
FB2	13	BLM21AH102SN1D	Power Filter for Touchscreen A/D

### Inductor Index (LB\*)

Ref Des	PG	Manufacturer's Part Number	Part Description
L1	21	PM43-100M	-12V Switching Regulator 10UH Inductor
L2	21	PM43-100M	-12V Switching Regulator 10UH Inductor
L3	17	DCRH127-100MC	Primary Power 10UH Inductor
L4	21	CDRH124-150MC	+12V Switching Regulator 15UH Inductor
L5	22	DO5022P-222HC	+3.3V Switching Regulator 2.6UH Inductor
L6	22	DCRH127-100MC	+5V Switching Regulator 10UH Inductor

### FET Index (Q\*)

Ref Des	PG	Manufacturer's Part Number	Part Description
Q2	18	BSS138	FET for Re-driving LED Signal
Q5	18	BSS138	FET for Re-driving LED Signal
Q6	18	BSS138	FET for Re-driving LED Signal
Q7	18	BSS138	FET for Re-driving LED Signal
Q8	18	BSS138	FET for Re-driving LED Signal
Q9	25	BSS138	FET for Re-driving LED Signal
Q10	25	BSS138	FET for Re-driving LED Signal
Q11	25	BSS138	FET for Re-driving LED Signal
Q12	25	BSS138	FET for Re-driving LED Signal
Q13	25	BSS138	FET for Re-driving LED Signal
Q14	21	IRF7313TR	+12V Switching Regulator Power MOSFET
Q15	22	IRF7313TR	5V Switching Regulator Power MOSFET
Q16	22	SI7840DP	3.3V Switching Regulator Top Power MOSFET
Q17	22	SI7440DP	3.3V Switching Regulator Bottom Power MOSFET
Q18	22	SI7440DP	3.3V Switching Regulator Bottom Power MOSFET
Q19	20	BSS138	FET for Re-driving LED Signal
Q20	25	BSS138	FET for Re-driving LED Signal
Q21	25	BSS138	FET for Re-driving LED Signal
Q22	25	BSS138	FET for Re-driving LED Signal
Q23	25	BSS138	FET for Re-driving LED Signal
Q24	25	BSS138	FET for Re-driving LED Signal
Q25	18	BSS138	FET for Re-driving LED Signal
Q26	18	BSS138	FET for Re-driving LED Signal



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SEMICONDUCTORS

QTY	REFDES	PKG	MANUFACTURE PN	MANUFACTURE	DESCRIPTION
4	D9,D10,D11,D12	SOD-323	1N4148WS-7	Diodes Inc	Diode, SMD
7	D2,D3,D4,D5,D6,D7,D8	DIODE_SMA	B360A-13	Diodes Inc	Diode, Schottky
9	DS1,DS2,DS3,DS4,DS5,DS6,DS7,DS60,DS68	LED_DUAL	LNJ115W8PRA	Panasonic	LED, Dual Red/Green, SMD
39	DS8,DS9,DS10,DS11,DS12,DS13,DS14,DS15,DS16,DS17,DS18,DS19,DS20,DS21,DS22,DS23,DS24,DS25,DS26,DS27,DS28,DS29,DS30,DS31,DS32,DS33,DS34,DS35,DS36,DS37,DS38,DS39,DS41,DS50,DS51,DS52,DS53,DS54,DS55	0603	SML-LX0603GW-TR	Lumex	LED, Green, SMD
2	DS40,DS56	0603	SML-LX0603IW-TR	Lumex	LED, Red, SMD
8	DS42,DS43,DS44,DS45,DS46,DS47,DS48,DS49	0603	SML-LX0603YW-TR	Lumex	LED, Yellow, SMD
3	DS57,DS58,DS59	0603	LTST-C190CBKT	Lite-On	LED, BLUE, SMD
18	Q2,Q5,Q6,Q7,Q8,Q9,Q10,Q11,Q12,Q13,Q19,Q20,Q21,Q22,Q23,Q24,Q25,Q26	SOT23	BSS138	Fairchild	Diode, SMD
2	Q14,Q15	SO8	IRF7313TR	Intl Rectif	IC, MOSFET, Dual N
1	Q16	SO8_PPAK_1	SI7840DP	Siliconix	IC, Power MOSFET
2	Q17,Q18	SO8_PPAK_1	SI7440DP	Siliconix	IC, Power MOSFET
1	U1	SSOP16	ADS7846E	TI	IC, Analog, Touchscreen Controller
1	U2	10_UMAX	MAX6683AUB	Maxim	IC, System Monitor, 1.8V, 2.5V, 5V
1	U3	TSSOP14	DS1845E-010/T&R	Dallas Semi	IC, Potentiometer, IIC controlled, dual
1	U4	10_UMAX	MAX6652AUB	Maxim	IC, System Monitor, 12V, 2.5V, 3.3V
2	U5,U6	TSSOP56	SN74AVC16646DGGR	TI	IC, Transceiver/Registered
2	U7,U9	TSSOP14	TC74VHC20FT(EL)	Toshiba	IC, Logic, Dual 4 input NAND gate
1	U8	TSSOP14	SN74HC14PWR	TI	IC, Inverter, Schmitt-Trigger
1	U10	TSSOP14	SN74HC74PWR	TI	IC, Dual F-F, w/CLR/PRESET
1	U11	LINEAR_SO8	LT1963ES8	Linear Tech	IC, Linear, Voltage Reg, 1.5A, Adjustable, LDO
1	U12	TSSOP14	SN74ALVC125PWR	TI	IC, QUAD BUFF TRI STATE
1	U13	TSSOP20	LTC3778EF	Linear Tech	IC, Step-Down Controller
1	U14	SOT23-5	LT1931ES5	Linear Tech	IC, Analog, DC-DC Converter
1	U15	SSOP28	LTC1628CG-SYNC	Linear Tech	IC, Linear, Voltage Reg, Switcher, 5V / 3.3V
2	U16,U17	5-DD	LT1764EQ	Linear Tech	IC, Linear, Voltage Reg, 3A, Adjustable, LDO
1	U18	SO8	LT1366CS8	Linear Tech	IC, Analog, Op Amp, SMD
1	U19	3-DD	LT1085CM	Linear Tech	IC, Linear, Voltage Reg, 3A, Adjustable, LDO
3	U20,U21,U22	SO14	LM339DR	TI	IC, QUAD DIFF COMP
1	U23	SOT-223	LM2937IMP-15	National	IC, LDO REGULATOR, Fixed, 15V
1	U24	SOIC8	X1226S8	Xicor	IC, IIC Real Time Clock
1	U25	SOT-223	LM2937IMP-5	National	IC, LDO REGULATOR, Fixed, 5V



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CAPACITORS

QTY	REFDES	VALUE	TOL	VOLT	KIND	PKG	MANUFACTURE PN	MANUFACTURE
3	C27,C28,C29	220UF	20%	6.3V	TANT	D	EEJ-L0JD227R	Panasonic
5	C19,C20,C24,C25,C26	150UF	20%	10V	TANT	D	EEJ-L1AD157R	Panasonic
3	C10,C11,C12	68UF	20%	6.3V	TANT	C	ECS-T0JC686R	Panasonic
1	C16	33UF	20%	20V	TANT	D	EEJ-L1DD336R	Panasonic
6	C17,C18,C21,C22,C23,C92	22UF	10%	35V	TANT	X	T495X226K035AS	Kemet
9	C70,C77,C80,C81,C82,C83,C84,C85,C95	10UF	20%	20V	TANT	C	ECS-T1DC106R	Panasonic
1	C71	10UF	20%	10V	TANT	A	ECS-T1AY106R	Panasonic
6	C7,C13,C14,C15,C75,C76	10UF	+80/20%	25V	CERAMIC	1210	ECJ-4YF1E106Z	Panasonic
1	C74	6.8UF	20%	16V	TANT	A	ECS-T1CY685R	Panasonic
2	C72,C73	4.7UF	10%	25V	TANT	C	T491C475K025AS	Kemet
1	C1	1UF	10%	20V	TANT	A	T491A105K020AS	Kemet
2	C4,C5	1UF	+80/20%	50V	CERAMIC	1206	ECJ-3PF1H105Z	Panasonic
8	C6,C8,C9,C54,C69,C78,C94,C96	0.1UF	20%	50V	CERAMIC	0805	C0805C104M5RACTU	Kemet
32	C2,C3,C30,C31,C32,C37,C38,C39,C40,C41,C42,C43,C44,C46,C50,C51,C55,C56,C58,C61,C63,C66,C79, C86,C87,C88,C89,C90,C91,C93,C97,C99	0.1UF	+80/20%	16V	CERAMIC	0402	04022F104Z7B20D	Yageo
1	C68	0.01UF	10%	16V	CERAMIC	0402	C0402C103K4RACTU	Kemet
2	C57,C62	1000PF	10%	25V	CERAMIC	0402	ECJ-0EB1E102K	Panasonic
1	C48	560PF	10%	50V	CERAMIC	0402	ECJ-0EB1H561K	Panasonic
3	C49,C59,C60	220PF	5%	50V	CERAMIC	0402	ECJ-0EC1H221J	Panasonic
3	C47,C64,C65	100PF	10%	25V	CERAMIC	0402	ECJ-0EB1E101K	Panasonic

CONNECTORS

QTY	REFDES	MANUFACTURE PN	MANUFACTURE	DESCRIPTION
2	J1,J2	SSQ-132-01-S-D	Samtec	Connector, Through Hole, Female, 100mil
1	J3	SSQ-125-01-S-D	Samtec	Connector, Through Hole, Female, 100mil
1	J4	RP34-8R-3PDLA	Hirose	Connector, Dell Laptop Power Jack
1	J5	DF9-31P-1V(20)	Hirose	Connector, 1mm, 31 Pin, Straight, Socket, SMT
1	J6	IL-Z-6PL-SMTY	JAE	Connector, TFT Inverter, 6 pin
1	J7	22-12-2044	Molex	Header, 1x4, 100mil, right angle
2	J9,J10	PZC32SAAN	Sullins Electronics Corp.	Header, Through Hole, 100mil
2	TP1,TP2	10-109-3-1	Concord Electronics	Testpoint, Turret



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RESISTORS

QTY	REFDES	VALUE	TOL	WATT	PKG	MANUFACTURE PN	MANUFACTURE
1	R238	10.0M	5%	1/16W	0603	ERJ-3GEYJ106V	Panasonic
1	R237	1.50M	1%	1/16W	0603	ERJ-3EKP1504V	Panasonic
1	R239	500K	1%	1/16W	0603	9C06031A5003FKHFT	Yageo America
1	R154	226K	1%	1/16W	0402	9C04021A2263FLHF3	Yageo America
1	R173	100K	1%	1/16W	0402	ERJ-2RKF1003X	Panasonic
1	R165	97.6K	1%	1/16W	0402	9C04021A9762FLHF3	Yageo America
1	R159	93.1K	1%	1/16W	0402	ERJ-2RKF9312X	Panasonic
1	R169	59.0K	1%	1/16W	0402	ERJ-2RKF5902X	Panasonic
2	R7,R8	47.0K	1%	1/16W	0402	9C04021A4702FLHF3	Yageo America
3	R163,R170,R172	20.0K	1%	1/16W	0402	ERJ-2RKF2002X	Panasonic
2	R171,R185	15.0K	1%	1/16W	0402	ERJ-2RKF1502X	Panasonic
1	R227	13.3K	1%	1/16W	0402	ERJ-2RKF1332X	Panasonic
1	R200	12.4K	1%	1/16W	0402	ERJ-2RKF1242X	Panasonic
1	R209	11.8K	1%	1/16W	0402	ERJ-2RKF1182X	Panasonic
1	R206	11.5K	1%	1/16W	0402	9C04021A1152FLHF3	Yageo America
1	R164	11.0K	1%	1/16W	0402	ERJ-2RKF1102X	Panasonic
3	R28,R186,R187	10.0K	1%	1/16W	0402	ERJ-2RKF1002X	Panasonic
1	R197	9.76K	1%	1/16W	0402	ERJ-2RKF9761X	Panasonic
1	R160	4.87K	1%	1/16W	0402	ERJ-2RKF4871X	Panasonic
33	R66,R67,R88,R89,R90,R107,R108,R109,R110,R111,R112,R113,R114,R115,R116,R117,R118,R119,R120,R121,R122,R123,R124,R149,R152,R156,R207,R220,R221,R222,R223,R243,R246	4.7K	5%	1/16W	0402	ERJ-2GEJ472X	Panasonic
1	R199	4.53K	1%	1/16W	0402	ERJ-2RKF4531X	Panasonic
1	R189	4.30K	1%	1/16W	0402	9C04021A4301FLHF3	Yageo
1	R192	4.12K	1%	1/16W	0402	ERJ-2RKF4121X	Panasonic
2	R190,R191	4.02K	1%	1/16W	0402	ERJ-2RKF4021X	Panasonic
1	R153	3.30K	1%	1/16W	0402	9C04021A3301FLHF3	Yageo America
1	R211	3.09K	1%	1/16W	0402	ERJ-2RKF3091X	Panasonic
1	R204	2.49K	1%	1/16W	0402	ERJ-2RKF2491X	Panasonic
1	R202	2.37K	1%	1/16W	0402	ERJ-2RKF2371X	Panasonic
2	R193,R194	2.20K	1%	1/16W	0402	9C04021A2201FLHF3	Yageo
1	R150	1.69K	1%	1/16W	0402	ERJ-2RKF1691X	Panasonic
1	R225	1.58K	1%	1/16W	0402	ERJ-2RKF1581X	Panasonic
5	R33,R151,R188,R205,R245	1.00K	1%	1/16W	0402	ERJ-2RKF1001X	Panasonic
1	R198	750R	1%	1/16W	0402	ERJ-2RKF7500X	Panasonic
12	R203,R212,R213,R214,R215,R244,R248,R250,R252,R254,R256,R257	487R	1%	1/4W	1206	9C12063A4870FKHFT	Yageo America
1	R158	487R	1%	1/16W	0402	ERJ-2RKF4870X	Panasonic
1	R210	402R	1%	1/16W	0402	ERJ-2RKF4020X	Panasonic
2	R258,R259	330R	1%	1/16W	0402	9C04021A3300FLHF3	Yageo America
10	R208,R216,R217,R218,R219,R247,R249,R251,R253,R260	300R	1%	1/16W	0402	9C04021A3000FLHF3	Yageo America
1	R201	243R	1%	1/16W	0402	ERJ-2RKF2430X	Panasonic
6	R125,R144,R145,R146,R155,R255	130R	1%	1/16W	0402	ERJ-2RKF1300X	Panasonic
24	R3,R4,R5,R6,R9,R10,R11,R12,R13,R14,R15,R16,R17,R18,R19,R20,R21,R22,R23,R24,R25,R26,R195,R226	100R	1%	1/16W	0402	ERJ-2RKF1000X	Panasonic
5	R129,R142,R143,R147,R148	64.9R	1%	1/16W	0402	ERJ-2RKF64R9X	Panasonic
7	R130,R131,R132,R137,R139,R140,R141	56.2R	1%	1/16W	0402	ERJ-2RKF56R2X	Panasonic

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Title: ML300\_PWR\_IO  
BOM (Resistors - Partial) (3of5)

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ML300\_PWR\_IO Board  
BOM (Resistors - Partial) (3of5)

RESISTORS (CONT.)

QTY	REFDES	VALUE	TOL	WATT	PKG	MANUFACTURE PN	MANUFACTURE
1	R2	49.9R	1%	1/4W	1206	9C12063A49R9FKHFT	Yageo America
30	R69,R70,R71,R72,R80,R81,R82,R83,R84,R85,R87,R91,R92,R93,R94,R95,R96,R97,R98,R99,R100,R101,R126,R127,R128,R133,R134,R135,R136,R138	49.9R	1%	1/16W	0402	ERJ-2RKF49R9X	Panasonic
10	R34,R35,R37,R38,R39,R40,R41,R42,R43,R44	38.3R	1%	1/16W	0402	ERJ-2RKF38R3X	Panasonic
1	R196	32.4R	1%	1/16W	0402	ERJ-2RKF32R4X	Panasonic
22	R36,R45,R46,R47,R48,R49,R50,R51,R52,R53,R54,R55,R56,R57,R58,R59,R60,R61,R62,R63,R64,R65	15.0R	1%	1/16W	0402	ERJ-2RKF15R0X	Panasonic
9	R166,R167,R176,R177,R178,R179,R180,R181,R184	10.0R	1%	1/16W	0402	ERJ-2RKF10R0X	Panasonic
1	R1	1.0R	1%	1/4W	1206	ERJ-8RQF1R0V	Panasonic
7	R229,R230,R232,R233,R234,R235,R236	0.01R	1%	1W	2512	ERJ-MLWSF10MU	Panasonic
2	R228,R231	0.003R	1%	1W	2512	ERJ-MLWSF3M0U	Panasonic
2	R161,R175	0R	5%	1/16W	0402	ERJ-2GE0R00X	Panasonic



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Title: ML300\_PWR\_IO  
BOM (Resistors - Partial) (4of5)


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ML300\_PWR\_IO Board  
BOM (Resistors - Partial) (4of5)

OTHER							
QTY	REFDES	VALUE	PKG	MANUFACTURE PN	MANUFACTURE	DESCRIPTION	
1	B1			CR1220	Panasonic	Battery, LiOn, 3V, 35mAH, 12.5mm	
1	B1a			KE500	Keystone Elec	Holder, Battery, 12.5mm	
1	F1	1.1A	2920	SMD100-2	RayChem	Fuse, 1.1A, SMD, Self Healing	
1	F2	2.5A	3425	SMD250-2	Raychem	Fuse, 2.5A, SMD, Self Healing	
2	FB1,FB2		0805	BLM21AH102SN1D	Murata	Ferrite Bead, SMD	
2	L1,L2	10UH	PM43	PM43-100M	JW Miller	Inductor, SMD	
2	L3,L6	10UH	CDRH127	CDRH127-100MC	Sumida Corp	Inductor, SMD	
1	L4	15UH	CDRH124	CDRH124-150MC	Sumida Corp	Inductor, SMD	
1	L5	2.6UH	CEP12D38	DO5022P-222HC	Coilcraft	Inductor, SMD	
1	SW1		CKN1047	7101MD9AQE	C&K Components	Switch, Toggle, Right Angle	
1	SW2		SW_ROT_8POS	94HBB08RA	Grayhill	Switch, Rotary, 8 position, RA	
3	SW3,SW4,SW5		BTN_MOMENT_RA	B3F-3152	Omron	Switch, SPST, Pushbutton, Mom, RA	
14	SW6,SW7,SW8,SW9,SW10,SW11,SW12,SW13,SW14,SW15,SW16,SW17,SW18,SW19		BTN_MOMENT	EVQ-11L07K	Panasonic	Switch, SPST, Pushbutton, Mom	
1	SW2_CAP	GREY	SW_ROT_8POS_CAP	947705-012	Grayhill, Inc	Cap, Rotary Switch, 8 Position	
1	SW3_CAP	YELLOW	KEYCAP_YEL	B32-1030	Omron	Cap, Button, Yellow	
1	SW4_CAP	ORANGE	KEYCAP_ORG	B32-1020	Omron	Cap, Button, Orange	
1	SW5_CAP	RED	KEYCAP_RED	B32-1080	Omron	Cap, Button, Red	
1	PCB1				Hunter	ML300_PWR_IO Printed Circuit Bd	
1	PCB1a				Axiom	ML300_PWR_IO Assembly	
1	X1	32.768KHZ		CFS206-32.768KDZF	Citizen	Crystal, 32.768 KHz, small outline	

DNPS				
QTY	REFDES	STATE	PKG	
5	BB1, BB2, BB3, BB4, BB5	DNP	HDR_1X29	
32	BB6, BB7, BB8, BB9, BB10, BB11, BB12, BB13, BB14, BB15, BB16, BB17, BB18, BB27, BB28, BB29, BB30, BB31, BB32, BB33, BB34, BB35, BB36, BB37, BB38, BB39, BB40, BB41, BB42, BB43, BB44, BB45	DNP	HDR_1X30	
1	BB46	DNP	HDR1X32	
7	C33, C34, C35, C36, C45, C52, C67	DNP	0402	
2	J11, J12	DNP	SIP2	
14	MH1, MH2, MH3, MH4, MH5, MH6, MH7, MH8, MH9, MH10, MH11, MH12, MH13, MH14	DNP	JACK_109_280	
3	R240, R241, R242	DNP	0603	
25	R27, R29, R30, R31, R32, R68, R73, R74, R75, R76, R77, R78, R79, R86, R102, R103, R104, R105, R106, R157, R162, R168, R174, R182, R183	DNP	0402	
4	FID1, FID2, FID3, FID4	DNP		

ML300\_PWR\_IO Board  
BOM (Misc and DNPs) (5of5)

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Title: ML300_PWR_IO BOM (Misc and DNPs) (5of5)		
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### Power Requirements

Num	Component	Current
<b>1.5V DC - From Linear Regulator</b>		
1	X2P7-FF672	2000 mA } 2 Amps 3 Amps Capable
<b>2.5V DC - From Linear Regulator</b>		
1	X2P7-FF672	1500 mA
1	System ACE	250 mA
4	HYB25D256800AT-7 DDR	1200 mA
2	SSTV16857 DDR Register	400 mA
1	CDCV857 DDR PLL	300 mA
2	74ALVC164245 - TFT Level Shifter	200 mA
1	25LC160_SN - SPI EEPROM	3 mA
2	MAX3388E - 2.5V RS232 Transceiver	80 mA
1	LXT971A - Ethernet Phy	200 mA
} 4 Amps 5 Amps Capable		
<b>3.3V DC - From Switching Regulator</b>		
1	X2P7-FF672	400 mA
1	System ACE	250 mA
1	QS34XV245 - ParPort Level Shifter	100 mA
1	SN74LVC161284 - ParPort Transceiver	400 mA
1	PCI4451 - PCI to CardBus Bridge	400 mA
1	TSB41AB1IEEE1394 Phy	50 mA
1	MAX1617 - IIC FPGA Temp Sensor	1 mA
1	LM76CNM_3 - IIC Ambient Temp Sensor	1 mA
1	24LC32A - IIC EEPROM	3 mA
1	AD1885 - Audio Codec	50 mA
1	74LVC157APWR - Data Sel/MUX	50 mA
4	Fiber Transceiver	400 mA
1	ML6554 - DDR VTT Linear Regulator	2000 mA
1	LT1963ES8 - MGT VTT Linear Reg	400 mA
1	LT1963-25EQ - MGT VCC Linear Reg	1200 mA
} 6 Amps 7 Amps Capable		
<b>5V DC - From Switching Regulator</b>		
1	SN74LVC161284 - ParPort Transceiver	400 mA
1	SN74CBT16210 - ParPort LED Buffer	400 mA
1	LXT971A - Ethernet Phy	200 mA
3	QS32X2245 - PCI Clamp Diode	600 mA
1	QS316211 - PCI Clamp Diode	120 mA
1	TPS2216A - CardBus Power	1500 mA
1	AD1885 - Audio Codec	50 mA
1	LM4835 - Audio Power Amp	250 mA
1	LT1763CS8 - PCI VCC0 Linear Reg	500 mA
4	QS32X2245 - Clamp Diode	400 mA
4	DM74AS1034AM - Hex Driver	200 mA
1	MAX6683AUB - IIC Voltage Comparator	1 mA
1	MAX6652AUB - IIC Voltage Comparator	1 mA
1	DS1845E-010 - IIC Pot	1 mA
} 5 Amps 6 Amps Capable		
<b>+12V DC - From Switching Regulator</b>		
1	TPS2216A - CardBus Power	400 mA
1	TSB41AB1IEEE1394 Phy	1000 mA
1	PMC Connector	1000 mA
} 2.5 Amps		
<b>-12V DC - From Switching Regulator</b>		
1	PMC Connector	1000 mA } 1 Amps



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Title: ML300\_PWR\_IO  
Power Requirements

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## ML300\_PWR\_IO Board Power Requirements

# ML300\_CPU TO ML300\_PWR\_IO Pin Mapping

ML300_CPU Signal	Type	ML300_PWR_IO Signal	ML300_CPU Signal	Type	ML300_PWR_IO Signal
PMC_CONN4_IO9	Buffered	R_BLUE_LED_3	PMC_CONN4_IO41	Control	OE for GPIO1 LEDs
PMC_CONN4_IO10	Buffered	R_GREEN_LED_0	PMC_CONN4_IO42	Control	DIR for GPIO1 LEDs
PMC_CONN4_IO11	Buffered	R_GREEN_LED_1	PMC_CONN4_IO43	Control	CLKAB
PMC_CONN4_IO12	Buffered	R_GREEN_LED_2	PMC_CONN4_IO44	Control	CLKBA
PMC_CONN4_IO13	Buffered	L_BLUE_LED_7	PMC_CONN4_IO45	Control	SAB
PMC_CONN4_IO14	Buffered	L_GREEN_LED_4	PMC_CONN4_IO46	Control	SBA
PMC_CONN4_IO15	Buffered	l_GREEN_LED_5	PMC_CONN4_IO47	Control	Optional OE2 for GPIO1 LEDs
PMC_CONN4_IO16	Buffered	l_GREEN_LED_6	PMC_CONN4_IO48	Control	Optional CLKAB2 for GPIO1 LEDs
PMC_CONN4_IO17	Buffered	TOP_YELLOW_LED_8	PMC_CONN4_IO49	Control	Optional CLKBA2 for GPIO1 LEDs
PMC_CONN4_IO18	Buffered	TOP_YELLOW_LED_9	PMC_CONN4_IO50	Control	Optional SAB2 for GPIO1 LEDs
PMC_CONN4_IO19	Buffered	TOP_YELLOW_LED_10	PMC_CONN4_IO51	Control	Optional SBA2 for GPIO1 LEDs
PMC_CONN4_IO20	Buffered	TOP_YELLOW_LED_11	PMC_CONN4_IO52	Control	OE for Switches
PMC_CONN4_IO21	Buffered	TOP_YELLOW_LED_12	PMC_CONN4_IO53	Control	DIR for Switches
PMC_CONN4_IO22	Buffered	TOP_YELLOW_LED_13	PMC_CONN4_IO54	Control	Optional CLKAB1 for Switches
PMC_CONN4_IO23	Buffered	TOP_YELLOW_LED_14	PMC_CONN4_IO55	Control	Optional CLKBA1 for Switches
PMC_CONN4_IO24	Buffered	TOP_YELLOW_LED_15	PMC_CONN4_IO56	Control	Optional SAB1 for Switches
PMC_CONN4_IO25	Buffered	L_GAME_SW_LFT	PMC_CONN4_IO57	Control	Optional SBA1 for Switches
PMC_CONN4_IO26	Buffered	L_MID_SW	PMC_CONN4_IO58	Control	Optional OE2 for Switches
PMC_CONN4_IO27	Buffered	L_GAME_SW_BOT	PMC_CONN4_IO59	Control	Optional CLKAB2 for Switches
PMC_CONN4_IO28	Buffered	L_TOP_SW	PMC_CONN4_IO60	Control	Optional CLKBA2 for Switches
PMC_CONN4_IO29	Buffered	L_GAME_SW_RT	PMC_CONN4_IO61	Control	Optional SAB2 for Switches
PMC_CONN4_IO30	Buffered	L_GAME_SW_TOP	PMC_CONN4_IO62	Control	Optional SBA2 for Switches
PMC_CONN4_IO31	Buffered	USER_BIT22			
PMC_CONN4_IO32	Buffered	USER_BIT23			
PMC_CONN4_IO33	Buffered	R_GAME_SW_TOP			
PMC_CONN4_IO34	Buffered	R_GAME_SW_LFT			
PMC_CONN4_IO35	Buffered	R_GAME_SW_RT			
PMC_CONN4_IO36	Buffered	R_GAME_SW_BOT			
PMC_CONN4_IO37	Buffered	R_TOP_SW			
PMC_CONN4_IO38	Buffered	R_MID_SW			
PMC_CONN4_IO39	Buffered	R_BOT_SW			
PMC_CONN4_IO40	Buffered	L_BOT_SW			



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Title: ML300\_PWR\_IO  
ML300\_CPU TO ML300\_PWR\_IO  
Pin Mapping

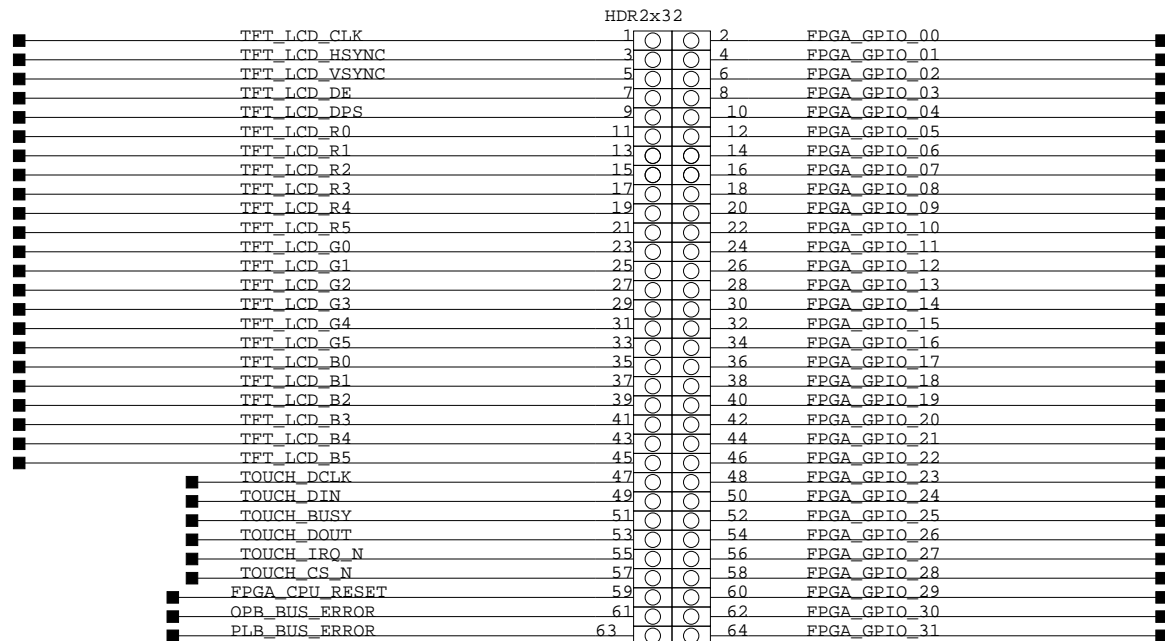
Date: October 17th, 2002 Ver: 1.00

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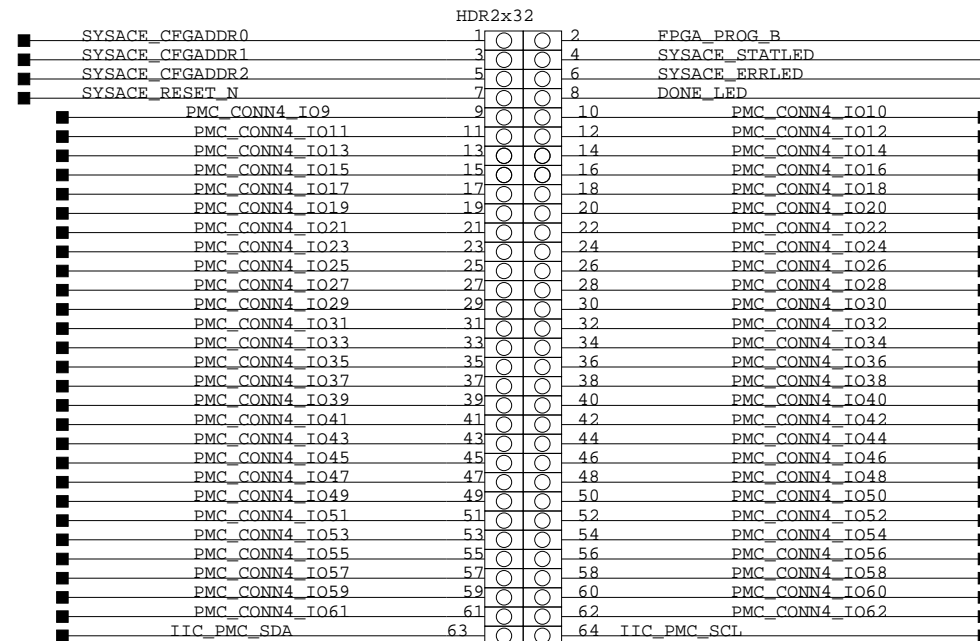
ML300\_PWR\_IO Board  
ML300\_CPU TO ML300\_PWR\_IO Pin Mapping

Silkscreen: "Digital Conn #1"



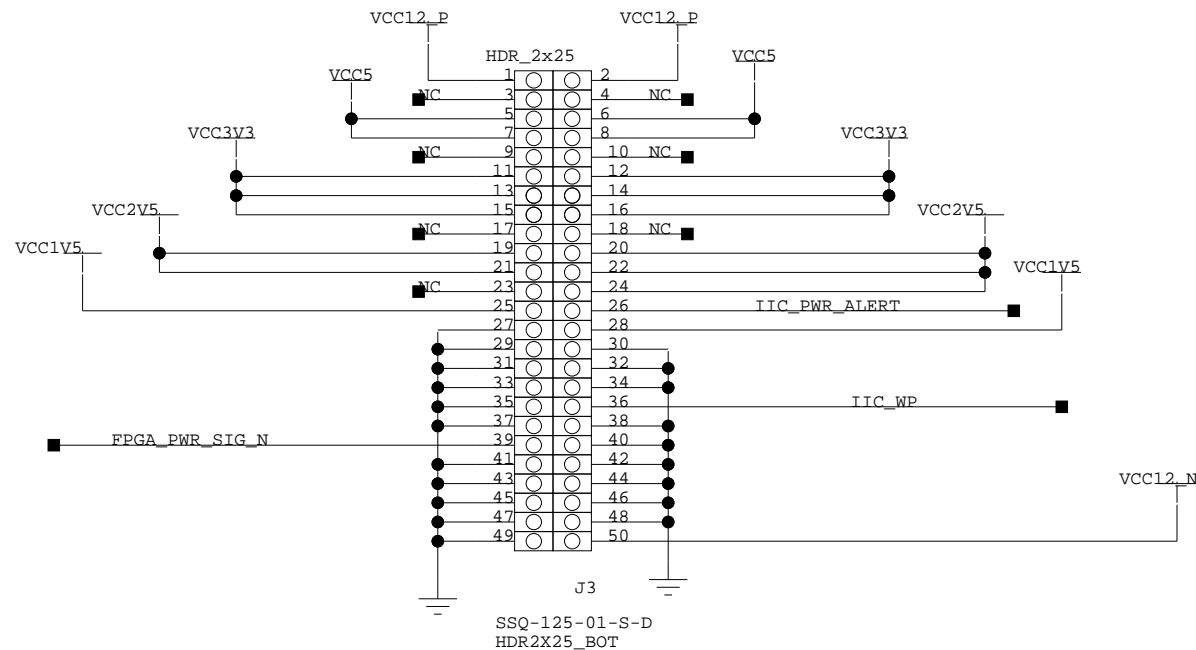
J1  
SSQ-132-01-S-D  
HDR2X32\_BOT

Silkscreen: "Digital Conn #2"



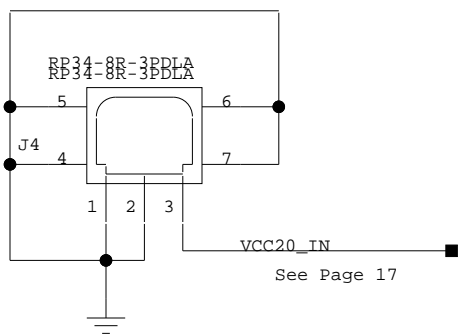
J2  
SSQ-132-01-S-D  
HDR2X32\_BOT

Silkscreen: "Power Conn"

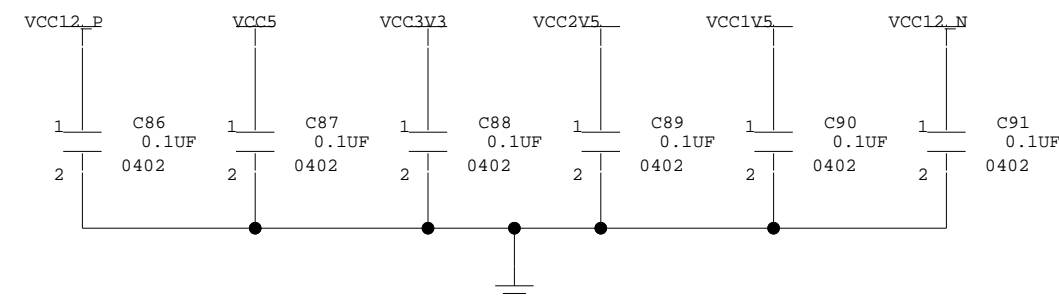
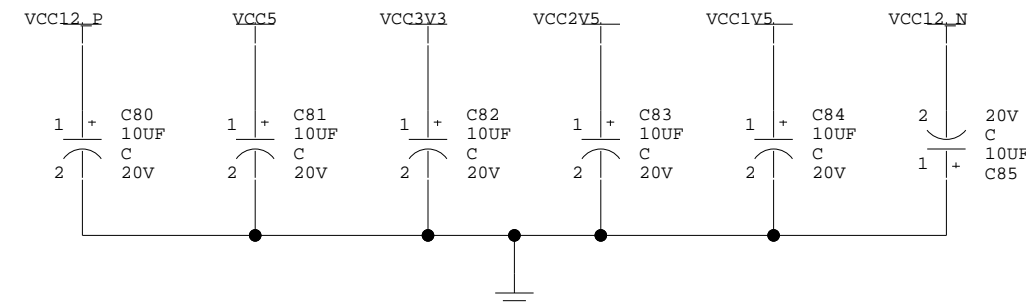


J3  
SSQ-125-01-S-D  
HDR2X25\_BOT

Silkscreen: "Power In"



20V @ 3.5 Amp  
70 Watt

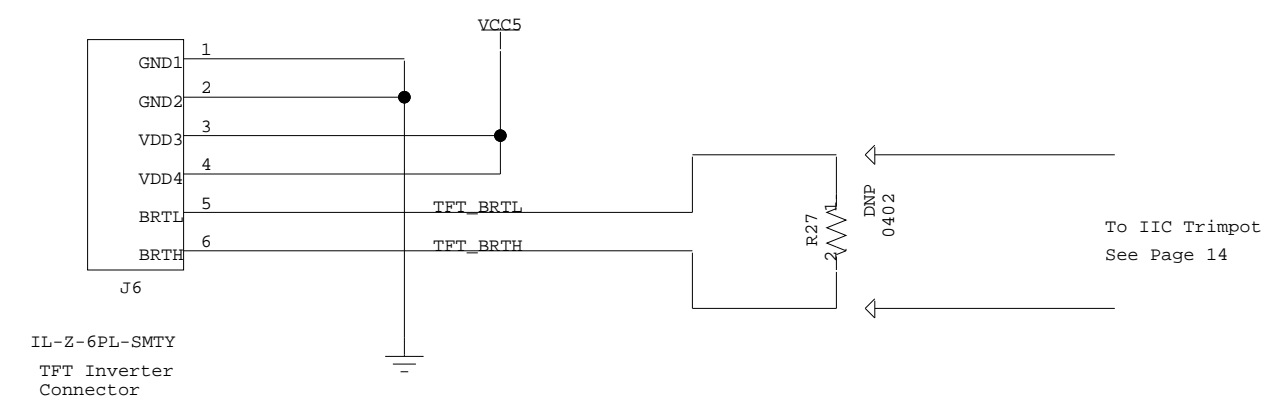
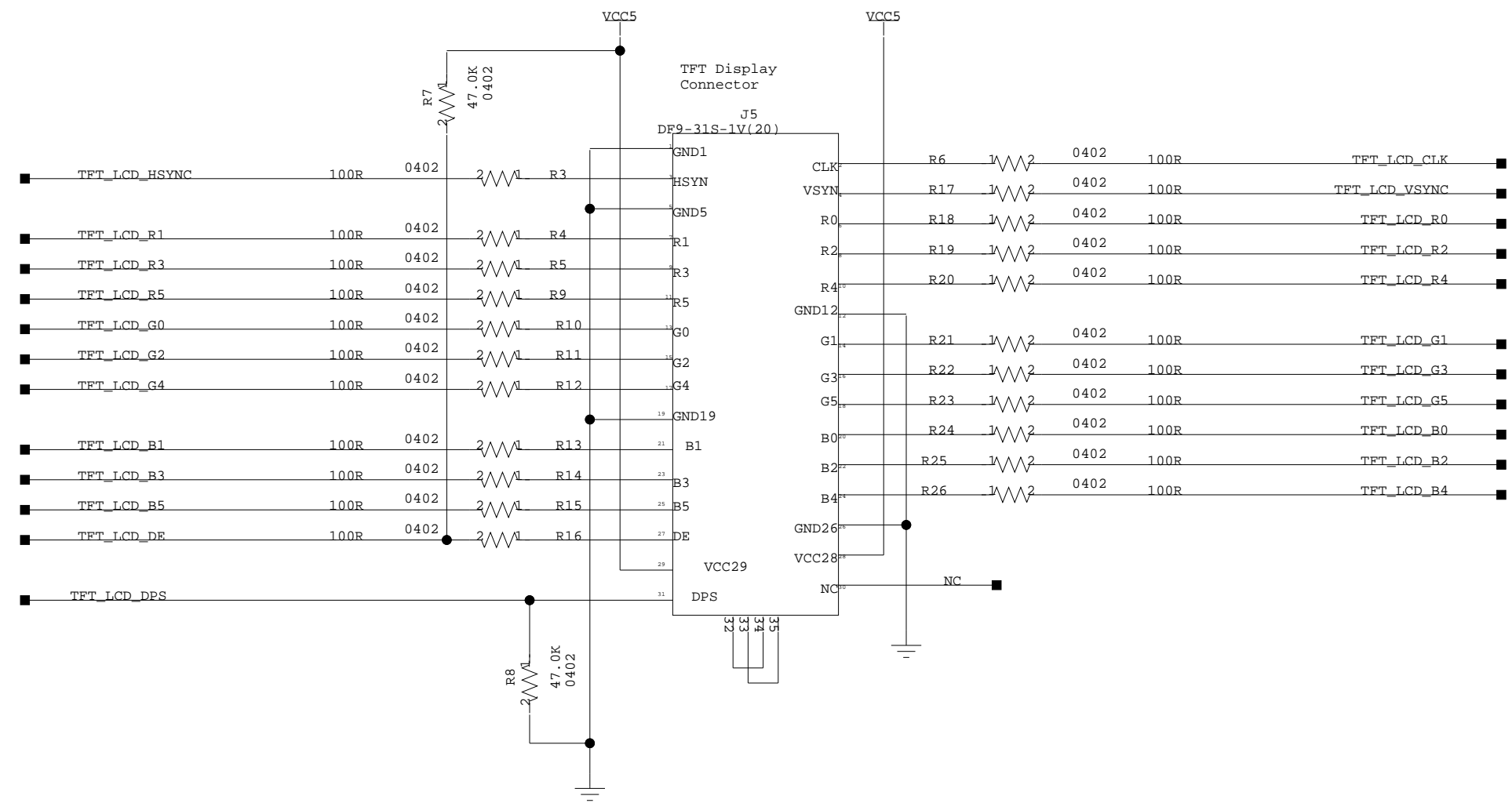


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SCH 0381136

Title: ML300\_PWR\_IO  
Digital and Power Connectors

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# ML300\_PWR\_IO Board Digital and Power Connectors



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 SCH 0381136

Title: ML300\_PWR\_IO  
 Inverter and TFT Connectors

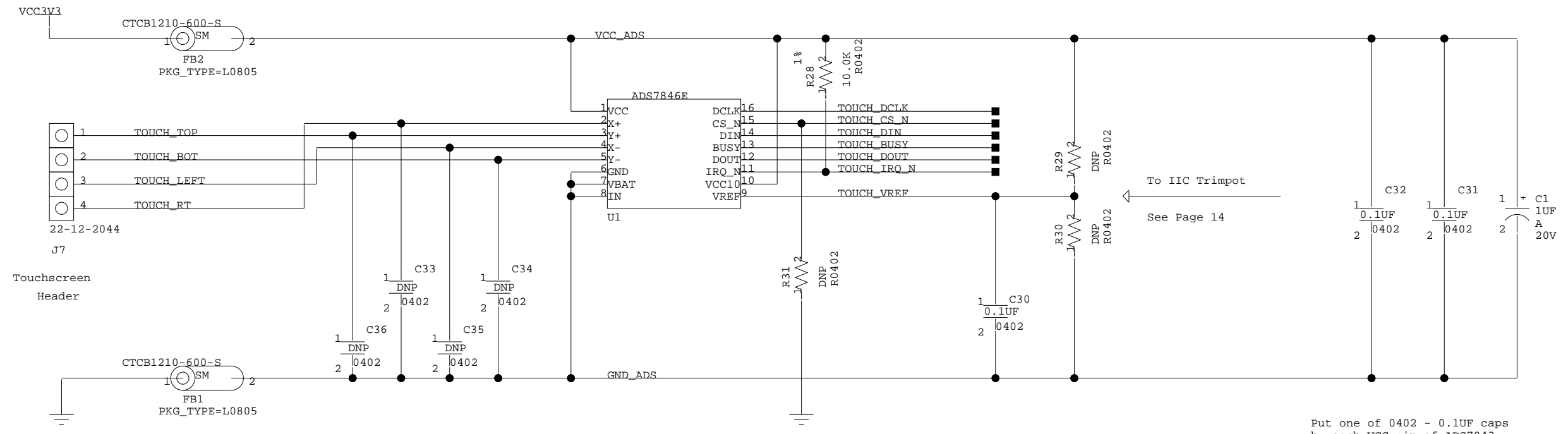
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# ML300\_PWR\_IO Board Inverter and TFT Connectors

# Touchscreen

Silkscreen:  
"Touchscreen"

Notes  
Ground for the Touchscreen should be an Analog ground, in this case, from the Ferrite Beads  
  
There should be an isolated ground plane immediately Under the ADS7846 and the analog traces, where possible



Put one of 0402 - 0.1UF caps by each VCC pin of ADS7843



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SCH 0381136

Title: ML300\_PWR\_IO  
Touchscreen Controller

Date: October 17th, 2002 Ver: 1.00

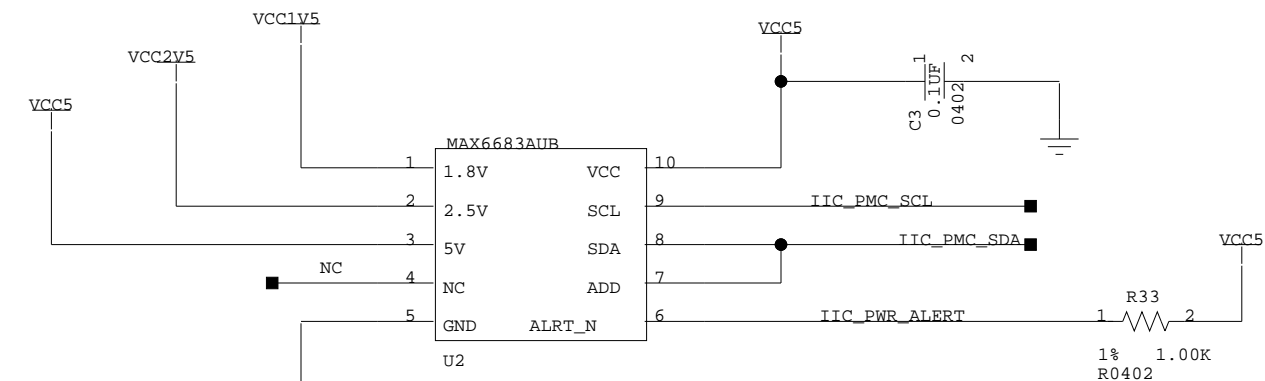
Sheet Size: B Rev: A

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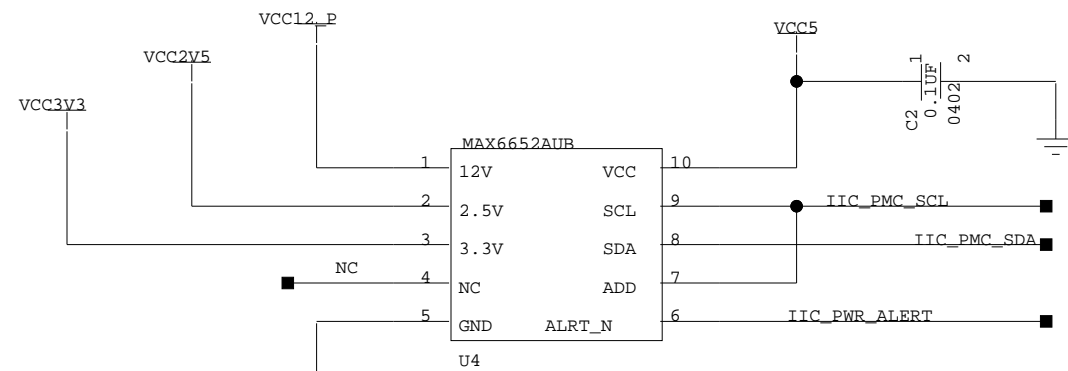
## ML300\_PWR\_IO Board Touchscreen Controller

# IIC Components

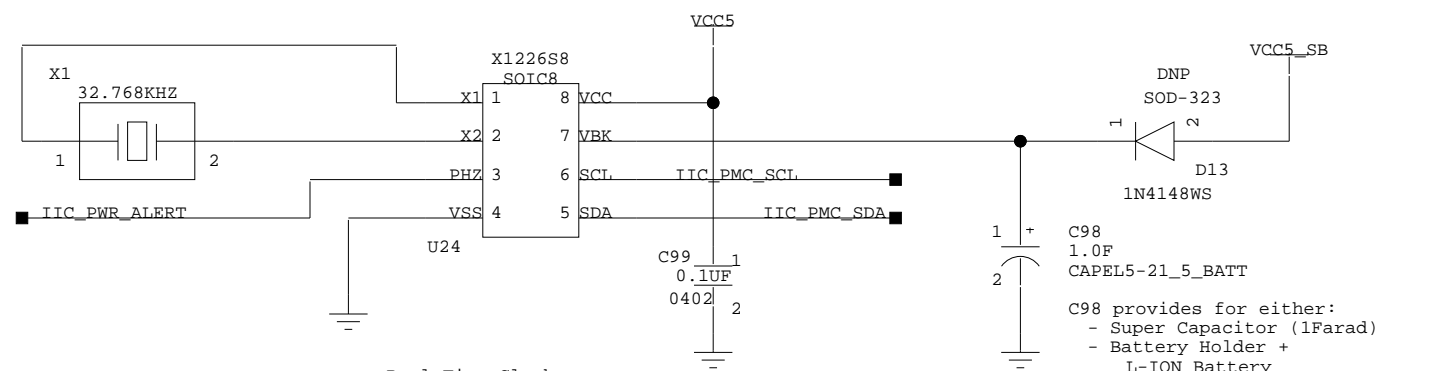
IC	BOARD	REF	DESCRIPTION	ADDR
MAX6683AUB	ML300_CPU	U255	System Monitor 1	28/29
MAX6652AUB	ML300_CPU	U256	System Monitor 2	2A/2B
MAX6652AUB	ML300_PWR_IO	U4	System Monitor 4	2E/2F
MAX6683AUB	ML300_PWR_IO	U2	System Monitor 3	2C/2D
MAX1617	ML300_CPU	U251	FPGA Die/Ambient Temp	30/31
LM76CNM_3	ML300_CPU	U252	Ambient Temp	96/97
24LC32A/SN	ML300_CPU	U253	32Kbit EEPROM	A0/A1
DS1845E-010	ML300_CPU	U502	Audio Trimpot	A6/A7
DS1845E-010	ML300_PWR_IO	U3	TFT Touchscreen Trimpot	AC/AD
X1226S8	ML300_PWR_IO	U24	Real Time Clock 4Kbit EEPROM	AE/AF
X1226S8	ML300_PWR_IO	U24	Real Time Clock RTC	DE/DF



System Monitor 3  
ADDR : "2C/2D"

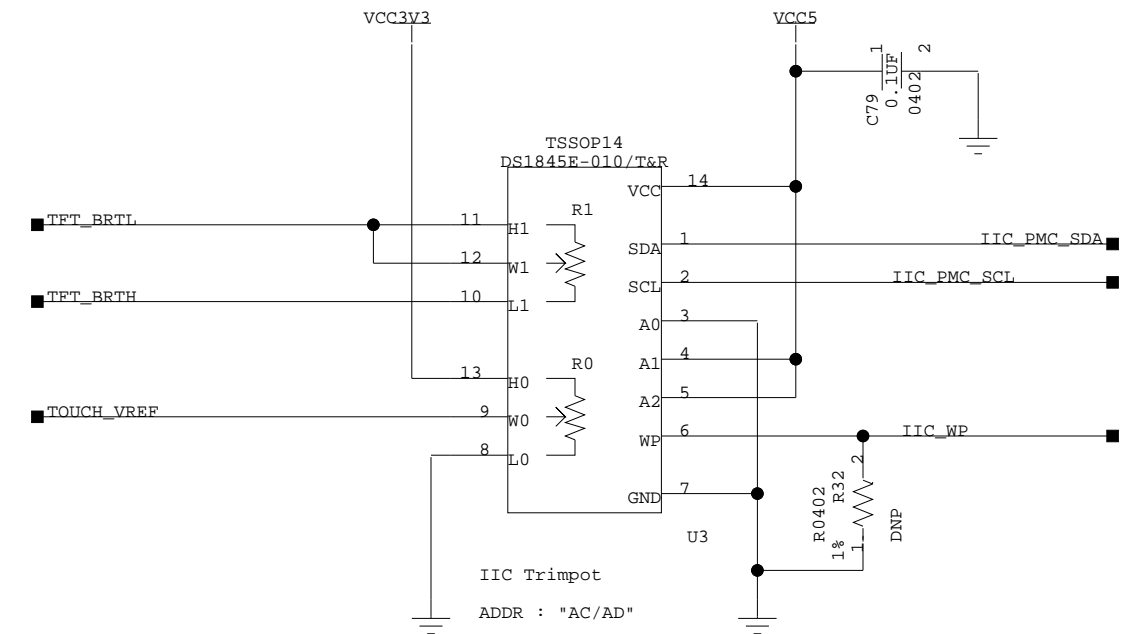


System Monitor 4  
ADDR : "2E/2F"



Real Time Clock  
IIC Address:  
ADDR : "AE/AF" EEPROM  
ADDR : "DE/DF" RTC

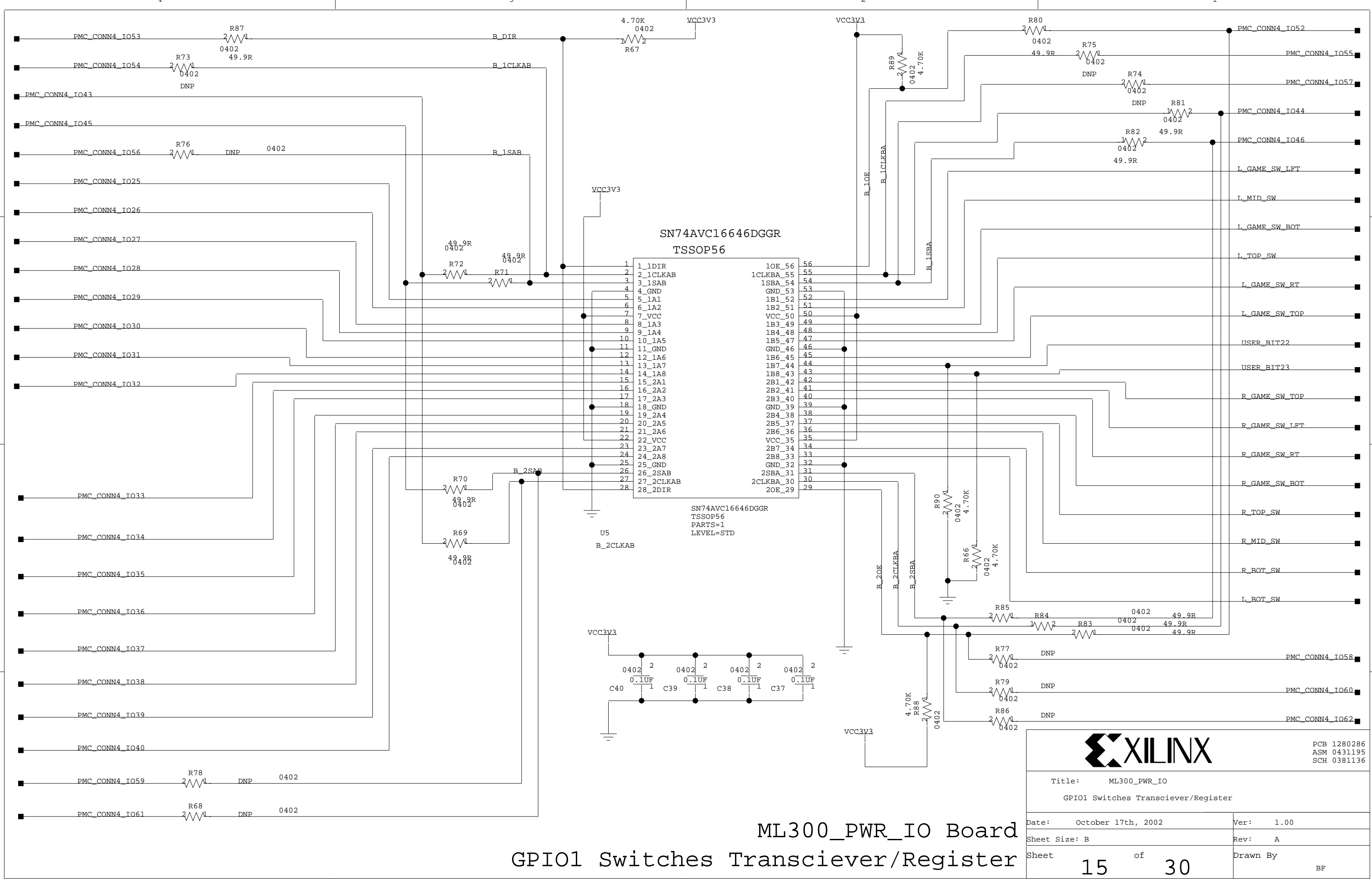
C98 provides for either:  
- Super Capacitor (1Farad)  
- Battery Holder +  
L-ION Battery  
Do not populate D13 when  
using battery option



IIC Trimpot  
ADDR : "AC/AD"  
Trimpot 0 Controls Touchscreen Sensitivity  
Trimpot 1 Controls TFT Brightness

## ML300\_PWR\_IO Board IIC Bus

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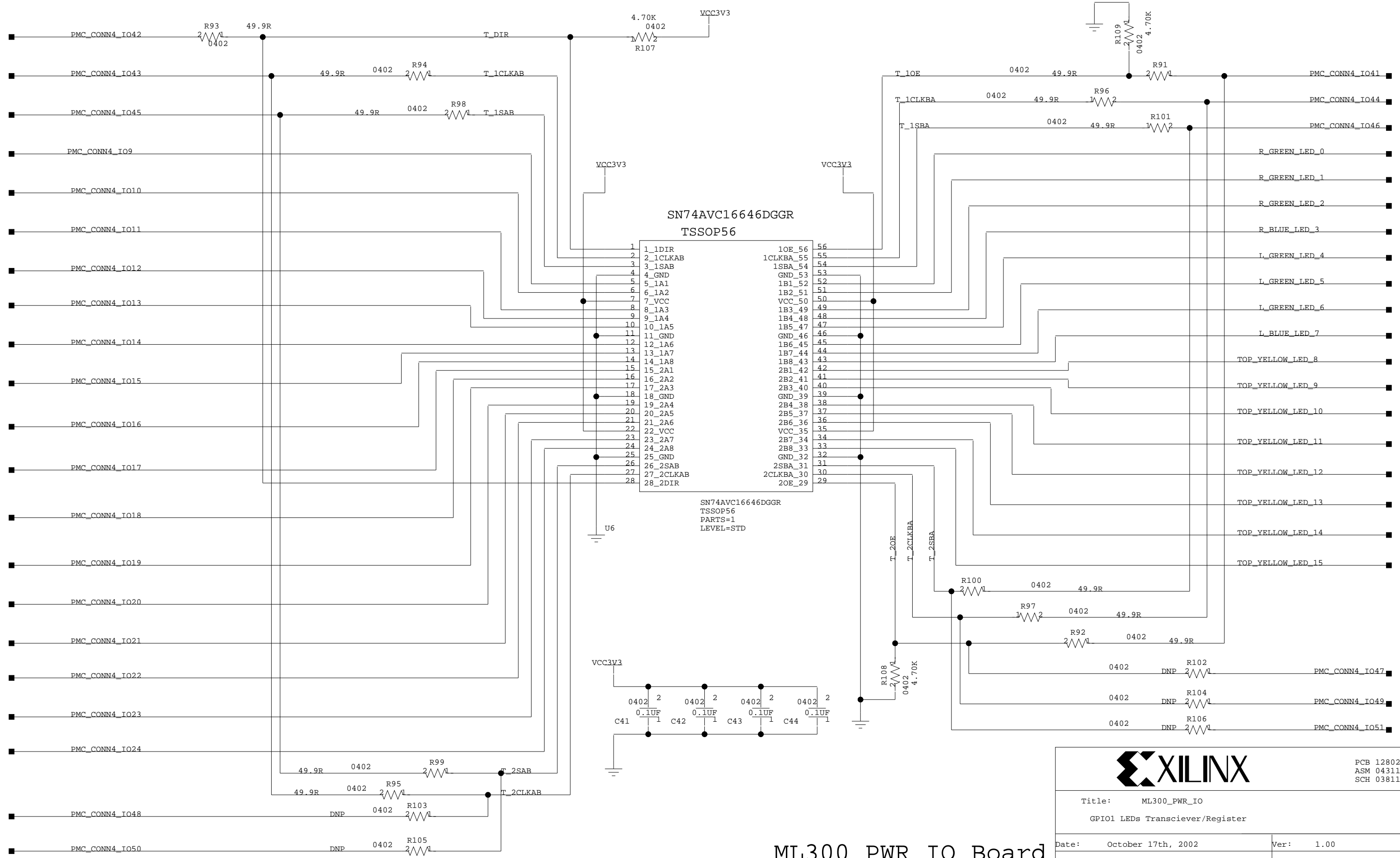


# ML300\_PWR\_IO Board GPIO1 Switches Transciever/Register



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ASM 0431195  
SCH 0381136

Title: ML300_PWR_IO GPIO1 Switches Transciever/Register	
Date: October 17th, 2002	Ver: 1.00
Sheet Size: B	Rev: A
Sheet 15 of 30	Drawn By BF



# ML300\_PWR\_IO Board GPIO1 LEDs Transciever/Register

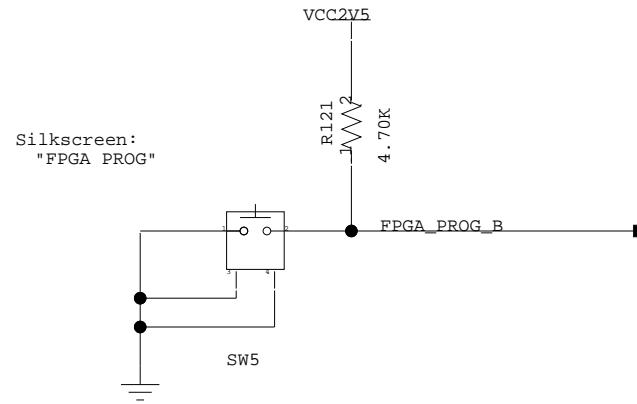
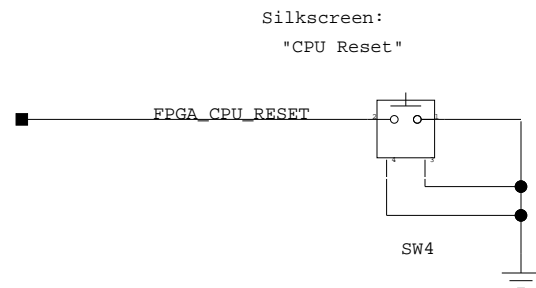
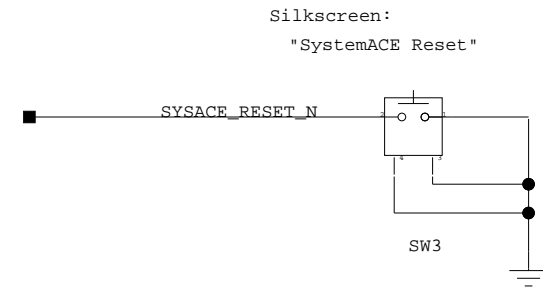
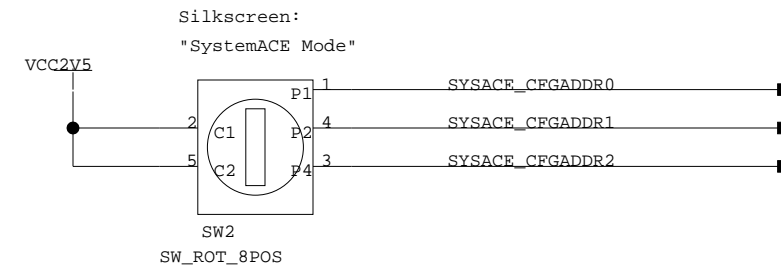
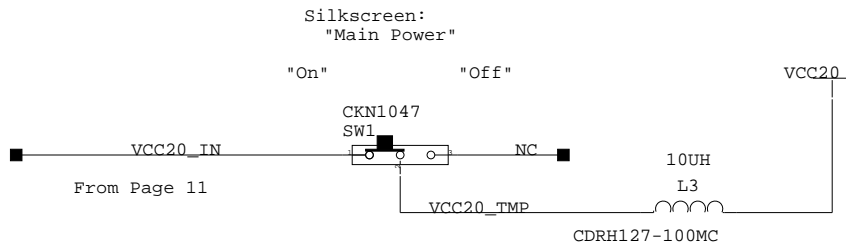
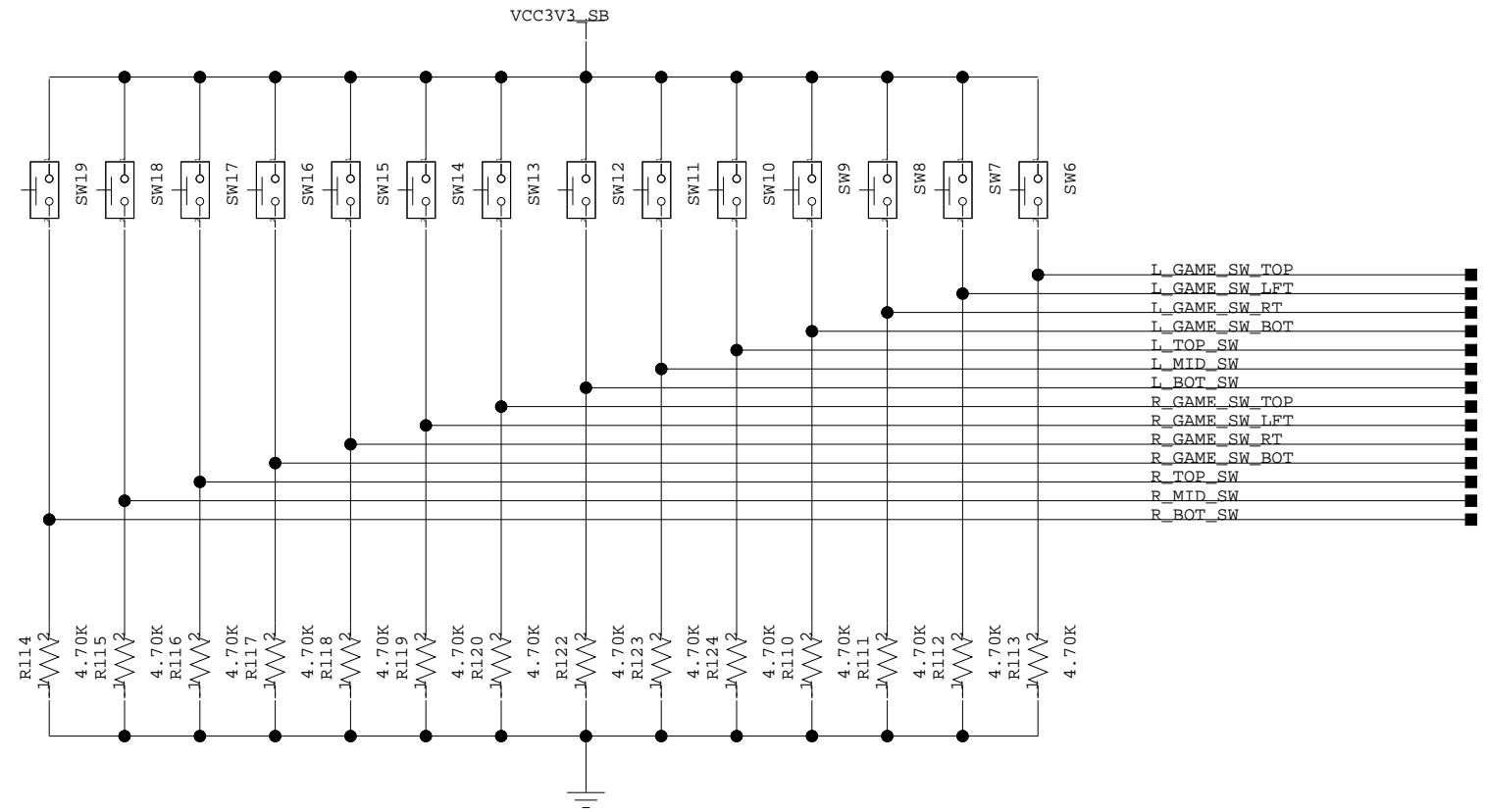
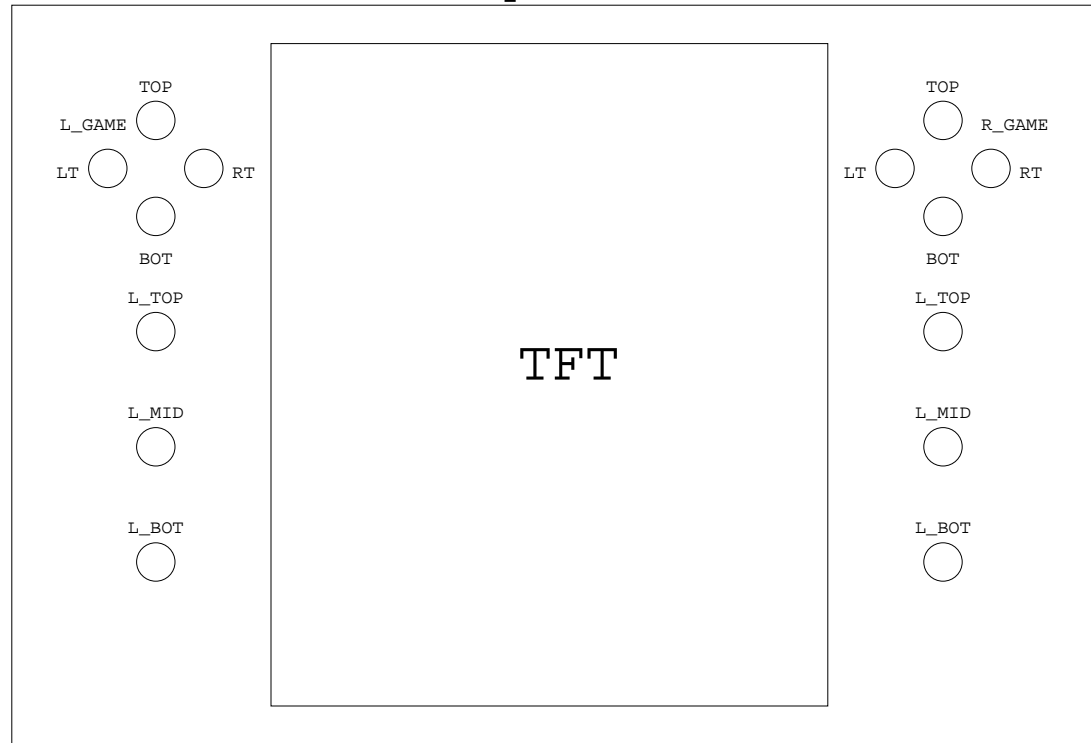


PCB 1280286  
ASM 0431195  
SCH 0381136

Title: ML300_PWR_IO GPIO1 LEDs Transciever/Register	
Date: October 17th, 2002	Ver: 1.00
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Top View



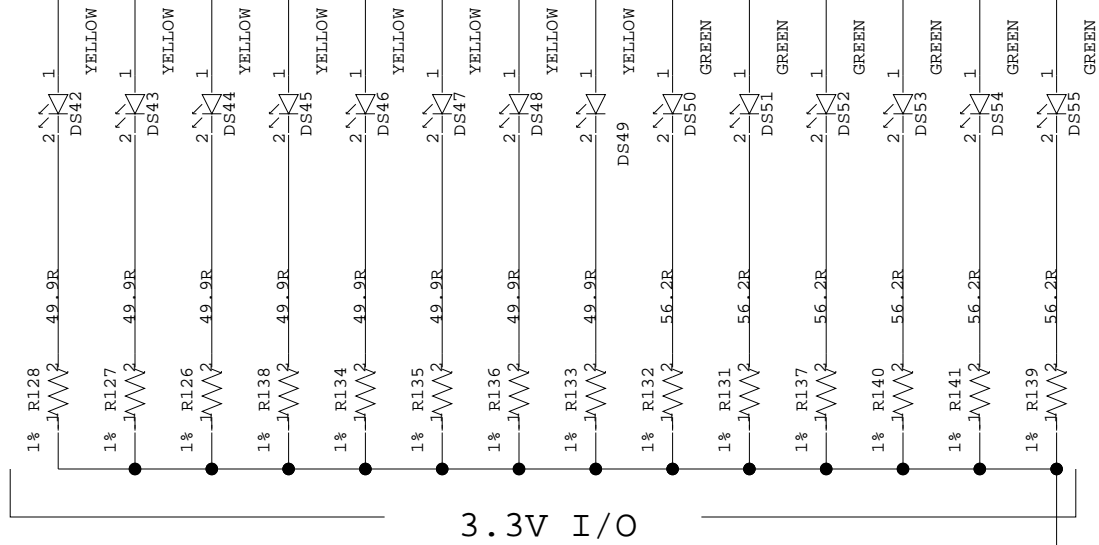
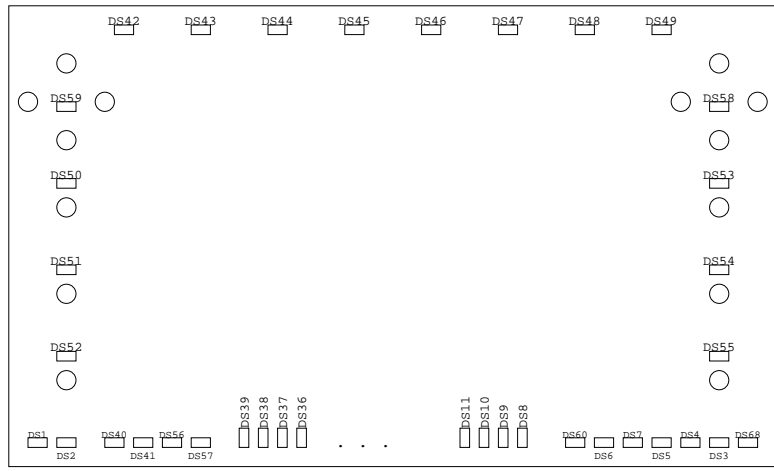
PCB 1280286  
ASM 0431195  
SCH 0381136

Title: ML300\_PWR\_IO  
GPIO1 Buttons and Switches

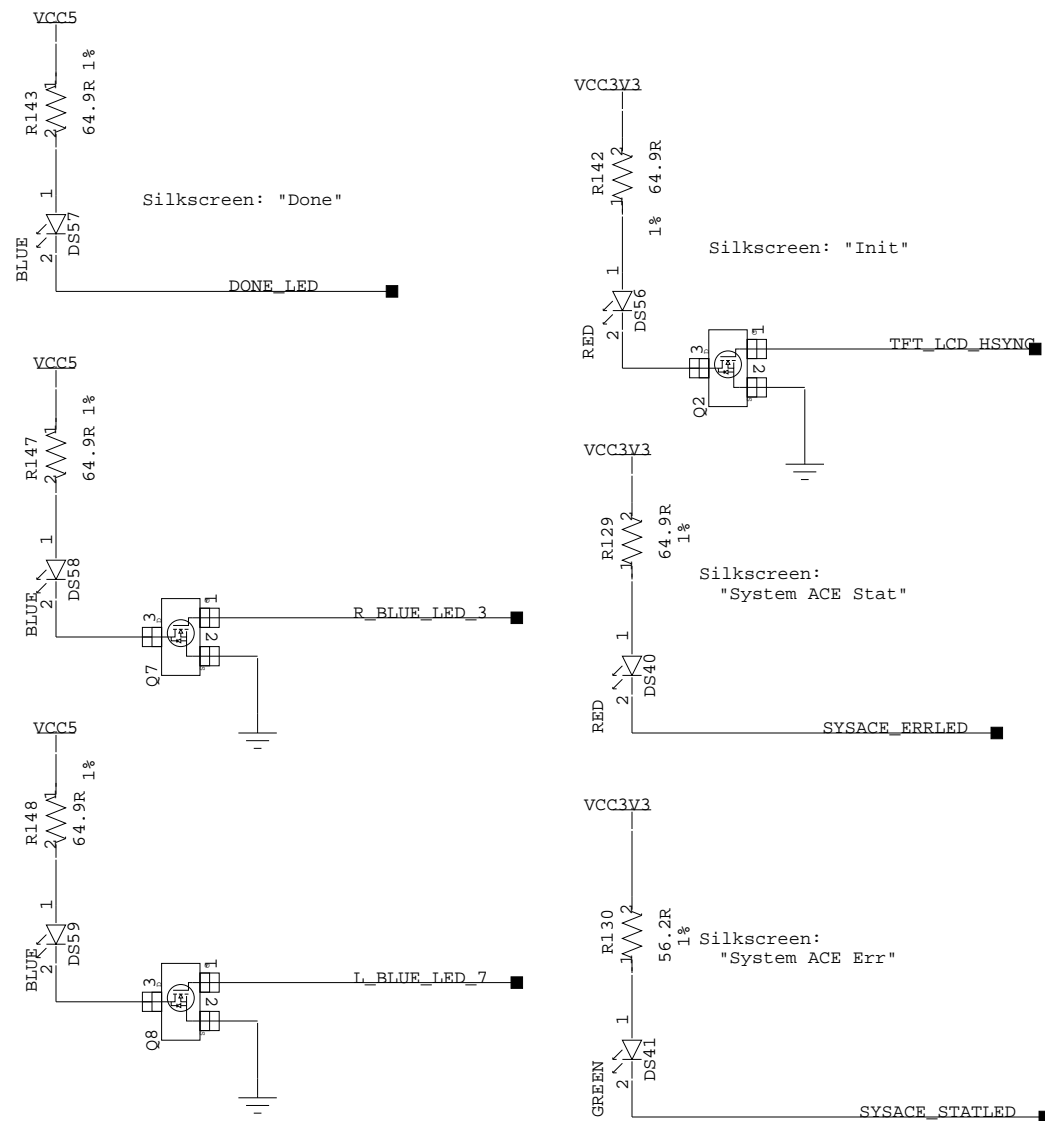
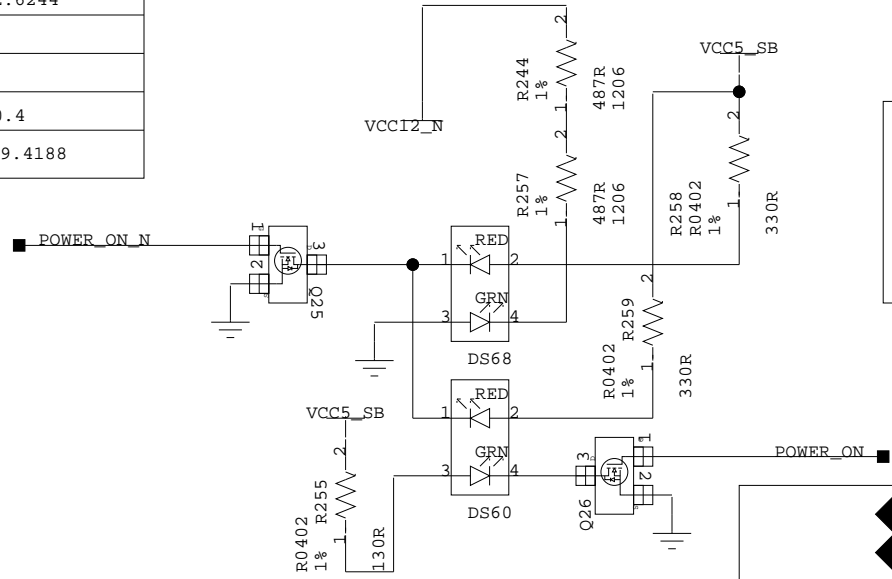
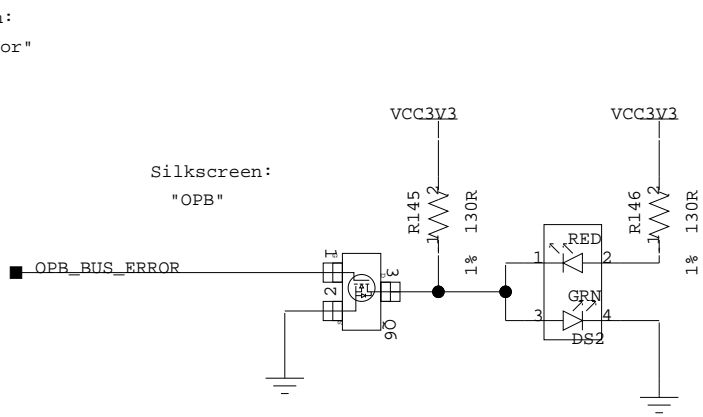
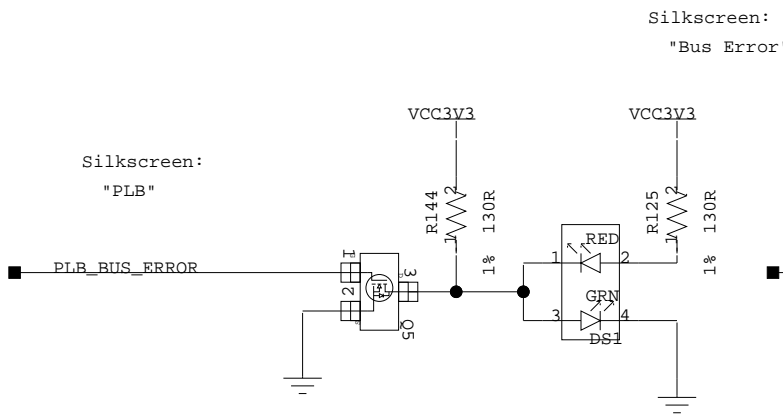
Date:	October 17th, 2002	Ver:	1.00
Sheet Size:	B	Rev:	A
Sheet	17	of	28
		Drawn By	BF

ML300\_PWR\_IO Board  
GPIO1 Buttons and Switches

R\_GREEN\_LED\_0  
 R\_GREEN\_LED\_1  
 R\_GREEN\_LED\_2  
 L\_GREEN\_LED\_4  
 L\_GREEN\_LED\_5  
 L\_GREEN\_LED\_6  
 TOP\_YELLOW\_LED\_8  
 TOP\_YELLOW\_LED\_9  
 TOP\_YELLOW\_LED\_10  
 TOP\_YELLOW\_LED\_11  
 TOP\_YELLOW\_LED\_12  
 TOP\_YELLOW\_LED\_13  
 TOP\_YELLOW\_LED\_14  
 TOP\_YELLOW\_LED\_15



LED	Vf	If	mcd	LED Resistor Values								
				5V			3.3V			2.5V		
LED	Vf	If	mcd	Calc	Use	Real If	Calc	Use	Real If	Calc	Use	Real If
GRN 0603	2.2	20	18	140	130	21.5384	55	56.2	19.6428	15	20.0	15.0000
YEL 0603	2.0	20	60	150	130	23.0769	65	64.9	23.2142	25	22.1	22.6244
RED 0603	2.0	20	14	150	130	23.0769	65	64.9	23.2142	25	22.1	22.6244
BLUE 0603	3.7	20	20	65	56	23.2142	-20			-60		
R-G DUAL												
RED	1.72	10	6.7	328	330	9.9393	158	130	12.1538	78	75	10.4
GRN	2.03	10	5	297	300	9.9	127	130	9.7692	47	49.9	9.4188

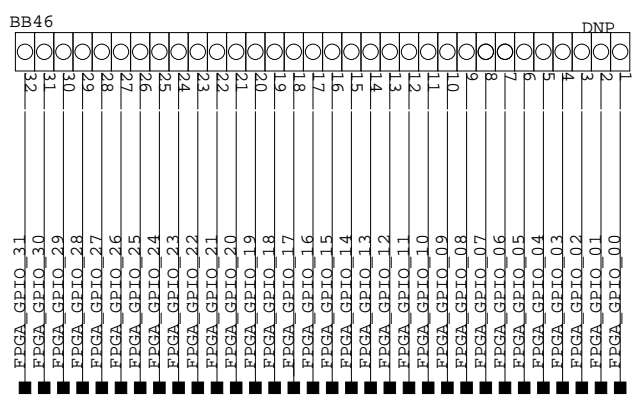
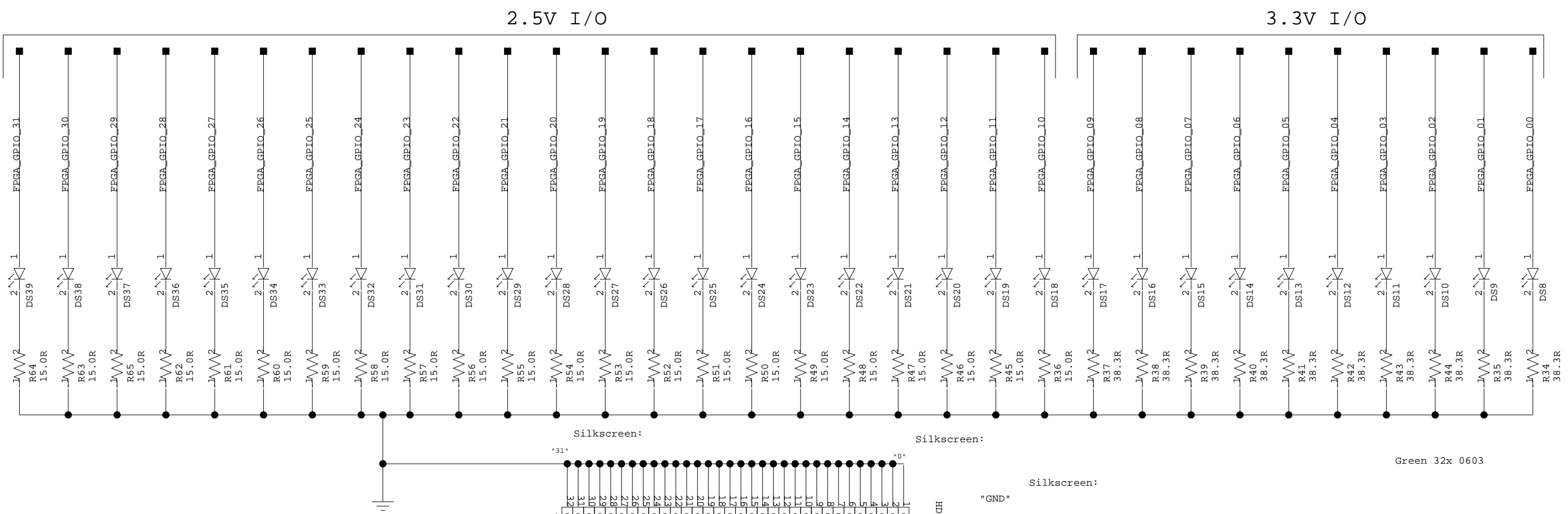


# ML300\_PWR\_IO Board GPIO1, Bus Error, Status LEDs



PCB 1280286  
ASM 0431195  
SCH 0381136

Title: ML300_PWR_IO GPIO1, Bus Error, Status LEDs	
Date: October 17th, 2002	Ver: 1.00
Sheet Size: B	Rev: A
Sheet 18 of 28	Drawn By BF



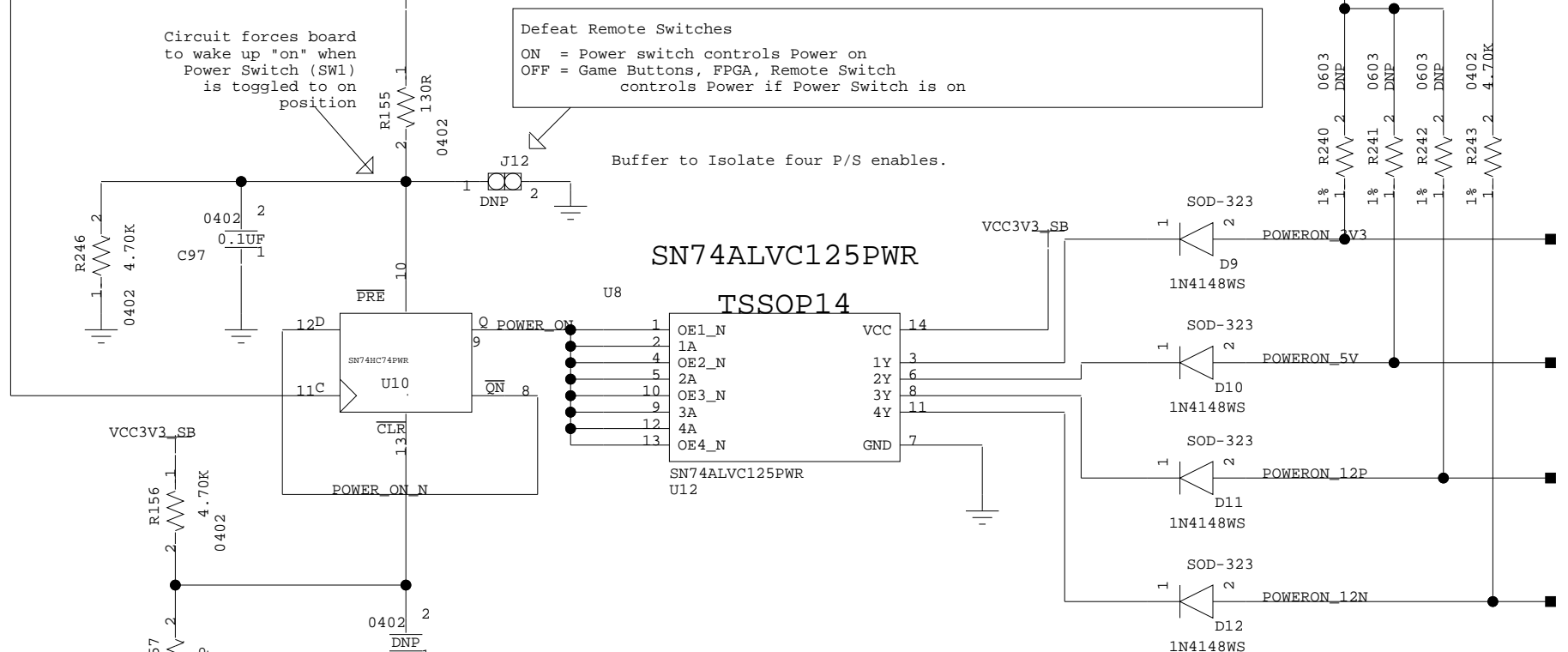
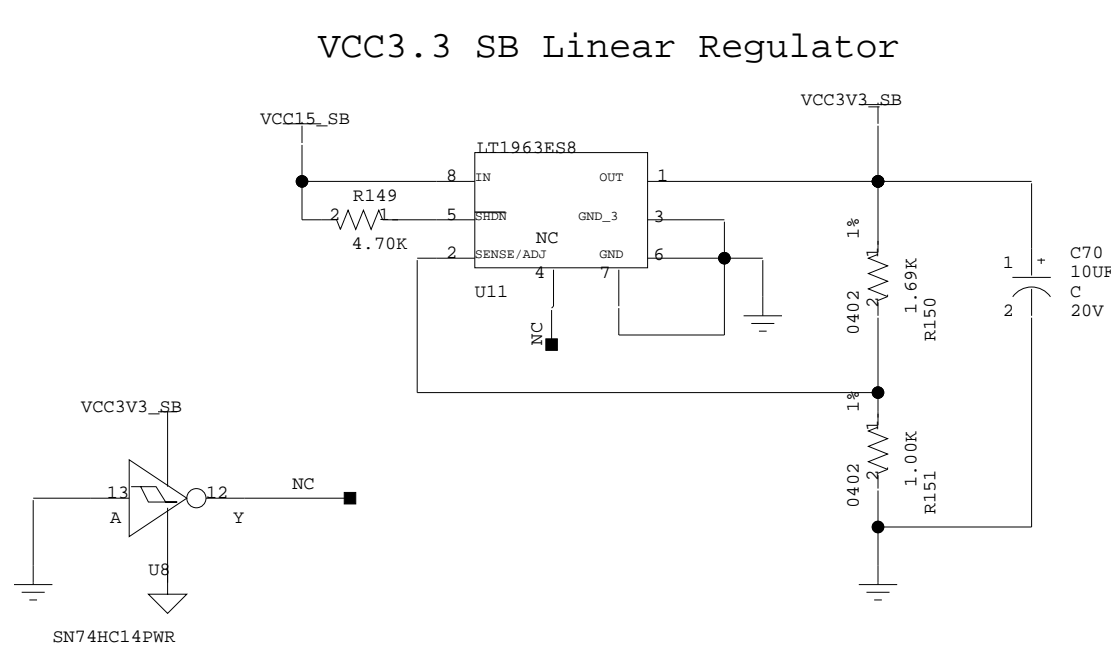
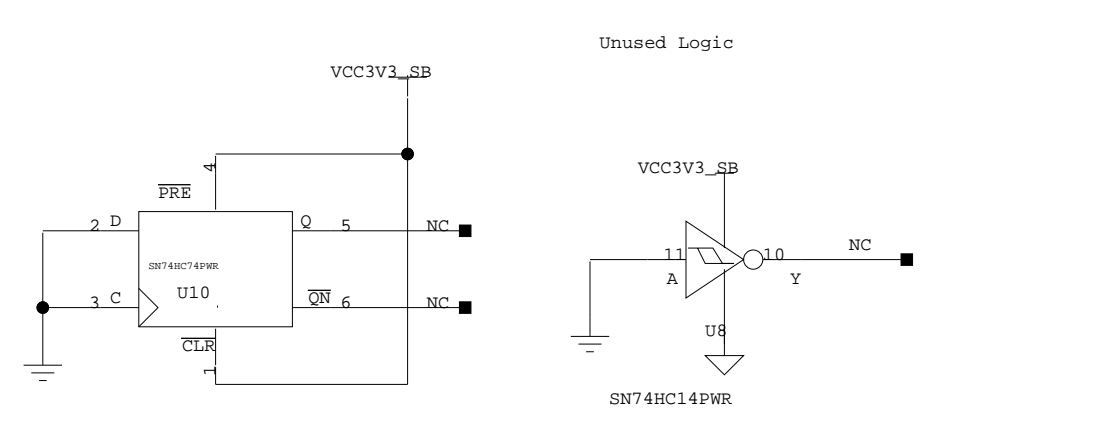
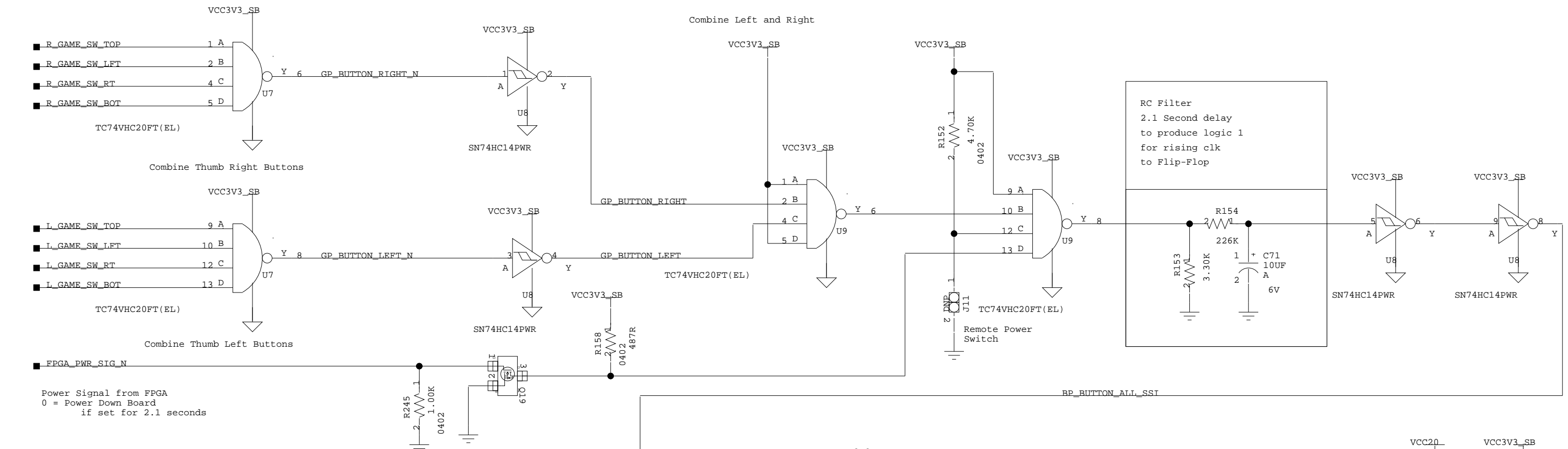
HDR1x32  
 BB46 is the lower row of holes in the Prototyping Area

# ML300\_PWR\_IO Board GPIO2/Test Port LEDs and Headers



PCB 1280286  
 ASM 0431195  
 SCH 0381136

Title: ML300_PWR_IO GPIO2/Test Port LEDs and Headers	
Date: October 17th, 2002	Ver: 1.00
Sheet Size: B	Rev: A
Sheet 19 of 28	Drawn By BF



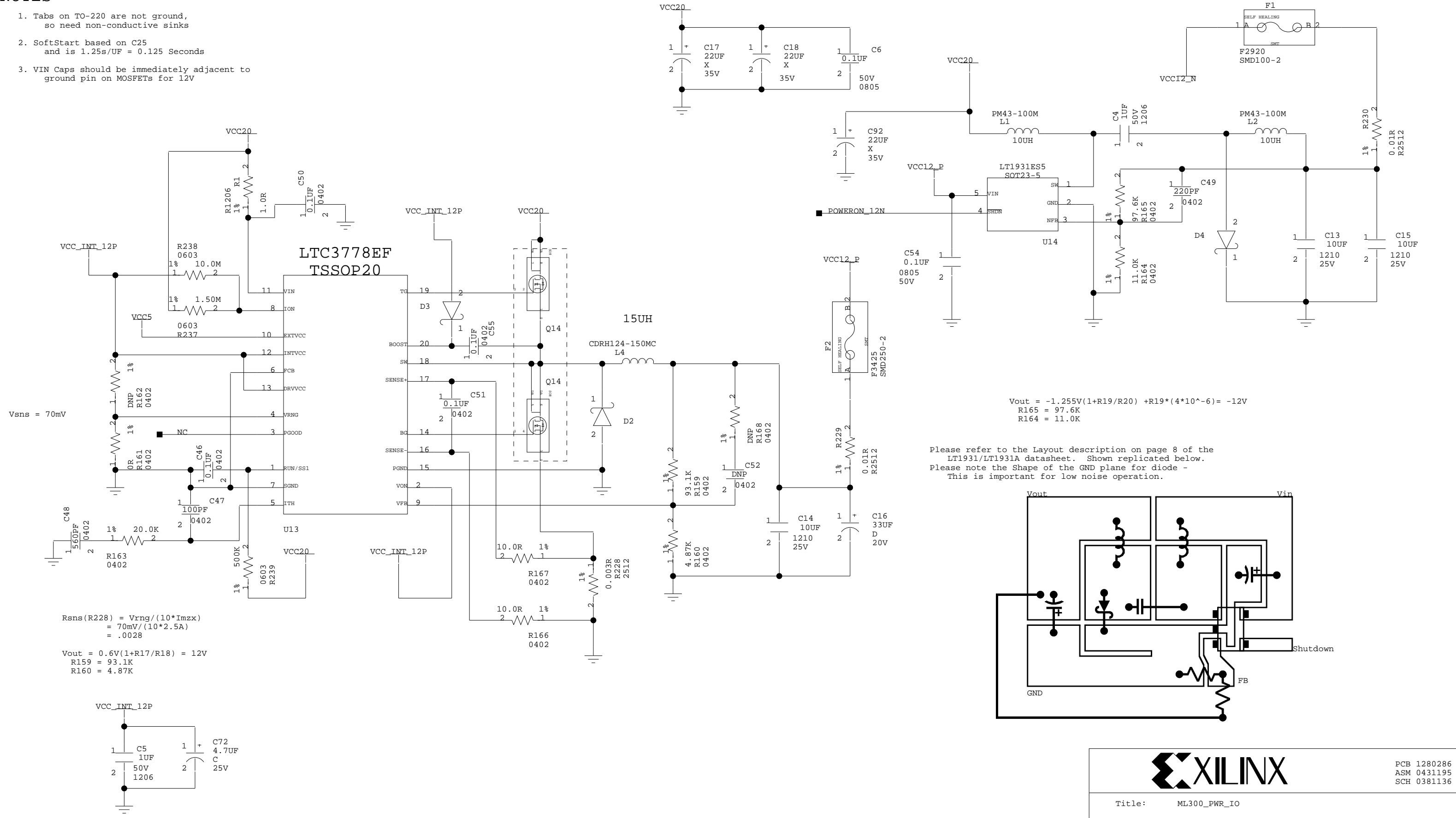
PCB 1280286  
ASM 0431195  
SCH 0381136

Title: ML300_PWR_IO Power Supply Stand-By Logic	
Date: October 17th, 2002	Ver: 1.00
Sheet Size: B	Rev: A
Sheet 20 of 28	Drawn By BF

# ML300\_PWR\_IO Board Power Supply Stand-By Logic

**NOTES:**

1. Tabs on TO-220 are not ground, so need non-conductive sinks
2. SoftStart based on C25 and is  $1.25s/UF = 0.125$  Seconds
3. VIN Caps should be immediately adjacent to ground pin on MOSFETs for 12V



Vsns = 70mV

$$R_{sns}(R228) = V_{rnrg} / (10 * I_{mzx})$$

$$= 70mV / (10 * 2.5A)$$

$$= .0028$$

$$V_{out} = 0.6V(1 + R17/R18) = 12V$$

$$R159 = 93.1K$$

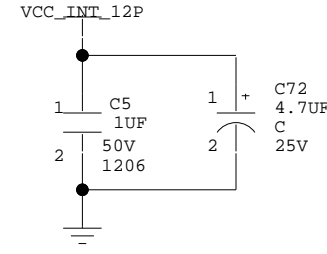
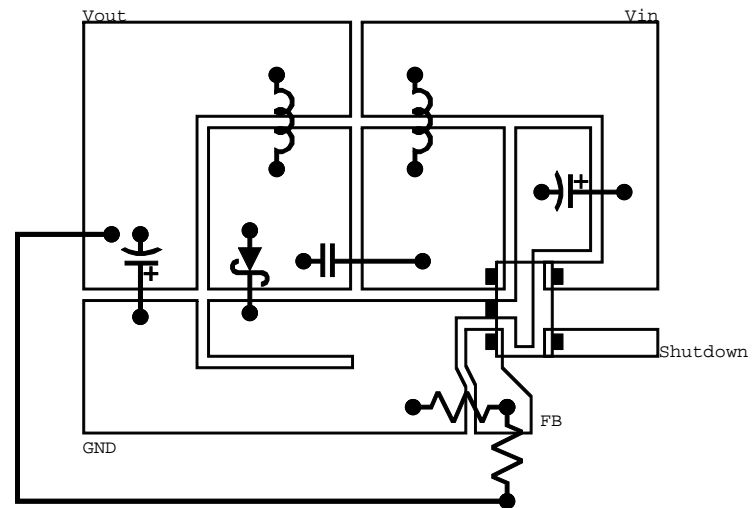
$$R160 = 4.87K$$

$$V_{out} = -1.255V(1 + R19/R20) + R19 * (4 * 10^{-6}) = -12V$$

$$R165 = 97.6K$$

$$R164 = 11.0K$$

Please refer to the Layout description on page 8 of the LT1931/LT1931A datasheet. Shown replicated below. Please note the Shape of the GND plane for diode - This is important for low noise operation.

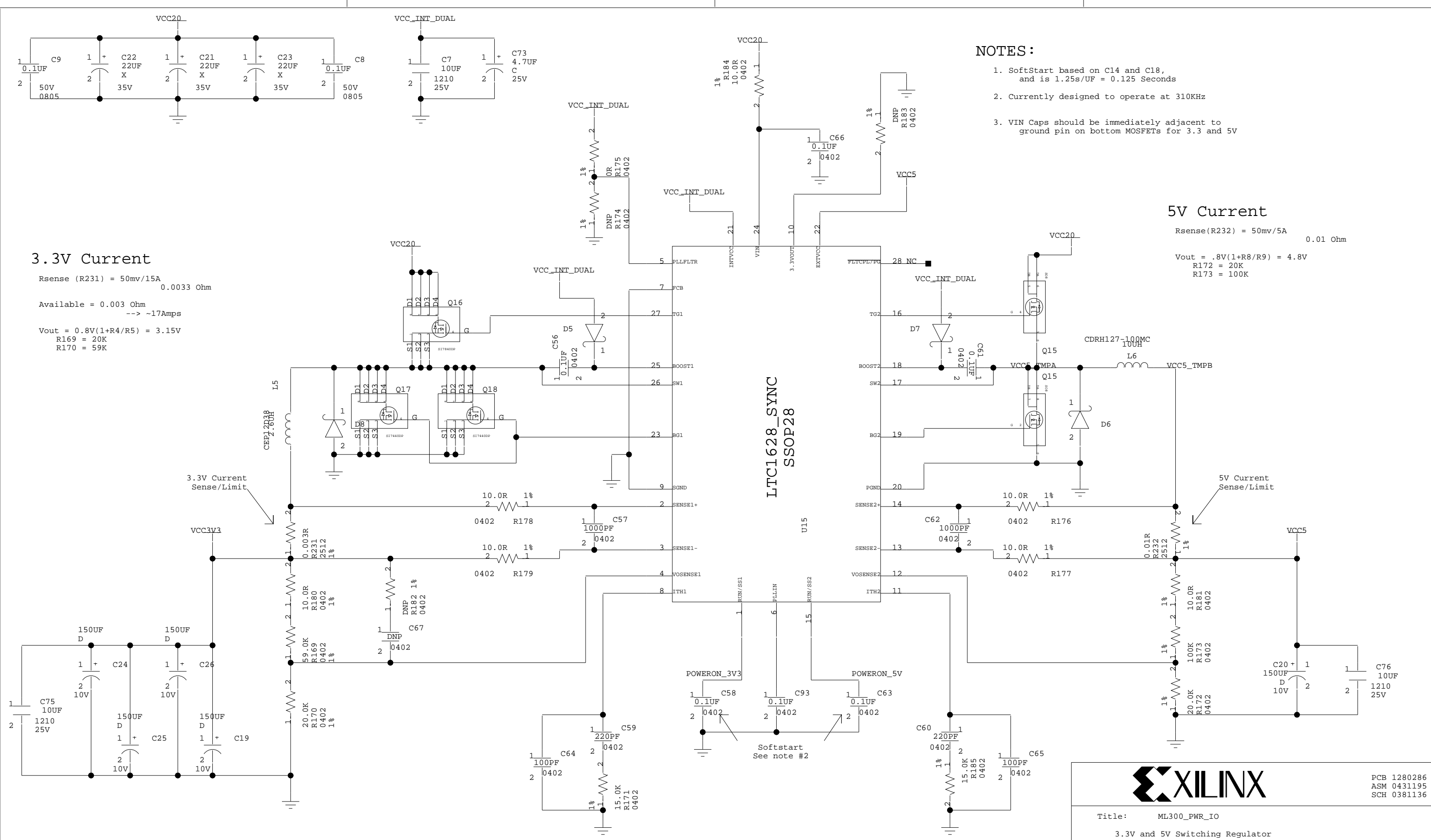


**ML300\_PWR\_IO Board**  
**+12V and -12V Switching Regulators**



PCB 1280286  
ASM 0431195  
SCH 0381136

Title: ML300_PWR_IO +12V and -12V Switching Regulators	
Date: October 17th, 2002	Ver: 1.00
Sheet Size: B	Rev: A
Sheet 21 of 28	Drawn By BP & BF



### 3.3V Current

Rsense (R231) = 50mv/15A  
0.0033 Ohm

Available = 0.003 Ohm  
--> ~17Amps

Vout = 0.8V(1+R4/R5) = 3.15V  
R169 = 20K  
R170 = 59K

### NOTES:

1. SoftStart based on C14 and C18, and is 1.25s/UF = 0.125 Seconds
2. Currently designed to operate at 310KHz
3. VIN Caps should be immediately adjacent to ground pin on bottom MOSFETs for 3.3 and 5V

### 5V Current

Rsense(R232) = 50mv/5A  
0.01 Ohm

Vout = .8V(1+R8/R9) = 4.8V  
R172 = 20K  
R173 = 100K

LTC1628\_SYNC  
SSOP28

## ML300\_PWR\_IO Board 3.3V and 5V Switching Regulator



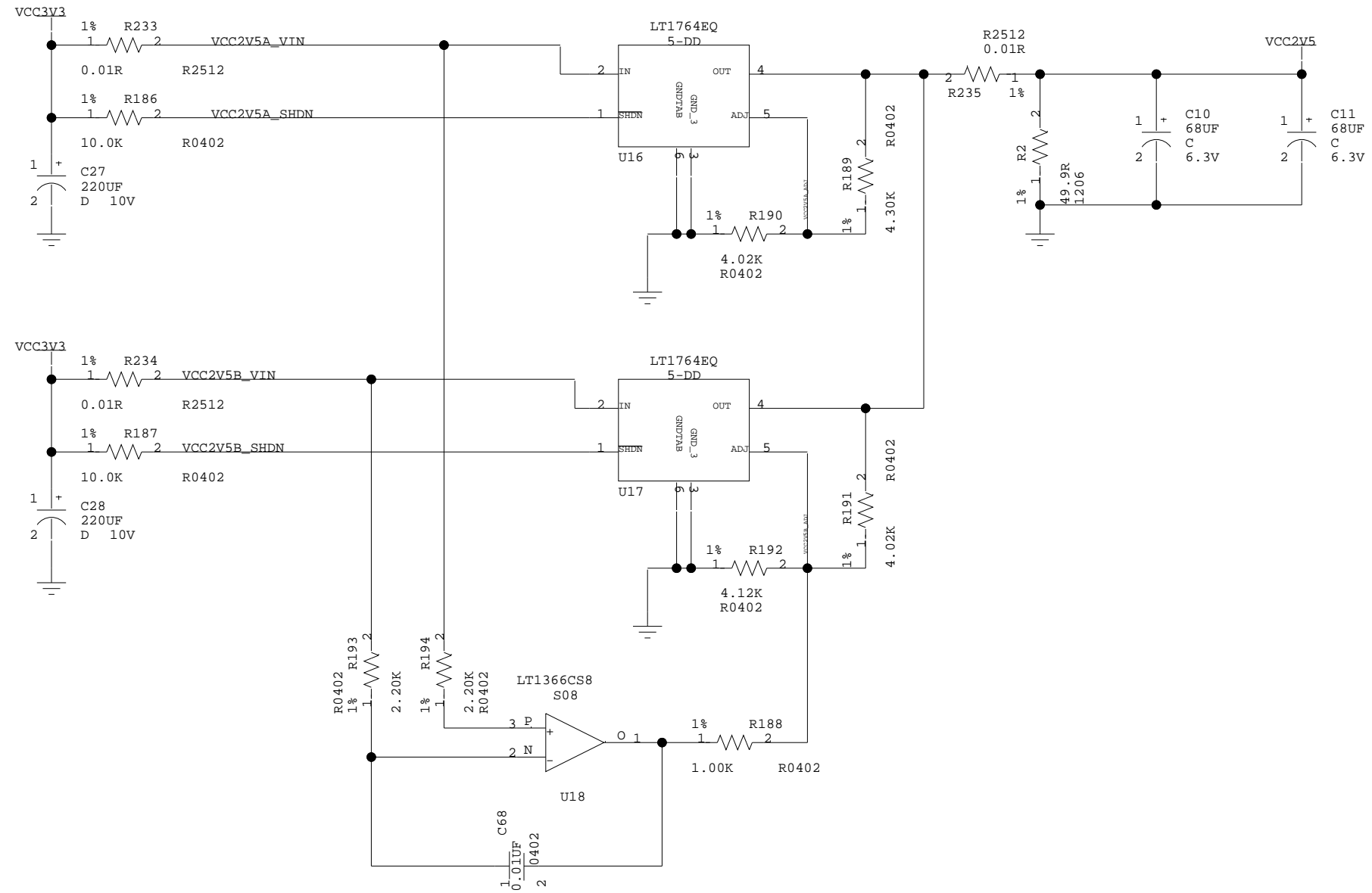
PCB 1280286  
ASM 0431195  
SCH 0381136

Title: ML300_PWR_IO 3.3V and 5V Switching Regulator	
Date: October 17th, 2002	Ver: 1.00
Sheet Size: B	Rev: A
Sheet 22 of 30	Drawn By BP & BF

LDO - 800mV at 3 A

Input Caps (C27, C28)  
 Must be low ESR!  
 1.5 > ESR/Cap  
 Must be < 1cm away  
 Digikey P11286CT-ND

Output Caps (C10,C11)  
 0.2 Ohm < ESR < 5 Ohm  
 Must be < 1cm away  
 Digikey P11284CT-ND



Op amp used to share the current load.



PCB 1280286  
 ASM 0431195  
 SCH 0381136

Title: ML300\_PWR\_IO  
 2.5V Linear Regulators

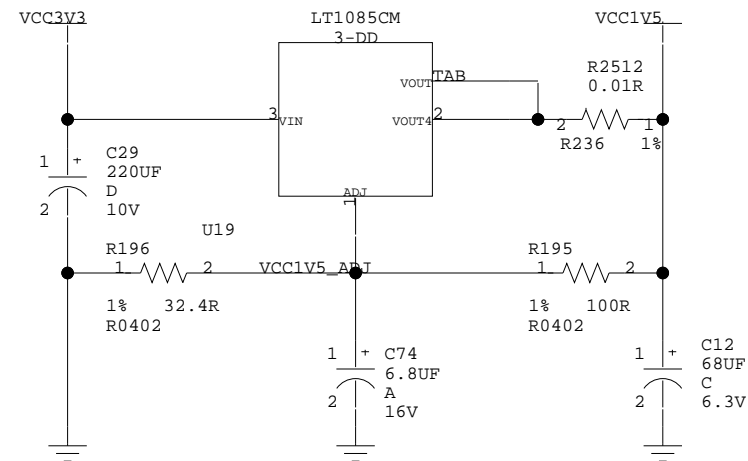
Date: October 17th, 2002 Ver: 1.00

Sheet Size: B Rev: A

Sheet 23 of 30 Drawn By BP

# ML300\_PWR\_IO Board 2.5V Linear Regulators

### VCC 1.5V A



$V_{out} = 1.25V (1 + R_{15}/R_{16})$   
 $V_{1.65} = 1.25V (1 + 32.4/100)$



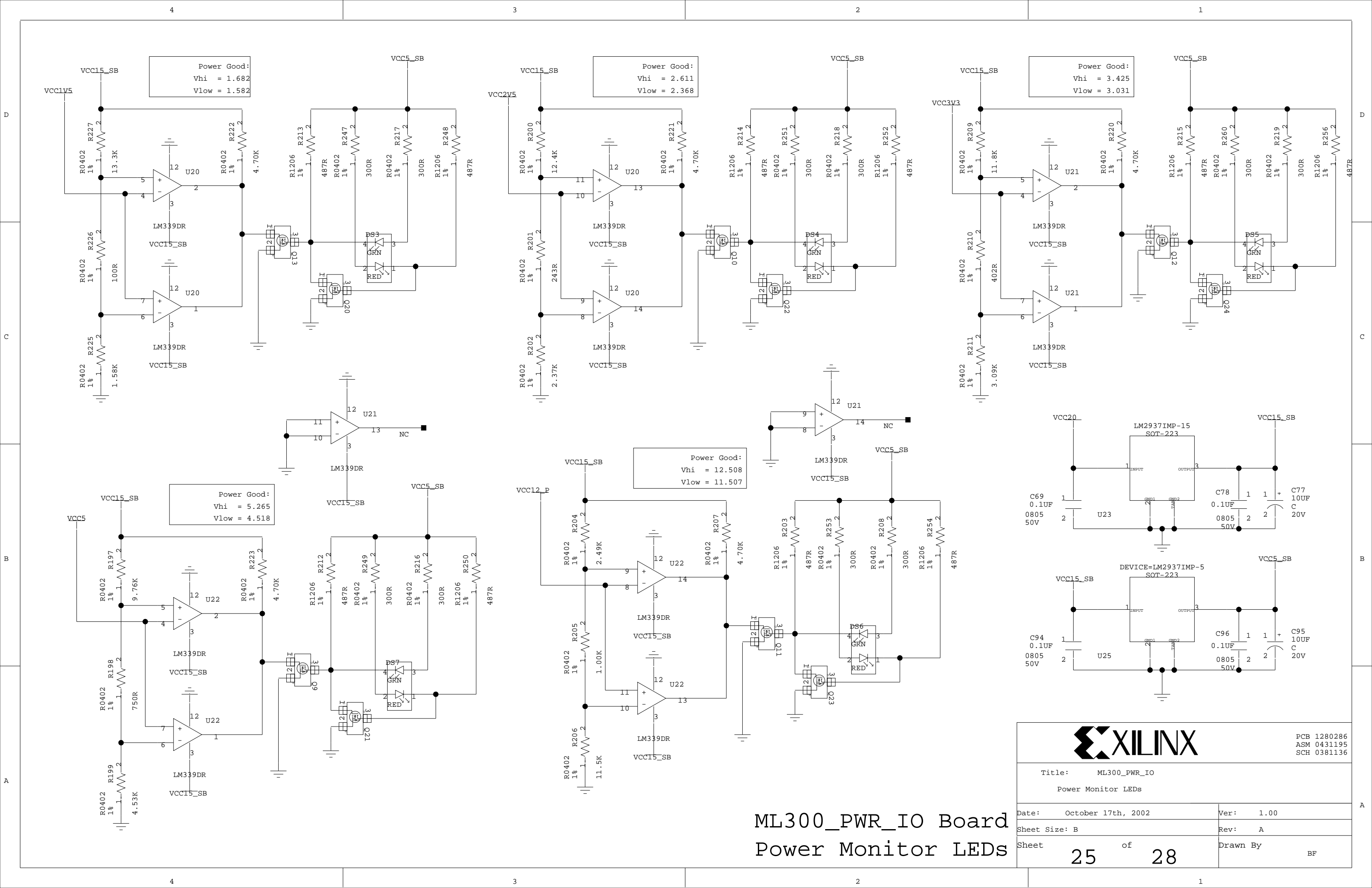
PCB 1280286  
 ASM 0431195  
 SCH 0381136

Title: ML300\_PWR\_IO  
 1.5 V Linear Regulator

Date: October 17th, 2002	Ver: 1.00
Sheet Size: B	Rev: A
Sheet 24 of 30	Drawn By BP

## ML300\_PWR\_IO Board 1.5V Linear Regulator





Power Good:  
Vhi = 1.682  
Vlow = 1.582

Power Good:  
Vhi = 2.611  
Vlow = 2.368

Power Good:  
Vhi = 3.425  
Vlow = 3.031

Power Good:  
Vhi = 5.265  
Vlow = 4.518

Power Good:  
Vhi = 12.508  
Vlow = 11.507

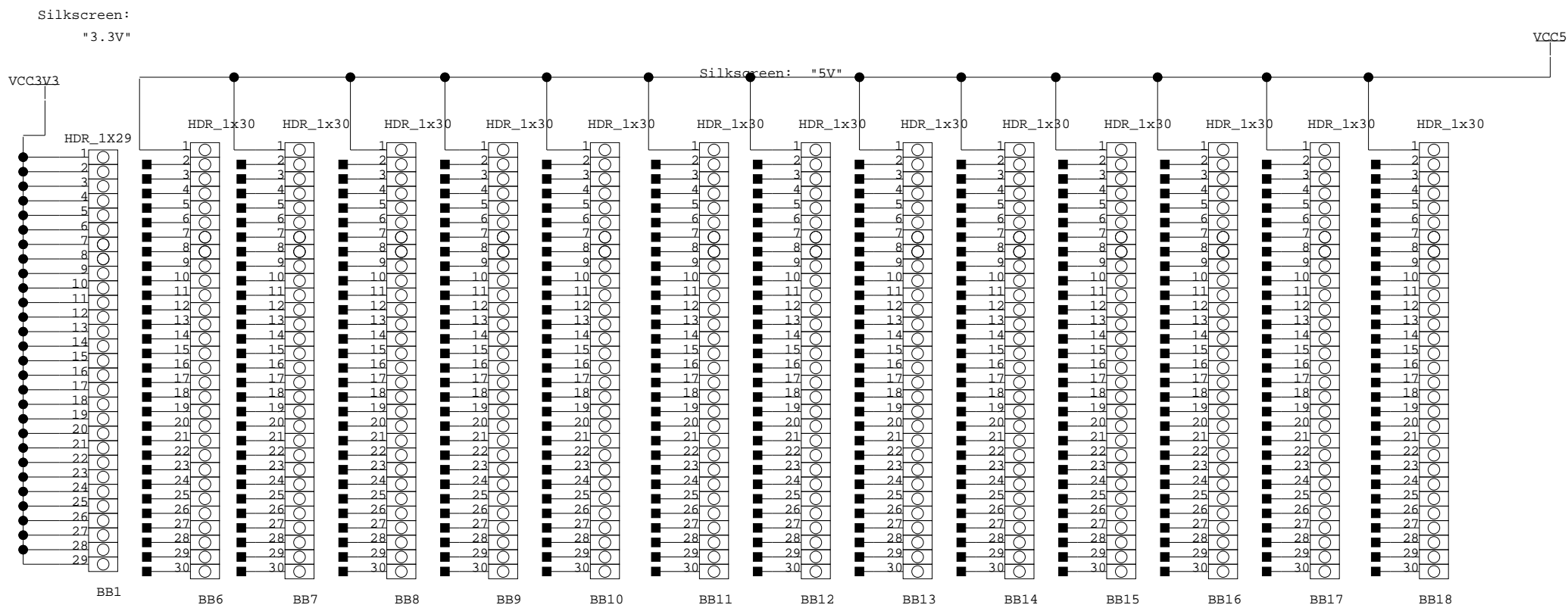
**XILINX**

PCB 1280286  
ASM 0431195  
SCH 0381136

Title: ML300\_PWR\_IO  
Power Monitor LEDs

Date: October 17th, 2002	Ver: 1.00
Sheet Size: B	Rev: A
Sheet 25 of 28	Drawn By BF

## ML300\_PWR\_IO Board Power Monitor LEDs

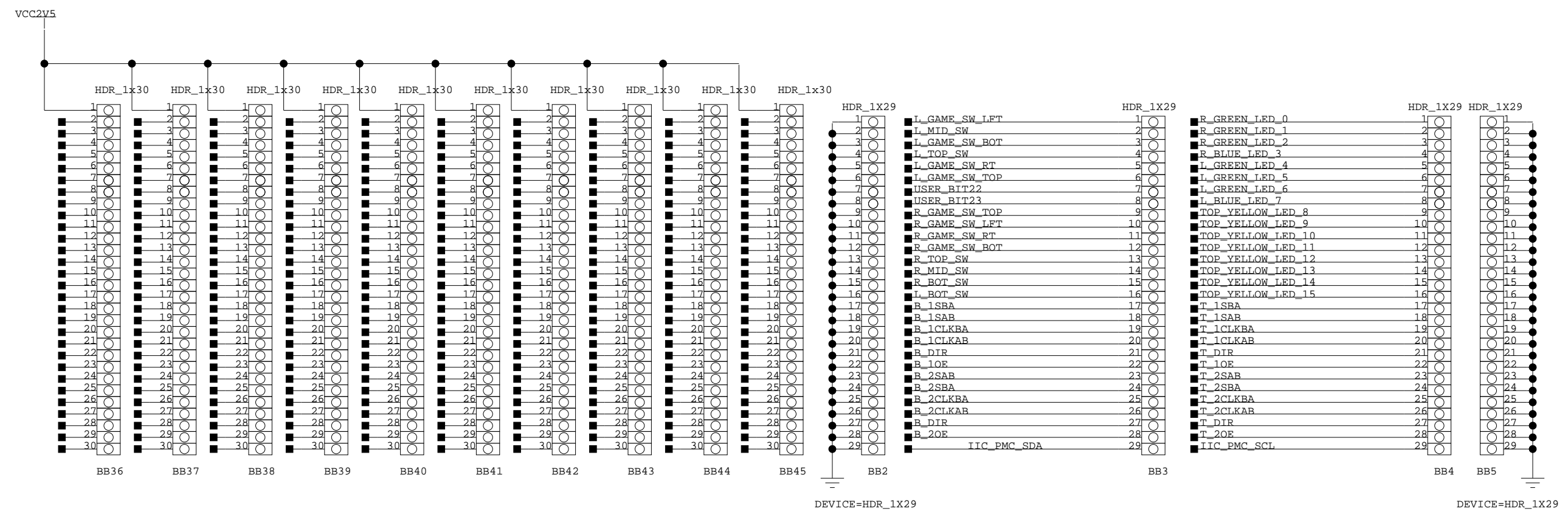
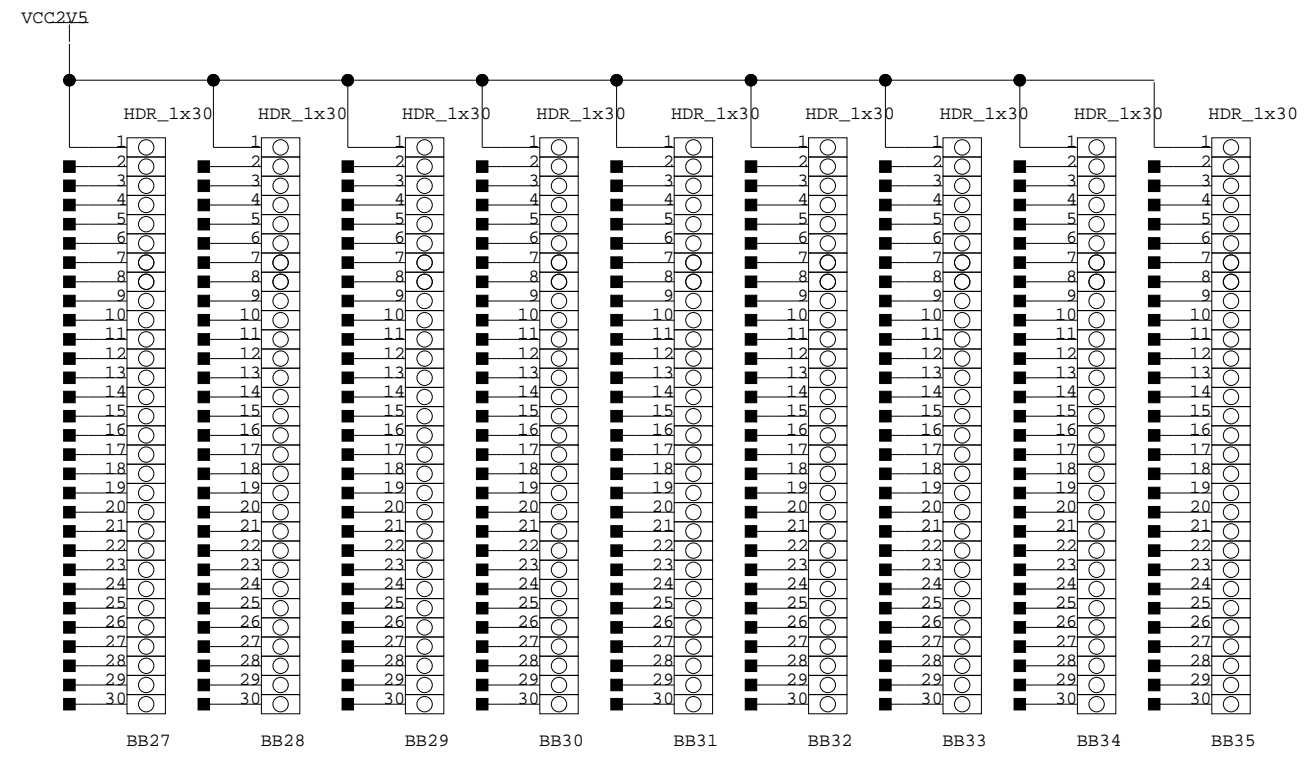


PCB 1280286  
 ASM 0431195  
 SCH 0381136

Title: ML300\_PWR\_IO  
 Prototyping Area (1 of 2)

Date: October 17th, 2002	Ver: 1.00
Sheet Size: B	Rev: A
Sheet 26 of 30	Drawn By BF

ML300\_PWR\_IO Board  
 Prototyping Area (1 of 2)



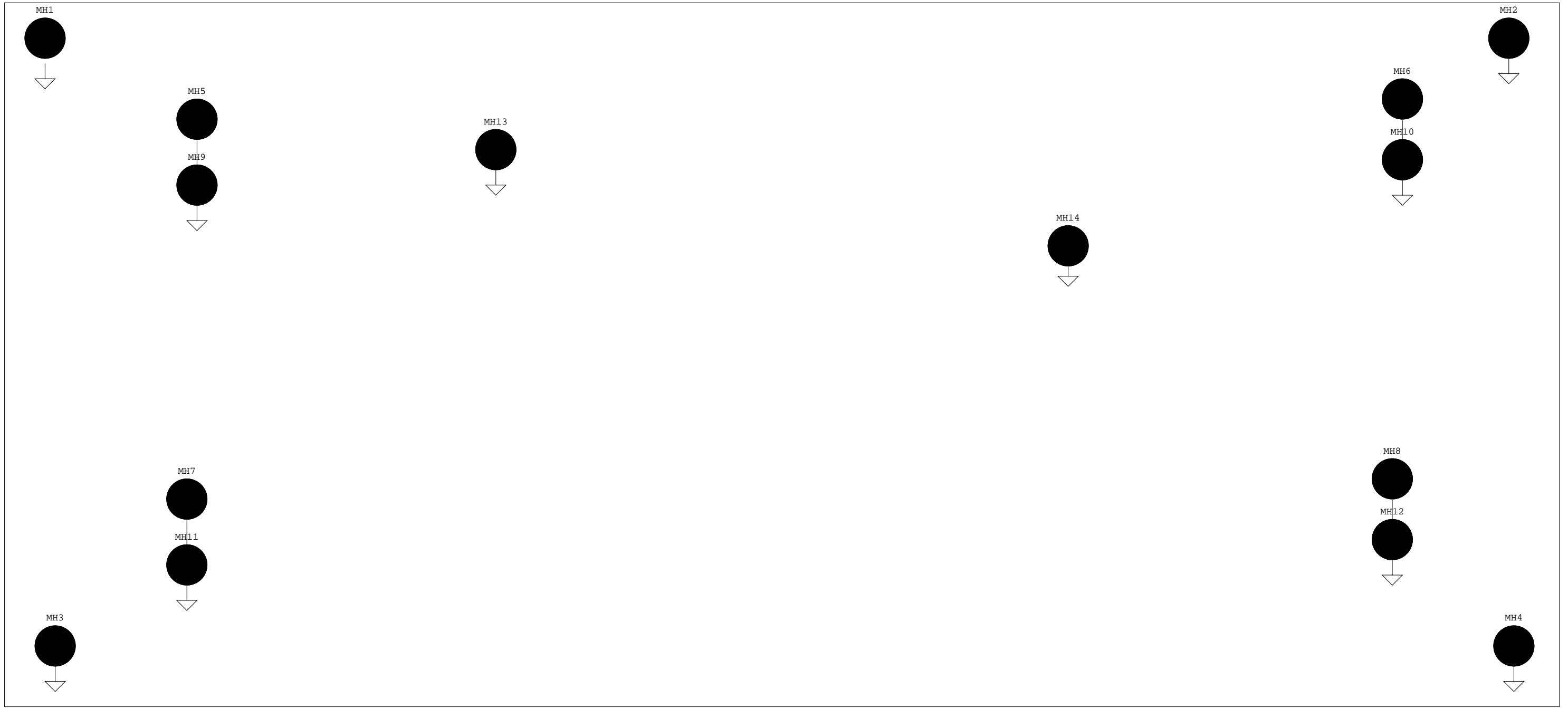
PCB 1280286  
 ASM 0431195  
 SCH 0381136

Title: ML300\_PWR\_IO  
 Prototyping Area (2 of 2)

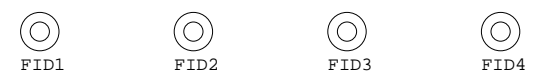
Date: October 17th, 2002	Ver: 1.00
Sheet Size: B	Rev: A
Sheet 27 of 30	Drawn By BF

# ML300\_PWR\_IO Board Prototyping Area (2 of 2)

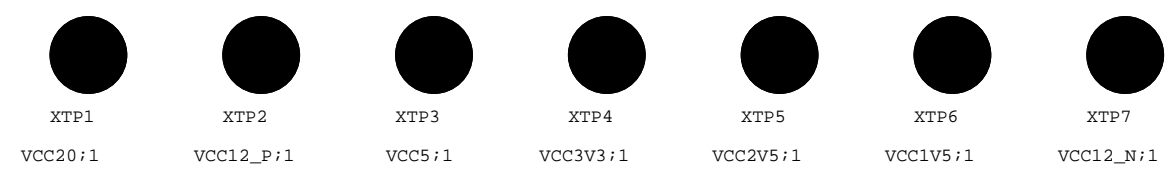
Refer to Mechanical Drawing for Placement and Dimensions



Fiducials

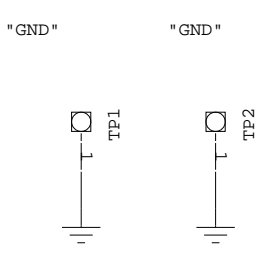


Voltage Testpoints



Ground Turrets

Silkscreen



PCB 1280286  
 ASM 0431195  
 SCH 0381136

Title: ML300_PWR_IO	
Fiducials, Mounting Holes, Ground Turrets	
Date: October 17th, 2002	Ver: 1.00
Sheet Size: B	Rev: A
Sheet 28 of 28	Drawn By BF

ML300\_PWR\_IO Board - Fiducials,  
 Mounting Holes, Ground Turrets