Arduino Leonardo Headers

P1
1	IOREF	
2	RESET	Reset
3	3.3V	VCC_3.3v
4	5.0V	VCC_5v
5	GND	
6	GND	
7	VIN	

GND   VIN

P2
SCL_1	1	SCL 1
SDA_1	2	SDA 1
	3	AREF
	4	GND
PWM_7	5	PWM_6/13
PWM_6	6	12
PWM_5	7	PWM_5/11
PWM_4	8	PWM_4/10
	9	PWM_3/9
	10	8

Arduino Leonardo AVCC Header

P3
P2_M1INB	1	A0
P2_M1ENA/B	2	A1
P2_M1INA	3	A2
P2_M2INB	4	A3
	5	A4
	6	A5

P4
P2_M2INA	1	7
PWM_3	2	PWM_2
PWM_2	3	PWM_1/5
P2_M2ENA/B	4	4
PWM_1	5	PWM_0/3
	6	2
U0_TX	7	TX/1
U0_RX	8	RX/0

Arduino Leonardo RXTX Header

AHD Proprietary Headers

P5
SSP0_5.0_CS	1	ADIO5
	2	ADIO4
	3	ADIO3
	4	ADIO2
U3_TX	5	SCL1/RX3
U3_RX	6	SDA1/TX3

AHD Additional IO 1 I2C0 U3 Header

P6
P1_M2INB	10		9	P1_M1INA
P1_M2ENA/B	8	15 14	7	P1_M1ENA/B
P1_M1INB	6	13 12	5	P1_M2INA
	4	11 10	3	
	2	9 8	1	
		7 6		

AHD Additional IO 2

P7
P3_M1INA	1	ADIO16
P3_M2INB	2	ADIO17
P3_M1ENA/B	3	ADIO18
P3_M2ENA/B	4	ADIO19
P3_M1INB	5	ADIO20
P3_M2INA	6	ADIO21

AHD Additoinal IO 3

Thruster Board Motor Driver Pair Headers

P8
P1_M2INB	1	M2INB	M1INA	2	P1_M1INA
PWM_2	3	M2PWM	M1ENA/B	4	P1_M1ENA/B
P1_M2ENA/B	5	M2ENA/B	M1PWM	6	PWM_1
P1_M2INA	7	M2INA	M1INB	8	P1_M1INB
	9	GND	GND	10	

GND   GND
Thruster Board Driver Pair Header

P9
P2_M1INB	1	M2INB	M1INA	2	P2_M2INA
PWM_4	3	M2PWM	M1ENA/B	4	P2_M2ENA/B
P2_M1ENA/B	5	M2ENA/B	M1PWM	6	PWM_3
P2_M1INA	7	M2INA	M1INB	8	P2_M2INB
	9	GND	GND	10	

GND   GND
Thruster Board Driver Pair Header

P10
P3_M2INB	1	M2INB	M1INA	2	P3_M2INA
PWM_6	3	M2PWM	M1ENA/B	4	P3_M2ENA/B
P3_M1ENA/B	5	M2ENA/B	M1PWM	6	PWM_5
P3_M1INA	7	M2INA	M1INB	8	P3_M2INB
	9	GND	GND	10	

GND   GND
Thruster Board Driver Pair Header

Serial Sensors I2C / UART

VCC_3.3v

SCL_1
SDA_1

I2C0_Sensor
	1
	2
	3
	4

Header 4

C14
100nF

GND

GND
VCC_3.3v

U3_TX / U3_RX — UART/I2C
U3_TX	1
U3_RX	2
	3
	4

Header 4

C11
100nF

GND

VIN

C12   C13
47uF 47uF

GND

J1
| 1 | 1 |
| 2 | 2 |

Molex 0398890042

Serial Sensors SPI

SSP0_0
MISO	1	MISO	2	
SCK	3	SCK	MOSI	4	MOSI
	5	CS	GND	6	

GND
SSP0 Header

RS232 Shifting Circuitry and Level Conversion

MISO_5v
SCK_5v
5v_CS

5.0v SPI Port
MISO_5v	1	MISO	2	MOSI_5v
SCK_5v	3	SCK	MOSI	4	
5v_CS	5	CS	GND	6	

SSP0 Header

GND

C10
100nF

GND

VCC_5v

VCC_3.3v

U2 — SCES709A
SSP0_5.0_CS	1	A1	B1	16	5v_CS
	2	VCCA	VCCB	15	
U0_TX	3	A2	B2	14	U0_RX_5v
U0_RX	4	A3	B3	13	U0_TX_5v
MISO	5	A4	B4	12	MISO_5v
MOSI	6	A5	B5	11	MOSI_5v
SCK	7	A6	B6	10	SCK_5v
	8	OE	GND	9	

C8
0.1uF

GND

C9
0.1uF

GND

VCC_5v

VCC_3.3v

C15
0.1uF

GND

R1
1K

C5
1uF

U1 — MAX220CSE+
	1	C1+	VCC	16	
	2	V+	GND	15	
	3	C1-	T1OUT	14	
	4	C2+	R1IN	13	
	5	C2-	R1OUT	12	U0_RX_5v
U0_RX	6	V-	T1IN	11	U0_TX_5v
U0_TX	7	T2OUT	T2IN	10	
	8	R2IN	R2OUT	9	

C4
1uF

C3
1uF

C2
+1uF-

GND

C7
10uF

GND

C6
1uF

GND

IMU RS232 — D Connector 9
1	6	11		
2	7			
3	8	10		
4	9			
5				

FB1 BLM15HG601SN1D
FB2 BLM15HG601SN1D

GND

GND

Reset Switch Circuit

VCC_3.3v

R1
Res3
1K

Reset

SW1
| 1 | 2 |
| 3 | 4 |

MINI-MTRY-SWTCH

C1
Cap Semi
100pF

GND

GND

Comment	Description	Designator	Footprint	LibRef	Quantity
SSP0 Header		5.0v SPI Port, SSP0_0	SSP0 Header	SSP0 Header	2
Cap Semi	Capacitor (Semiconductor SIM Model)	C1, C3, C4, C6, C7, C10, C11, C14	C1206	Cap Semi	8
Cap Semi	Capacitor (Semiconductor SIM Model)	C2, C5	C2512	Cap Semi	2
Cap Pol3	Polarized Capacitor (Surface Mount)	C8, C9, C15	C0805	Cap Pol3	3
Cap Pol1	Polarized Capacitor (Radial)	C12, C13	CAPPR2.5-6.3x5/ H.9	Cap Pol1	2
BLM15HG601SN1D	BLM15HG601SN1D	FB1, FB2	BLM18PG121SN1D	BLM15HG601SN1D	2
Header 4	Header, 4-Pin	I2C0_Sensor, UART/I 2C	HDR1X4	Header 4	2
D Connector 9	Receptacle Assembly, 9 Position, Right Angle	IMU RS232	DSUB1.385-2H9	D Connector 9	1
Molex 0398890042	Screw Terminal	J1	PCBComponent_1	Molex 0398890042 Screw Terminal	1
Arduino Leonardo Power Header	Arduino Leonardo Power Header	P1	Arduino Leonardo Power Header	Arduino Leonardo Power Header	1
Arduino Leonardo AVCC Header	Arduino Leonardo AREF Header	P2	Arduino Leonardo AVCC Header	Arduino Leonardo AVCC Header	1
Arduino Leonardo Analog Header	Arduino Leonardo Analog Header	P3	Arduino Leonardo Analog Header	Arduino Leonardo Analog Header	1
Arduino Leonardo RXTX Header	Arduino Leonardo RXTX Header	P4	Arduino Leonardo RXTX PWM Header	Arduino Leonardo RXTX Header	1
AHD Additional IO 1 I2C0 U3 Header		P5	AHD Additional IO 1 I2C1 U3	AHD Additional IO 1 I2C0 U3 Header	1
AHD Additional IO 2	AHD Additional IO 2	P6	AHD Additional IO 2 front Digital Header	AHD Additional IO 2	1
AHD Additoinal IO 3		P7	AHD Additional IO 3 Header	AHD Additoinal IO 3	1
Thruster Board Driver Pair Header	Thruster Board Driver Pair Header	P8, P9, P10	Thruster Board Drvier Pair Header	Thruster Board Driver Pair Header	3
Res3	Resistor	R1	J1-0603	Res3	2
MINI-MTRY-SWTCH		SW1	Momentary Switch	Mini Momemtary Switch	1
MAX220CSE+	Maxim Integrated RS232 shifter IC	U1	MAX220CES+	MAX220CSE+	1
SCES709A	SCES709A	U2	SCES709a	SCES709A	1