Power Connections

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WING_POWER1 WING_POWER2 WING_POWER3 WING_POWER4 WING_POWER5 WING_POWER6

VCCAUX VCCINT

S1BVCCAUX S1BVCCINT
6SLX9TQG144 6SLX9TQG144

S1BGND
6SLX9TQG144

Decoupling Caps

3V3 1V2 3V3 3V3 3V3 3V3 3V3

Peripheral Section

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JTAG
JTAG_XILINX

OSC

FLASH
FLASH-SPI-S25XXSMD1

SW1

U1
ARDUINO_MEGA_SHIELD

6SLX9TQG144
S1B0

6SLX9TQG144
S1B1

6SLX9TQG144
S1B2

6SLX9TQG144
S1BNA

CY7C1041D
IS61WV25616
IS62WV51216
SRAM

RESET
SW2

HEADER_0-7
HEADER_FEMALE_8

HEADER_8-AREF
HEADER_FEMALE_8

HEADER_14-21
HEADER_FEMALE_8

HEADER_C
HEADER_FEMALE_19

HEADER_D
HEADER_FEMALE_19

HEADER_NC-IOREF
HEADER_FEMALE_7

HEADER_ANALOG
HEADER_FEMALE_6

JTAG Configuration
HSWAP to 3.3V to float all pins during configuration
M0 is connected to 3.3V
M1 is connected to GND
PROG_B asserting PROG_B causes a JTAG reconfiguration

Power Requirements
VCCINT requires 1.2V
VCCAUX requires 3.3V

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3V3 delays 1V2 start

3V3

U2

2	RUN1	SW1	4
9	RUN2		
		L1	
		3.3uH	

5V0

| 3 | MODE | VFB1 | 1 |

R2
6K8 1%

C1
22u/6V3

R3
1K5 1%

| 7 | VIN | | |

GND

1V2

C3
10u/10V

5	GND	SW2	8
6	GND		
		L2	
		3.3uH	

| | | VFB2 | 10 |

GND

R5
1K5 1%

C2
22u/6V3

R4
1K5 1%

LTC3419EMS

GND

GND

3 5V_ARDUINO
2 5V0
1 5V_FT2232

PWRSEL

5V0

R6
1K8
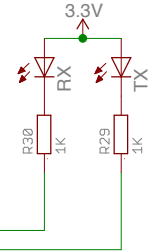
PWRIN

5V0

1
2

PWR
Green

GND

GND

GND

Power Section

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FT2232H Section

USB
GND
GND
VUSB — 5V_FT2232
D- — FTUSB_N
D+ — FTUSB_P
ID

L4 — 3.3V
L3 — 3.3V

C28 4.7uF
C14 4.7uF
C34 0.1uF
C15 0.1uF

1.8V
C27 0.1uF
C31 0.1uF
C16 0.1uF
GND

3.3V
C29 0.1uF
C30 0.1uF
C20 0.1uF
C18 0.1uF
GND

3.3V

GND

1.8V
C19 3.3uF
GND

R27 12k 1%
3.3V
R28 10k — RESET
GND

3.3V
R26 10k
R23 10k
R24 10k

R25 2.2k

U3
5 CS — VCC 6 — 3.3V
4 CLK
3 DI
1 DO — GND 2
93C56B

C17 0.1uF
GND

EECS 63
EECLK 62
EEDATA 61

X1 12MHz
C9 27pF
C8 27pF
GND

IC1
FT2232H

50 VREGIN
VPHY 4
VPLL 9
VCORE0 12
VCORE1 37
VCORE2 64
VCCIO0 31
VCCIO1 20
VCCIO2 42
VCCIO3 56

1.8V
3.3V

49 VREGOUT

7 DM
8 DP

6 REF

14 RESET#

63 EECS
62 EECLK
61 EEDATA

2 OSCI
3 OSC0
13 TEST

ADBUS0/TXD/TCK/SK — 16 AD0-JTAG_TCK
ADBUS1/RXD/TDI/DO — 17 AD1-JTAG_TDI
ADBUS2/RTS#/TDO/DI — 18 AD2-JTAG_TDO
ADBUS3/CTS#/TMS/CS — 19 AD3-JTAG_TMS
ADBUS4/DTR#/GPIOL0 — 21 AD4-DTR
ADBUS5/DSR#/GPIOL1 — 22 AD5
ADBUS6/DCD#/GPIOL2 — 23 AD6
ADBUS7/RI#/GPIOL3 — 24 AD7

ACBUS0/TXDEN/GPIOH0 — 26 AC0
ACBUS1/GPIOH1 — 27 AC1
ACBUS2/GPIOH2 — 28 AC2
ACBUS3/RXLED#/GPIOH3 — 29 AC3
ACBUS4/TXLED#/GPIOH4 — 30 AC4
ACBUS5/GPIOH5 — 32 AC5
ACBUS6/GPIOH6 — 33 AC6
ACBUS7/GPIOH7 — 34 AC7

BDBUS0/TXD/TCK/SK — 38 BD0_TXD/MPSSE_TCK
BDBUS1/RXD/TDI/DO — 39 BD1_RXD/MPSSE_TDI
BDBUS2/RTS#/TDO/DI — 40 BD2_MPSSE_TDO
BDBUS3/CTS#/TMS/CS — 41 BD3_MPSSE_TMS
BDBUS4/DTR#/GPIOL0 — 43 BD4-DTR
BDBUS5/DSR#/GPIOL1 — 44 BD5
BDBUS6/DCD#/GPIOL2 — 45 BD6
BDBUS7/RI#/GPIOL3 — 46 BD7

BCBUS0/GPIOH1 — 48 BC0
BCBUS1/GPIOH2 — 52 BC1
BCBUS2 — 53 BC2
BCBUS3/RXLED#/GPIOH3 — 54 BC3
BCBUS4/TXLED#/GPIOH4 — 55 BC4
BCBUS5/GPIOH5 — 57 BC5
BCBUS6/GPIOH6 — 58 BC6
BCBUS7/GPIOH7 — 59 BC7

PWREN# — 60 PWEREN
SUSPEND# — 36 SUSPEND

AGND 10
GND0 1
GND1 5
GND2 11
GND3 15
GND4 25
GND5 35
GND6 47
GND7 51
GND

3.3V
RX TX
R30 1K
R29 1K

FT2232H Section

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3V3

C101 100n C105 100n

3V3

R218 10K

GND

ARD_RESET

RESET

C106 22p
GND

Y1
R109 1M
16MHz KX-7

XTAL2

XTAL1

GND
22p C107

L100
AVCC
MH2029-300Y

AVCC1
AVCC

AREF

AREF

1uF C104

GND

C102 100n

GND

UCAP

1uF C103

GND

AVRUSB_N
AVRUSB_P

GND

U102

34	VCC1	(PCINT7/OC0A/OC1C/#RTS)PB7	12	ATMEGA_IO9*
43	GND3	(PCINT6/OC1B/OC4B/ADC13)PB6	30	MEGA_D14
13	RESET	(PCINT5/OC1A/#OC4B/ADC12)PB5	29	ATMEGA_D2
		(ADC11/PCINT4)PB4	28	ATMEGA_D3
16	XTAL2	(PD0/MISO/PCINT3)PB3	11	ATMEGA_IO12
17	XTAL1	(PDI/MOSI/PCINT2)PB2	10	ATMEGA_IO11*
		(SCLK/PCINT1)PB1	9	ATMEGA_IO13*
		(SS/PCINT0)PB0	8	ATMEGA_IO10*
44	AVCC1	(ICP3/CLK0/OC4A)PC7	32	MEGA_D16
24	AVCC	(OC3A/#0C4A)PC6	31	MEGA_D15
42	AREF	(INT6/AIN0)PE6	1	NC
14	VCC	(#HWB)PE2	33	GND
15	GND			
23	GND1	(T0/OC4D/ADC10)PD7	27	ATMEGA_D4
35	GND2	(T1/#OC4D/ADC9)PD6	26	ATMEGA_D5*
6	UCAP	(XCK1/#CTS)PD5	22	
2	UVCC	(ICP1/ADC8)PD4	25	ATMEGA_D6*
3	D-	(TXD1/INT3)PD3	21	ATMEGA_D1/TX
4	D+	(RXD1/AIN1/INT2)PD2	20	ATMEGA_D0/RX
5	UGND	(SDA/INT1)PD1	19	ATMEGA_D7
7	VBUS	(OC0B/SCL/INT0)PD0	18	ATMEGA_IO8
		(ADC7/TDI)PF7	36	MEGA_D28/A5
		(ADC6/TDO)PF6	37	MEGA_D30/A4
		(ADC5/TMS)PF5	38	MEGA_D32/A3
		(ADC4/TCK)PF4	39	MEGA_D34/A2
	PAD	(ADC1)PF1	40	ATMEGA_A1
		(ADC0)PF0	41	ATMEGA_A0

ATMEGA32U4-XUMU

GND

GND

GND

GND

USB

ATMEGA_IO13*

AVRUSB

GND S1	P1	5V_ARDUINO
S2	VBUS	P2	D-
SH1	D-	P3	D+
S3 SH2	D+	P4	USBID
S4 SH3	ID	P5	
S5 SH4	GND		
S6 SH5			
SH6			

USB MICRO

GND

R1 22R AVRUSB_N

R22 22R AVRUSB_P

R7 4.7K

LED Yellow

GND

GND

GND

This section is derived from the Arduino Leonardo Design and has the same license.

Arduino Section

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