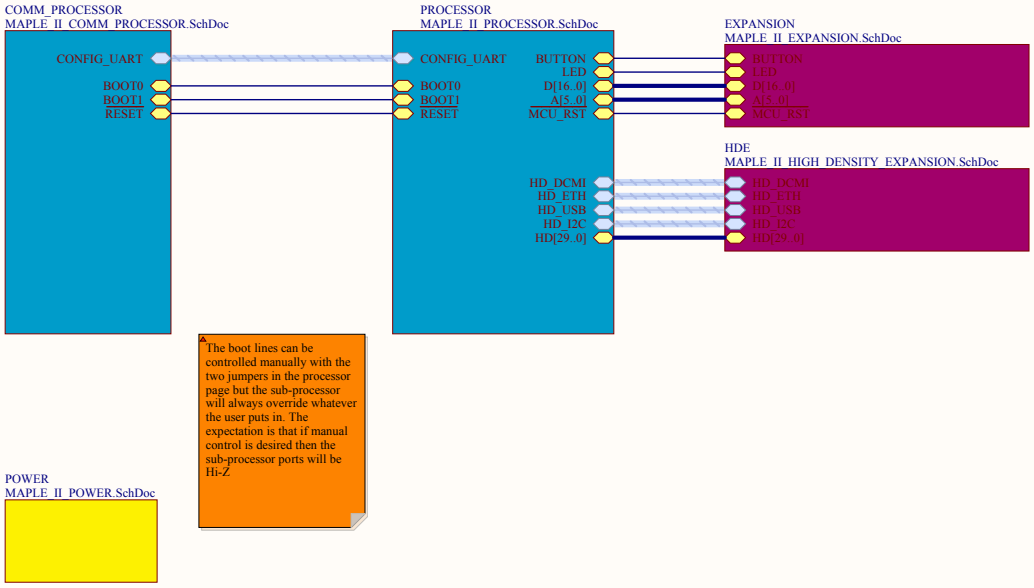
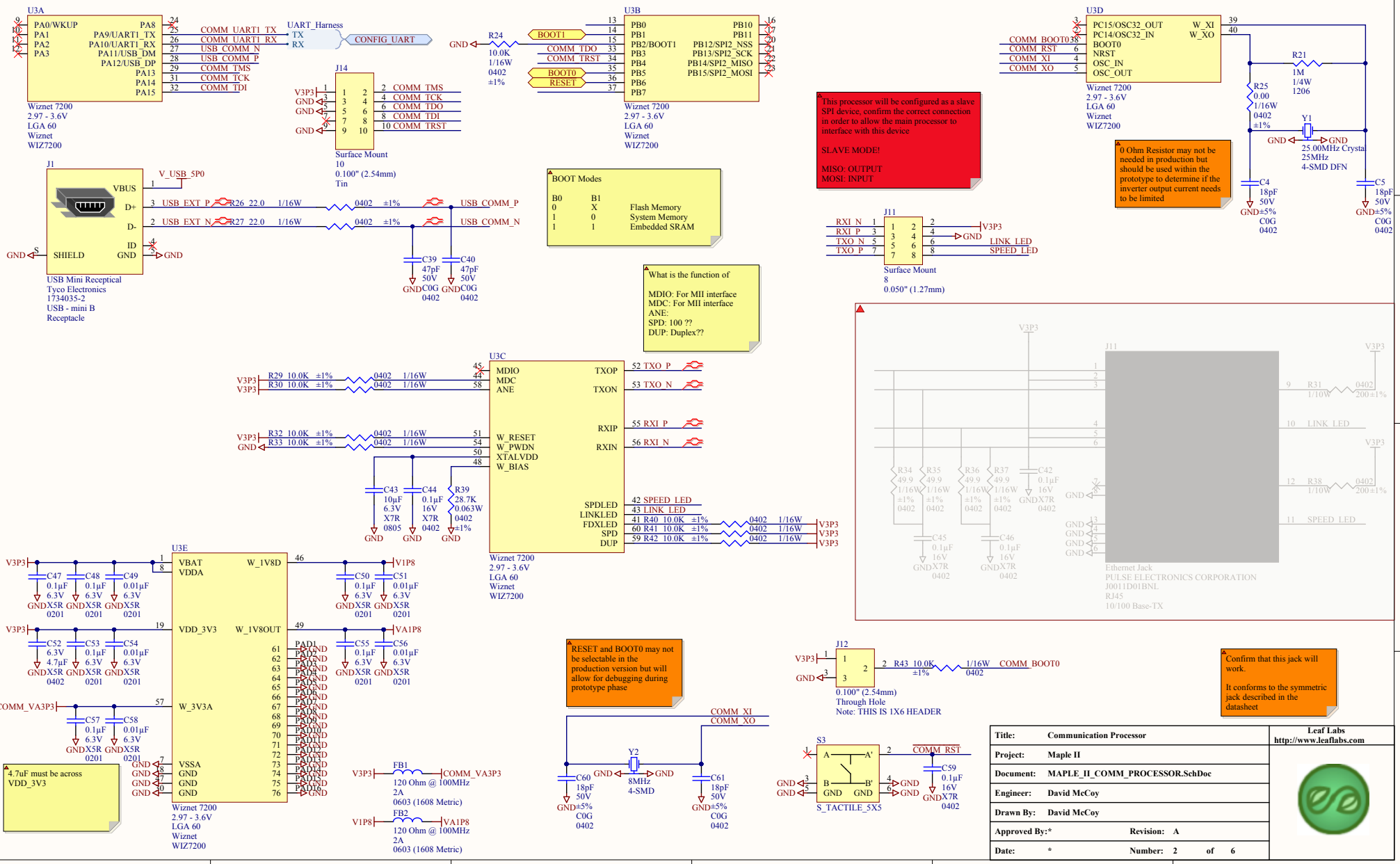
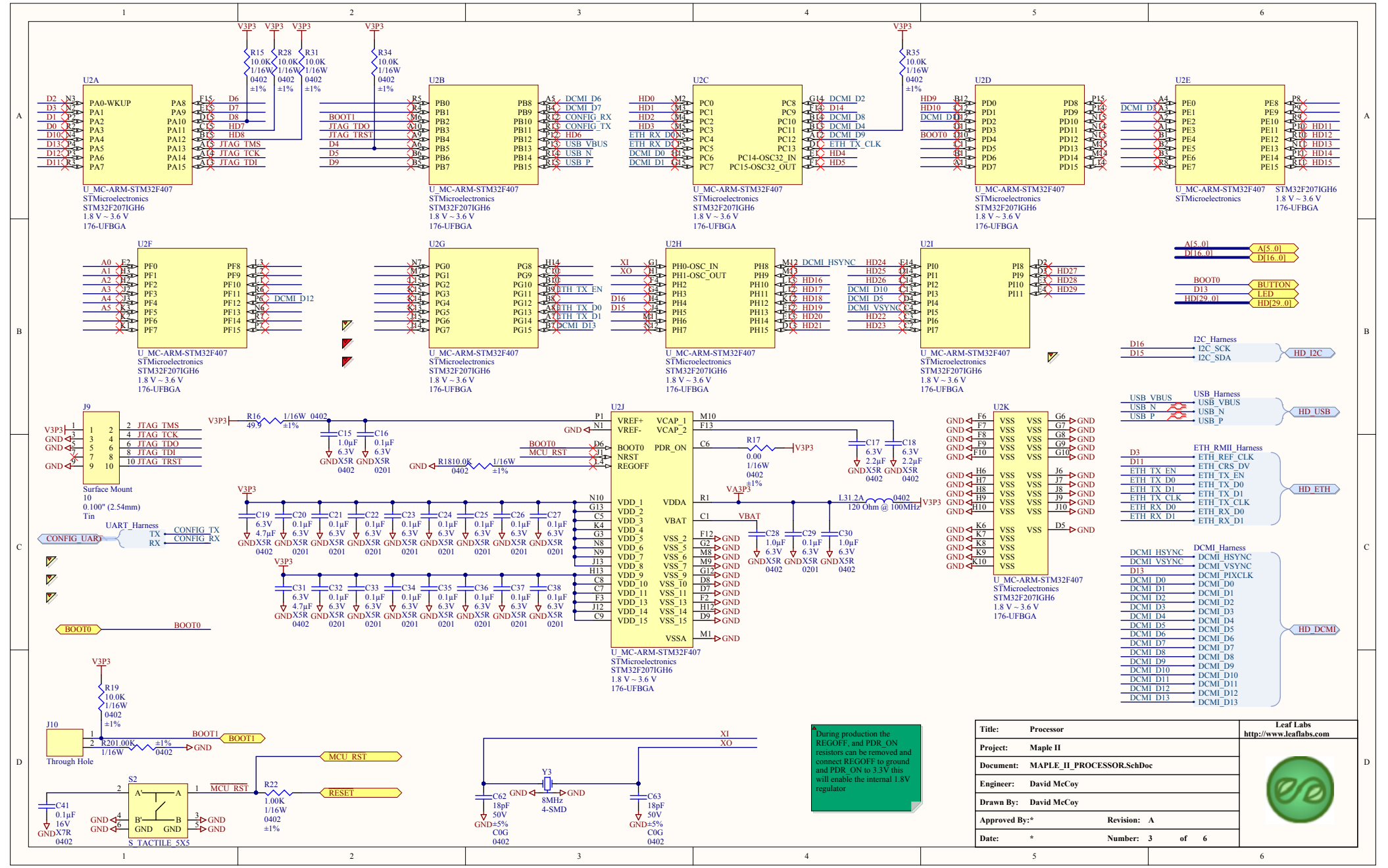
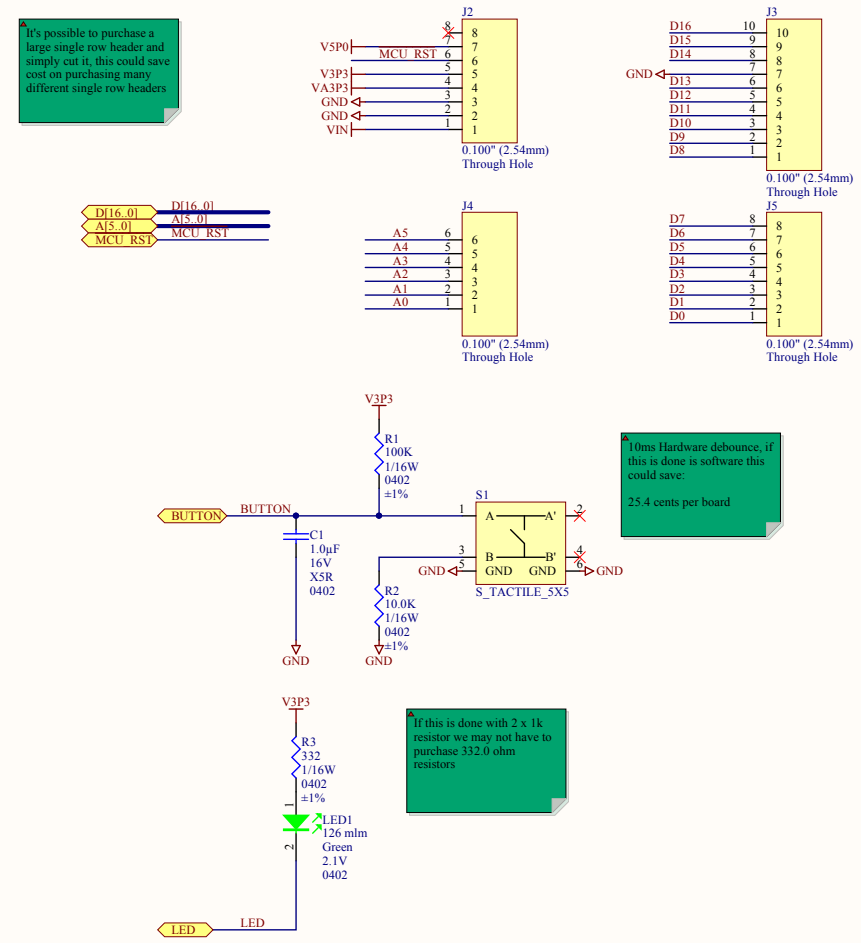


Title:	**Block Diagram**		**Leaf Labs http://www.leaflabs.com**
Project:	**Maple II**		
Document:	**MAPLE_II_BLOCK_DIAGRAM.SchDoc**		
Engineer:	**David McCoy**		
Drawn By:	**David McCoy**		
Approved By:	*****	**Revision:** **A**	
Date:	*****	**Number:** **1** **of** **6**	


U3A
PA0/WKUP
PA1
PA2
PA3
PA8
PA9/UART1_TX
PA10/UART1_RX
PA11/USB_DM
PA12/USB_DP
PA13
PA14
PA15
COMM_UART1_TX
COMM_UART1_RX
USB_COMM_N
USB_COMM_P
COMM_TMS
COMM_TCK
COMM_TDI
UART_Harness
TX
RX
CONFIG_UART
Wiznet 7200
2.97 - 3.6V
LGA 60
Wiznet
WIZ7200
J14
Surface Mount
10
0.100" (2.54mm)
Tin
COMM_TMS
COMM_TCK
COMM_TDO
COMM_TDI
COMM_TRST
U3B
PB0
PB1
PB2/BOOT1
PB3
PB4
PB5
PB6
PB7
PB10
PB11
PB12/SPI2_NSS
PB13/SPI2_SCK
PB14/SPI2_MISO
PB15/SPI2_MOSI
R24
10.0K
1/16W
0402
±1%
BOOT1
COMM_TDO
COMM_TRST
BOOT0
RESET
Wiznet 7200
2.97 - 3.6V
LGA 60
Wiznet
WIZ7200
U3D
PC15/OSC32_OUT
PC14/OSC32_IN
BOOT0
NRST
OSC_IN
OSC_OUT
W_XI
W_XO
COMM_BOOT0
COMM_RST
COMM_XI
COMM_XO
Wiznet 7200
2.97 - 3.6V
LGA 60
Wiznet
WIZ7200
R21
1M
1/4W
1206
R25
0.00
1/16W
0402
±1%
Y1
25.00MHz Crystal
25MHz
4-SMD DFN
C4
18pF
50V
C0G
0402
C5
18pF
50V
C0G
0402
This processor will be configured as a slave SPI device, confirm the correct connection in order to allow the main processor to interface with this device
SLAVE MODE!
MISO: OUTPUT
MOSI: INPUT
0 Ohm Resistor may not be needed in production but should be used within the prototype to determine if the inverter output current needs to be limited
J1
VBUS
D+
D-
ID
SHIELD
GND
V_USB_5P0
USB_EXT_P
USB_EXT_N
R26 22.0 1/16W 0402 ±1%
R27 22.0 1/16W 0402 ±1%
USB_COMM_P
USB_COMM_N
C39
47pF
50V
C0G
0402
C40
47pF
50V
C0G
0402
USB Mini Receptical
Tyco Electronics
1734035-2
USB - mini B
Receptacle
BOOT Modes
B0 B1
0 X Flash Memory
1 0 System Memory
1 1 Embedded SRAM
J11
RXI_N
RXI_P
TXO_N
TXO_P
LINK_LED
SPEED_LED
Surface Mount
8
0.050" (1.27mm)
What is the function of
MDIO: For MII interface
MDC: For MII interface
ANE:
SPD: 100 ??
DUP: Duplex??
U3C
MDIO
MDC
ANE
W_RESET
W_PWDN
XTALVDD
W_BIAS
TXOP
TXON
RXIP
RXIN
SPDLED
LINKLED
FDXLED
SPD
DUP
R29 10.0K ±1% 0402 1/16W
R30 10.0K ±1% 0402 1/16W
R32 10.0K ±1% 0402 1/16W
R33 10.0K ±1% 0402 1/16W
R40 10.0K ±1% 0402 1/16W
R41 10.0K ±1% 0402 1/16W
R42 10.0K ±1% 0402 1/16W
C43 10µF 6.3V X7R 0805
C44 0.1µF 16V X7R 0402
R39 28.7K 0.063W 0402 ±1%
TXO_P
TXO_N
RXI_P
RXI_N
SPEED_LED
LINK_LED
Wiznet 7200
2.97 - 3.6V
LGA 60
Wiznet
WIZ7200
R34 49.9 1/16W ±1% 0402
R35 49.9 1/16W ±1% 0402
R36 49.9 1/16W ±1% 0402
R37 49.9 1/16W ±1% 0402
C42 0.1µF 16V X7R 0402
C45 0.1µF 16V X7R 0402
C46 0.1µF 16V X7R 0402
R31 1/10W 0402 200 ±1%
R38 1/10W 0402 200 ±1%
Ethernet Jack
PULSE ELECTRONICS CORPORATION
J0011D01BNL
RJ45
10/100 Base-TX
U3E
VBAT
VDDA
VDD_3V3
W_3V3A
VSSA
GND
W_1V8D
W_1V8OUT
PAD1
PAD2
PAD3
PAD4
PAD5
PAD6
PAD7
PAD8
PAD9
PAD10
PAD11
PAD12
PAD13
PAD14
PAD15
PAD16
C47 0.1µF 6.3V X5R 0201
C48 0.1µF 6.3V X5R 0201
C49 0.01µF 6.3V X5R 0201
C50 0.1µF 6.3V X5R 0201
C51 0.01µF 6.3V X5R 0201
C52 6.3V 4.7µF X5R 0402
C53 0.1µF 6.3V X5R 0201
C54 0.01µF 6.3V X5R 0201
C55 0.1µF 6.3V X5R 0201
C56 0.01µF 6.3V X5R 0201
C57 0.1µF 6.3V X5R 0201
C58 0.01µF 6.3V X5R 0201
4.7uF must be across VDD_3V3
Wiznet 7200
2.97 - 3.6V
LGA 60
Wiznet
WIZ7200
FB1
120 Ohm @ 100MHz
2A
0603 (1608 Metric)
FB2
120 Ohm @ 100MHz
2A
0603 (1608 Metric)
RESET and BOOT0 may not be selectable in the production version but will allow for debugging during prototype phase
Y2
8MHz
4-SMD
C60 18pF 50V C0G 0402
C61 18pF 50V C0G 0402
J12
R43 10.0K ±1% 1/16W 0402 COMM_BOOT0
0.100" (2.54mm)
Through Hole
Note: THIS IS 1X6 HEADER
S3
S_TACTILE_5X5
C59 0.1µF 16V X7R 0402
Confirm that this jack will work.
It conforms to the symmetric jack described in the datasheet
Title: Communication Processor
Project: Maple II
Document: MAPLE_II_COMM_PROCESSOR.SchDoc
Engineer: David McCoy
Drawn By: David McCoy
Approved By:* Revision: A
Date: * Number: 2 of 6
Leaf Labs
http://www.leaflabs.com


U2A
PA0-WKUP
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PA8
PA9
PA10
PA11
PA12
PA13
PA14
PA15
D2
D3
D1
D0
D10
D13
D12
D11
D6
D7
D8
HD7
HD8
JTAG_TMS
JTAG_TCK
JTAG_TDI
R15 10.0K 1/16W 0402 ±1%
R28 10.0K 1/16W 0402 ±1%
R31 10.0K 1/16W 0402 ±1%
V3P3
U_MC-ARM-STM32F407
STMicroelectronics
STM32F207IGH6
1.8 V ~ 3.6 V
176-UFBGA
U2B
PB0
PB1
PB2
PB3
PB4
PB5
PB6
PB7
PB8
PB9
PB10
PB11
PB12
PB13
PB14
PB15
BOOT1
JTAG_TDO
JTAG_TRST
D4
D5
D9
R34 10.0K 1/16W 0402 ±1%
DCMI_D6
DCMI_D7
CONFIG_RX
CONFIG_TX
HD6
USB_VBUS
USB_N
USB_P
U2C
PC0
PC1
PC2
PC3
PC4
PC5
PC6
PC7
PC8
PC9
PC10
PC11
PC12
PC13
PC14-OSC32_IN
PC15-OSC32_OUT
HD0
HD1
HD2
HD3
ETH_RX_D0
ETH_RX_D1
DCMI_D0
DCMI_D1
DCMI_D2
D14
DCMI_D8
DCMI_D4
DCMI_D9
ETH_TX_CLK
HD4
HD5
R35 10.0K 1/16W 0402 ±1%
U2D
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7
PD8
PD9
PD10
PD11
PD12
PD13
PD14
PD15
HD9
HD10
DCMI_D11
BOOT0
U2E
PE0
PE1
PE2
PE3
PE4
PE5
PE6
PE7
PE8
PE9
PE10
PE11
PE12
PE13
PE14
PE15
DCMI_D3
HD11
HD12
HD13
HD14
HD15
STM32F207IGH6
U2F
PF0
PF1
PF2
PF3
PF4
PF5
PF6
PF7
PF8
PF9
PF10
PF11
PF12
PF13
PF14
PF15
A0
A1
A2
A3
A4
A5
DCMI_D12
U2G
PG0
PG1
PG2
PG3
PG4
PG5
PG6
PG7
PG8
PG9
PG10
PG11
PG12
PG13
PG14
PG15
ETH_TX_EN
ETH_TX_D0
ETH_TX_D1
DCMI_D13
U2H
PH0-OSC_IN
PH1-OSC_OUT
PH2
PH3
PH4
PH5
PH6
PH7
PH8
PH9
PH10
PH11
PH12
PH13
PH14
PH15
XI
XO
D16
D15
DCMI_HSYNC
HD16
HD17
HD18
HD19
HD20
HD21
HD24
HD25
HD26
DCMI_D10
DCMI_D5
DCMI_VSYNC
HD22
HD23
U2I
PI0
PI1
PI2
PI3
PI4
PI5
PI6
PI7
PI8
PI9
PI10
PI11
HD27
HD28
HD29
A[5..0]
D[16..0]
BOOT0
D13
LED
HD[29..0]
BUTTON
I2C_Harness
I2C_SCK
I2C_SDA
HD_I2C
USB_Harness
USB_VBUS
USB_N
USB_P
HD_USB
ETH_RMII_Harness
ETH_REF_CLK
ETH_CRS_DV
ETH_TX_EN
ETH_TX_D0
ETH_TX_D1
ETH_TX_CLK
ETH_RX_D0
ETH_RX_D1
HD_ETH
DCMI_Harness
DCMI_HSYNC
DCMI_VSYNC
DCMI_PIXCLK
DCMI_D0
DCMI_D1
DCMI_D2
DCMI_D3
DCMI_D4
DCMI_D5
DCMI_D6
DCMI_D7
DCMI_D8
DCMI_D9
DCMI_D10
DCMI_D11
DCMI_D12
DCMI_D13
HD_DCMI
J9
JTAG_TMS
JTAG_TCK
JTAG_TDO
JTAG_TDI
JTAG_TRST
Surface Mount
10
0.100" (2.54mm)
Tin
R16 49.9 1/16W 0402 ±1%
C15 1.0µF 6.3V X5R 0402
C16 0.1µF 6.3V X5R 0201
R1810.0K 1/16W 0402 ±1%
BOOT0
MCU_RST
U2J
VREF+
VREF-
VCAP_1
VCAP_2
BOOT0
NRST
REGOFF
PDR_ON
VDD_1
VDD_2
VDD_3
VDD_4
VDD_5
VDD_6
VDD_7
VDD_8
VDD_9
VDD_10
VDD_11
VDD_12
VDD_13
VDD_14
VDD_15
VDDA
VBAT
VSS_1
VSS_2
VSS_3
VSS_4
VSS_5
VSS_6
VSS_7
VSS_8
VSS_9
VSS_10
VSS_11
VSS_12
VSS_13
VSS_14
VSS_15
VSSA
R17 0.00 1/16W 0402 ±1%
C17 2.2µF 6.3V X5R 0402
C18 2.2µF 6.3V X5R 0402
VA3P3
R1
L31.2A 120 Ohm @ 100MHz 0402
C19 4.7µF 6.3V X5R 0402
C20 0.1µF 6.3V X5R 0201
C21 0.1µF 6.3V X5R 0201
C22 0.1µF 6.3V X5R 0201
C23 0.1µF 6.3V X5R 0201
C24 0.1µF 6.3V X5R 0201
C25 0.1µF 6.3V X5R 0201
C26 0.1µF 6.3V X5R 0201
C27 0.1µF 6.3V X5R 0201
C28 1.0µF 6.3V X5R 0402
C29 0.1µF 6.3V X5R 0201
C30 1.0µF 6.3V X5R 0402
C31 4.7µF 6.3V X5R 0402
C32 0.1µF 6.3V X5R 0201
C33 0.1µF 6.3V X5R 0201
C34 0.1µF 6.3V X5R 0201
C35 0.1µF 6.3V X5R 0201
C36 0.1µF 6.3V X5R 0201
C37 0.1µF 6.3V X5R 0201
C38 0.1µF 6.3V X5R 0201
U_MC-ARM-STM32F407
STMicroelectronics
STM32F207IGH6
1.8 V ~ 3.6 V
176-UFBGA
U2K
VSS
U_MC-ARM-STM32F407
STMicroelectronics
STM32F207IGH6
1.8 V ~ 3.6 V
176-UFBGA
UART_Harness
CONFIG_UART
TX
RX
CONFIG_TX
CONFIG_RX
BOOT0
BOOT1
J10
Through Hole
R19 10.0K 1/16W 0402 ±1%
R201.00K ±1% 1/16W 0402
S2
S_TACTILE_5X5
MCU_RST
RESET
R22 1.00K 1/16W 0402 ±1%
C41 0.1µF 16V X7R 0402
Y3
8MHz
4-SMD
C62 18pF 50V ±5% C0G 0402
C63 18pF 50V ±5% C0G 0402
During production the REGOFF, and PDR_ON resistors can be removed and connect REGOFF to ground and PDR_ON to 3.3V this will enable the internal 1.8V regulator
Title: Processor
Project: Maple II
Document: MAPLE_II_PROCESSOR.SchDoc
Engineer: David McCoy
Drawn By: David McCoy
Approved By:*
Revision: A
Date: *
Number: 3 of 6
Leaf Labs
http://www.leaflabs.com



Title:	Expansion		Leaf Labs http://www.leaflabs.com
Project:	Maple II		
Document:	MAPLE_II_EXPANSION.SchDoc		
Engineer:	David McCoy		
Drawn By:	David McCoy		
Approved By:	*	Revision: A	
Date:	*	Number: 4 of 6	

5.0V User Power

possible switch to dynamic power path management on chip

The user must select either the USB input or an external power input, but not both, this chip does not have an internal power path manager

Vout: Output voltage from VBUS to battery, this is the intermediate voltage that is used to charge the battery, and supply an input voltage to the buck/boost regulator.

Bypass with at least 4uF

There is a chance that the battery may falsly indicate a bad battery if the charge timeout occurs before the battery has a chance to charge. This could occur, for example, if the load is very high and ohly a trickle current is supplied to the battery

External 5V

J6
Through Hole

External 5V, or USB 5V

J7
0.100" (2.54mm)
Through Hole
Note: THIS IS 1X6 HEADER

VIN
V_USB_5P0
V5P0
GND

VBUS: attach to USB input

CLPROG: Current Limit programming, this controls the maximum current pull from USB Cap should be .1uF or higher. A 3.01k resistor will allow 464mA on the bus

NTC: Thermistor Monitoring input, connects to battery thermistor to determine if the battery is too hot or too cold to charge, if not used should be connected to ground

PROG: Charge current program and charge current monitor pin. Connect a resistor from PROG to ground programs the charge current. The current limit for the battery is set to 1A but this will not be achieved. basically this will allow any available power to be used to charge the battery.

U1A
C2 10µF 25V X5R 1206
C6 0.1µF 16V X7R 0402
R4 1/10W 3.01K 0402 ±1%
R5 1.00K 1/16W 0402 ±1%
VBUS
CLPROG
PROG
NTC
Linear Technology
LTC3566EUF#PBF
4.35 V ~ 5.5 V
24-WFQFN Exposed Pad

U1B
SW
VOUT
GATE
BAT
VIN1
L1 3.3µH .066 Ohm 2A Taiyo Yuden NRS4018T3R3MDGJ
V_REG
C3 22µF 6.3V X5R 0805
C7 6.3V 2.2µF X5R 0402
C8 1.0µF 16V X5R 0402
C9 6.3V 4.7µF X5R 0402
R6 1.00 1/16W 0402 ±1%
Linear Technology
LTC3566EUF#PBF
4.35 V ~ 5.5 V
24-WFQFN Exposed Pad

SW pin delivers power from the VBUS to VOUT via the step down switching regulator

J8
POS
NEG MNT
JST Sales America Inc
S2B-PH-SM4-TB(LF)(SN)
Surface Mount, Right Angle

U1C
SWAB1
SWCD1
VOUT1
FB1
VC1
L2 3.3µH 2A .066 Ohm Taiyo Yuden NRS4018T3R3MDGJ
V3P3
R7 324K 1/10W 0402 ±1%
R8 121K 1/10W 0402 ±1%
C10 22µF 6.3V X5R 0805
C11 50V 33pF C0G, NP0
C12330pF ±5% 50V 0402 C0G, NP0
R9 15K 1/10 0402 ±1%
R10 105K 1/10W 0402 ±1%
C1310pF .5pF 50V 0402 C0G, NP0
Linear Technology
LTC3566EUF#PBF
4.35 V ~ 5.5 V
24-WFQFN Exposed Pad

-SWAB1: Switch Node for the buck-boost regulator. External inductor connects between here and SWCD1
-VOUT1: Regulated Output Voltage for the (buck boost) switching regulator

ILIM0, ILIM1: 2 bit input into the current control limit, both have 1.6uA pull downs

#CHRG: Open drain charge status output. Four possible states are represented: Charging, not charging, unresponsive battery and bat temp out of range
-High = Not Charging
-Low = Charging
-Flashing = Battery fault

#CHRGEN: Logic input. This logic input pin independetnly enables the battery charging (has a 1.6uA internal pull down source)

EN1: Logic input. This logic input pin independently enables the buck boost switch regulator (active high) has a 1.6uA pull down

MODE: logic input. Mode enables Burst mode functionality for hte buck boost switching regulator when pin is set to high. has an internal 1.6uA internal pull-down current source
-Burst mode, although will be more efficient at light loads (current less than 50mA) will be less accurate (around 6mV) off. This doesn't seem like much but for 12bit ADC operation at 3.3V, this will effect the 4 least bit thus making an effective ADC of 9 bits... no bueno. If the efficiency at low power is desired the resistor on the MODE pin can be removed and a jumper wire be attached to 3.3v

If this is done with 2 x 1k resistor we may not have to purchase 332.0 ohm resistors

V3P3
LED2 126 mlm Green 2.1V 0402
R23 10.0K 1/16W 0402 ±1%
R11 332 1/16W 0402 ±1%
R1210.0K 0402 ±1% 1/16W
R1310.0K 0402 ±1% 1/16W
R1410.0K 0402 ±1% 1/16W
AV3P3
~750mA @ 3.3V

U1D
CHRG
CHRGEN
EN1
MODE
ILIM0
ILIM1
LDO3V3
GND
PAD
C14 1.0µF 16V X5R 0402
Linear Technology
LTC3566EUF#PBF
4.35 V ~ 5.5 V
24-WFQFN Exposed Pad

LDO3V3:

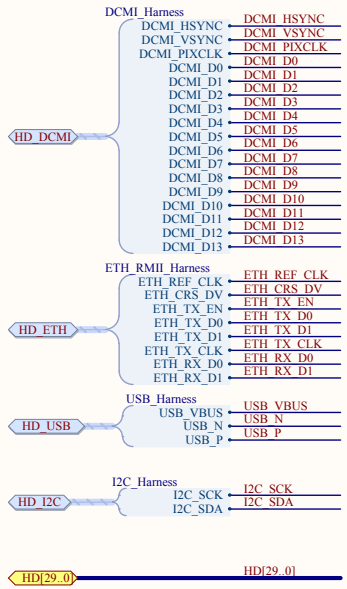
-If LDO3V3 is not used it should be connected to Vout
-LDO3V3 should be bypassed with a 1uF cap

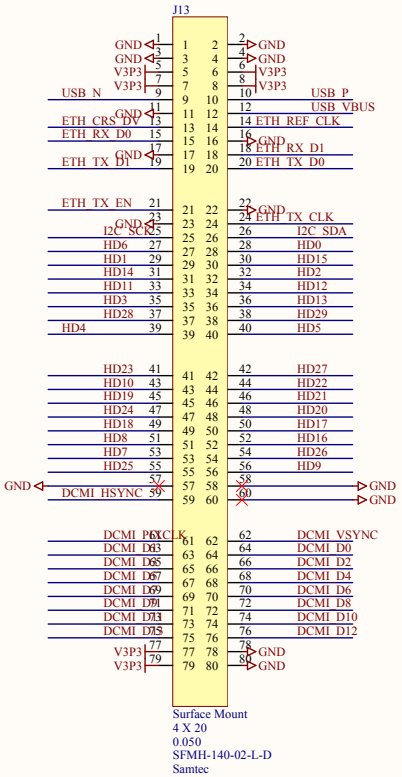
-MAX Current = 25mA

When we finalize the modes we can connect these pins directly to the appropriate rail.

we can save on all these resistors

Title:	Power		Leaf Labs http://www.leaflabs.com
Project:	Maple II		
Document:	MAPLE_II_POWER.SchDoc		
Engineer:	David McCoy		
Drawn By:	David McCoy		
Approved By:*		Revision: A	
Date:	*	Number: 5 of 6	





Extra IO Required

Ethernet requires an I2C bus in order to issue and recieve commands from the PHY

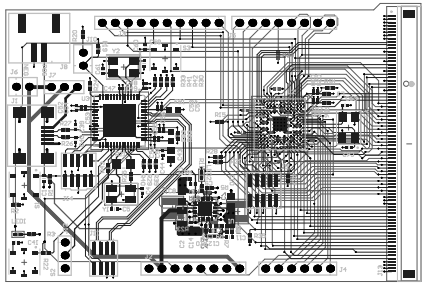
USB requires 2 GPIO's 1 to enable the 5V source and another to sense/IRQ over current conditions

Title:	High Density Expansion	Leaf Labs http://www.leaflabs.com	
Project:	Maple II		
Document:	MAPLE_II_HIGH_DENSITY_EXPANSION.SchDoc		
Engineer:	David McCoy		
Drawn By:	David McCoy		
Approved By:*		Revision: A	
Date: *		Number: 6 of 6	

Layer Stack Up Detail for: MAPLE_II.PcbDoc	
Layer Name	
Top Side	
Ground Plane	
MidLayer1	
MidLayer2	
Power Plane	
Bottom Side	

Fabrication Notes
1. Overall board height: 50mils
2. 20mil pullback on inner planes
3. Tent all vias under BGA (Top Side only)
4. 1.0 Oz copper on top and bottom
5. 1.0 Oz copper on internal signal, power and ground layers

Design Notes
1. Unless otherwise stated all dimensions are in mils



LAYER - GERBER LAYERS - DESCRIPTION

GTL – TOP LAYER
GTO – TOP SILKSCREEN

G1 – INNER LAYER 1
G2 – INNER LAYER 2

GBL – BOTTOM LAYER
GBO – BOTTOM SILKSCREEN

MECHANICAL LAYERS
01 Component Outline
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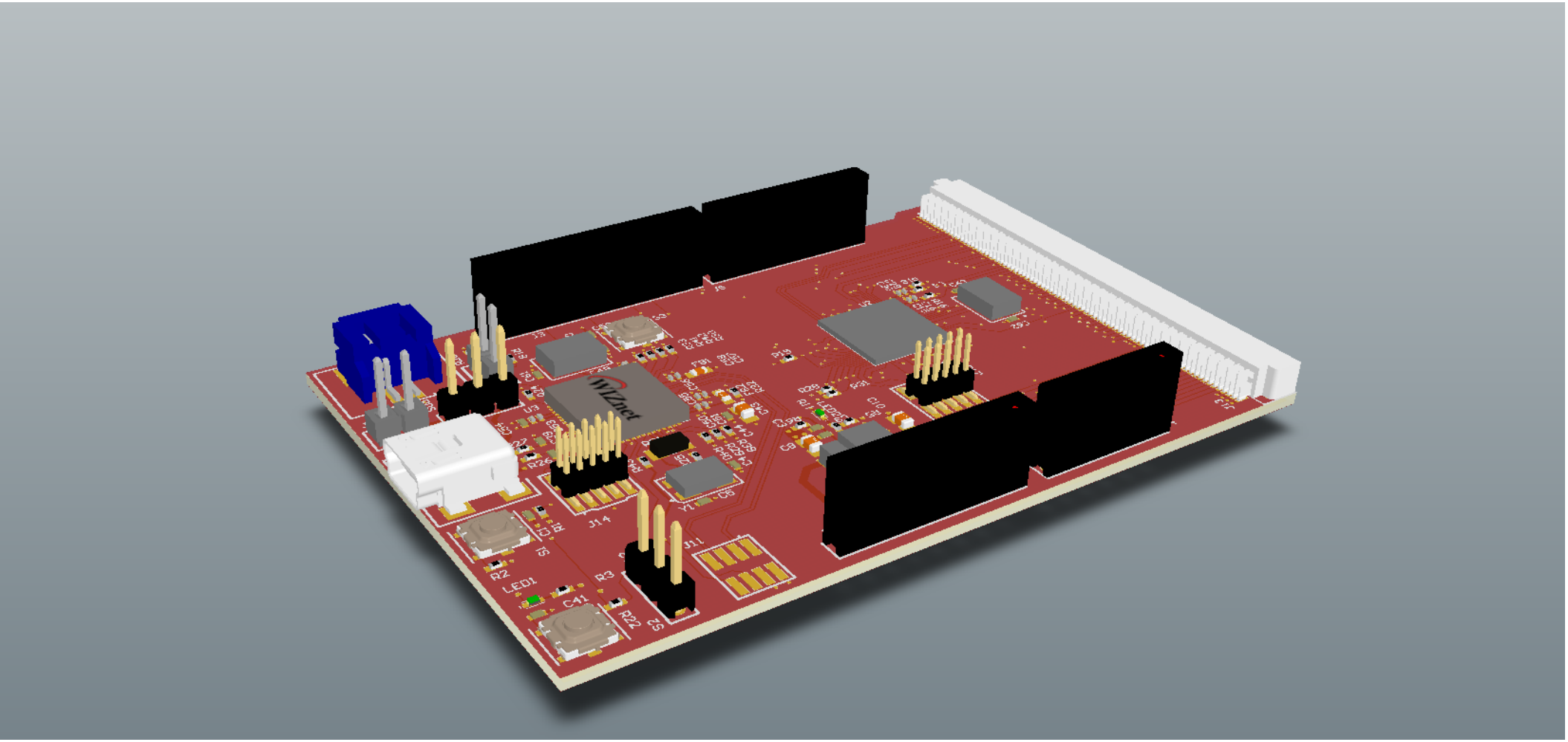
MULTI-LAYER HOLES

Dave McCoy	Leaflabs LLC		
Dave McCoy			
4/30/2012	Maple II	4/30/2012	A
B Size 1:1	MAPLE_II.PcbDoc	Sheet 1	of 1


WIZnet
J14
J11
LED1
R2
R3
C41
R22
S3

LibRef	Description	Designator	Quantity	Supplier 1	Supplier Part Number 1
C_0402_1.0UF_16V	CAP CER 1.0UF 16V X5R 0402	C1, C8, C14	3	Digi-Key	445-4978-1-ND
C_1206_10UF_25V	CAP CER 10UF 25V X5R 1206	C2	1	Digi-Key	490-5423-1-ND
C_0805_22UF_6.3V	CAP CER 22UF 6.3V X7R 10% 0805	C3, C10	2	Digi-Key	478-3647-1-ND
C_0402_18PF_50V	CAP CER 18PF 50V C0G 5% 0402	C4, C5, C60, C61, C62, C63	6	Digi-Key	445-1238-1-ND
C_0402_0.1UF_16V	CAP CER .10UF 16V X7R 0402	C6, C41, C44, C59	4	Digi-Key	445-4952-1-ND
C_0402_2.2UF	CAP CER 2.2UF 6.3V X5R 0402	C7, C17, C18	3	Digi-Key	445-4999-1-ND
C_0402_4.7UF	CAP CER 4.7UF 6.3V X5R 0402	C9, C19, C31, C52	4	Digi-Key	490-5408-1-ND
C_0402_33PF	CAP CER 33PF 50V C0G 5% 0402	C11	1	Digi-Key	445-1241-1-ND
C_0402_330PF_50V	CAP CER 330PF 50V 5% NP0 0402	C12	1	Digi-Key	587-1217-1-ND
C_0402_10PF_50V	CAP CER 10PF 50V NP0 0402	C13	1	Digi-Key	587-1947-1-ND
C_0201_1.0UF	CAP CER 1UF 6.3V 20% X5R 0201	C15, C28, C30	3	Digi-Key	445-8008-1-ND
C_0201_0.1UF	CAP CER 0.1UF 6.3V 10% X5R 0201	C16, C20, C21, C22, C23, C24, C25, C26, C27, C29, C32, C33, C34, C35, C36, C37, C38, C47, C48, C50, C53, C55, C57	23	Digi-Key	445-1796-1-ND
C_0402_47p_50V	CAP CER 47PF 50V 5% C0G 0402	C39, C40	2	Digi-Key	490-1287-1-ND
C_0805_10UF_6.3V	CAP CER 10UF 6.3V X7R 10% 0805	C43	1	Digi-Key	478-5322-1-ND
C_0201_0.01UF	CAP CER 10000PF 6.3V X5R 0201	C49, C51, C54, C56, C58	5	Digi-Key	445-4704-1-ND
FB_0603_120_100MHZ	FERRITE CHIP 120 OHM 2000MA 0603	FB1, FB2	2	Digi-Key	490-1037-1-ND
J_A31727TR-ND	CONN MINI USB RCPT RA TYPE B SMD	J1	1	Digi-Key	A31727CT-ND
J_HDR1X8_THRHOLE_VERT_FEMALE	CONN HEADER FEMALE 8POS .1 TIN	J2, J5	2	Digi-Key	S7006-ND
J_HDR1X10_THRHOLE_VERT_FEMALE	CONN HEADER FEMALE 10POS.1 TIN	J3	1		
J_HDR1X6_THRHOLE_VERT_FEMALE	CONN HEADER FEMALE 6POS .1 TIN	J4	1	Digi-Key	S7004-ND
J_HDR1X2_JUMPER	CONN HEADER .100" 12POS TIN PCB	J6, J10	2	Digi-Key	SAM1112-12-ND
J_HDR1X3_JUMPER_SELECT	CONN HEADER .100" 12POS TIN PCB	J7, J12	2	Digi-Key	SAM1112-12-ND
J_LIPO_BAT_CONNECTOR	CONN HEADER PH SIDE 2POS 2MM SMD	J8	1	Digi-Key	455-1749-1-ND
J_HDR2X5_0.05_SMD	CONN HEADER 10POS DL UNSHRD SMD	J9, J14	2	Digi-Key	609-3695-1-ND
J_HDR2X4_0.05_RCP_SMD	CONN RECEPT 8POS DUAL SMD	J11	1	Digi-Key	609-3705-1-ND
J_SFMH-140-02-L-D	CONN RECEPT 4ROW X 20POS .50 SMT	J13	1		
L_3.30UH_2A	INDUCTOR POWER 3.30UH 2.0A SMD	L1, L2	2	Digi-Key	587-2892-1-ND
L_FERRITE_120R_100MHZ	FERRITE CHIP 120 OHM 1.2A 0402	L3	1	Digi-Key	445-2981-1-ND
LED_GRN_0402	LED 1X0.5MM 570NM GN WTR CLR SMD	LED1, LED2	2	Digi-Key	754-1101-1-ND
R_0402_100.0K	RES 100K OHM 1/16W 1% 0402 SMD	R1	1	Digi-Key	541-100KLCT-ND
R_0402_10.0K	RES 10.0K OHM 1/16W 1% 0402 SMD	R2, R12, R13, R14, R15, R18, R19, R23, R24, R28, R29, R30, R31, R32, R33, R34, R35, R40, R41, R42, R43	21	Digi-Key	541-10.0KLDKR-ND
R_0402_332.0	RES 332 OHM 1/16W 1% 0402 SMD	R3, R11	2	Digi-Key	541-332LDKR-ND
R_0402_3.01K	RES 3.01K OHM 1/16W 1% 0402 SMD	R4	1	Digi-Key	RMCF0402FT3K01CT-ND
R_0402_1.0K	RES 1.00K OHM 1/16W 1% 0402 SMD	R5, R20, R22	3	Digi-Key	541-1.00KLDKR-ND
R_0402_1.00	RES 1.00 OHM 1/16W 1% 0402 SMD	R6	1	Digi-Key	311-1.00LRDKR-ND
R_0402_324.0K	RES 324K OHM 1/10W 1% 0402 SMD	R7	1	Digi-Key	P324KLCT-ND
R_0402_121.0K	RES 121K OHM 1/10W 1% 0402 SMD	R8	1	Digi-Key	P121KLCT-ND
R_0402_15.0K	RES 15.0K OHM 1/10W 1% 0402 SMD	R9	1	Digi-Key	P15.0KLCT-ND
R_0402_105.0K	RES 105K OHM 1/10W 1% 0402 SMD	R10	1	Digi-Key	P105KLCT-ND
R_0402_49.9	RES 49.9 OHM 1/16W 1% 0402 SMD	R16	1	Digi-Key	RMCF0402FT49R9DKR-ND
R_0402_0.00	RES 1.00 OHM 1/16W 1% 0402 SMD	R17, R25	2	Digi-Key	P0.0JDKR-ND
R_1206_1.0M	RES 1.00M OHM 1/4W 1% 1206 SMD	R21	1	Digi-Key	P1.0MECT-ND
R_0402_22.0	RES 22.0 OHM 1/16W 1% 0402 SMD	R26, R27	2	Digi-Key	311-22.0LRDKR-ND
R_0402_28.7K	RES 28.7K OHM 1/16W 1% 0402 SMD	R39	1	Digi-Key	541-28.7KLCT-ND
S_TACTILE_5X5	SWITCH LT 1.5MM HT 160GF SMD	S1, S2, S3	3	Digi-Key	P8046SCT-ND
U_LTC3566	IC USB POWER MANAGER 24-QFN	U1	1	Digi-Key	LTC3566EUF#PBF-ND
U_MC-ARM-STM32F407	MCU ARM 1024KB FLASH 176UFBGA	U2	1	Digi-Key	497-11168-ND
U_W7200	WIZNET 7200 MCU INT TCP/IP STACK	U3	1		
Y_SMD_25.00MHZ_18PF	CRYSTAL 25.000000 MHZ 8PF SMD	Y1	1	Digi-Key	CTX826CT-ND
Y_SMD_8.00MHZ_10PF	CRYSTAL 8.000 MHZ 10PF SMD	Y2, Y3	2	Digi-Key	535-9721-1-ND