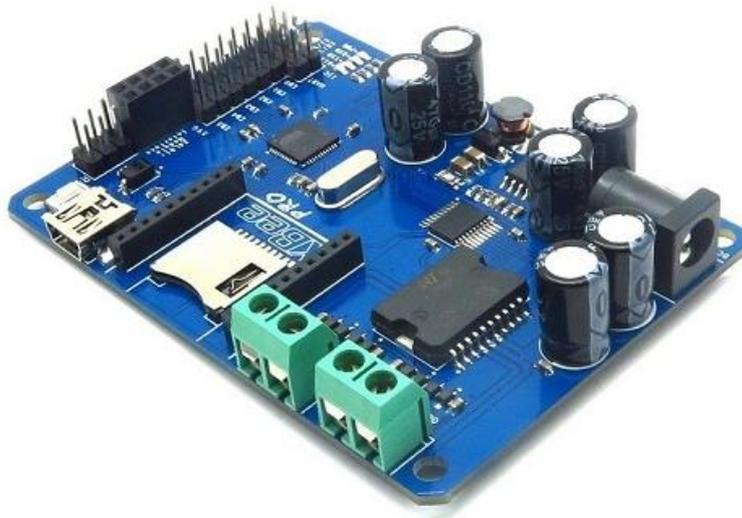




MBoard

- Arduino Multi-type Motors Drive board

Overview



The MBoard is a unique Arduino board which features a L298P motor driver, an XBee socket, nRF24L01+ module interface, Micro SD socket and an ATmega32U4. The bootloader of Mboard is based on Arduino Leonardo. With motor driver chip L298P, this board can drive the DC motor directly and stepper motor with software IO control. This board will add wireless as well as motor control connectivity to your projects. It's great for anything from home automation to robot control. The possibilities are endless!

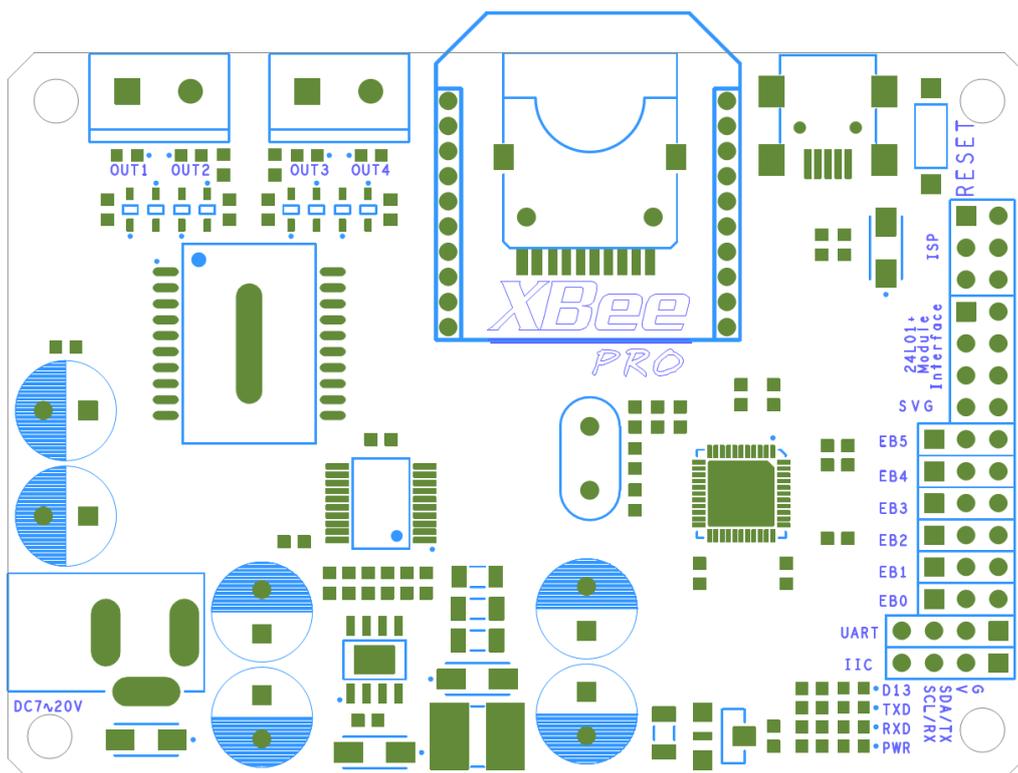
Specifications

PCB size	80.77mm X 57.66mm X 1.6mm
Power supply	7~23V DC
POE supply	7~23V
Microprocessor	Atmega32u4
Indicators	PWR, Tx, Rx, D13, C1, C2, C3, C4
Communication Interface	XBee,nRF24L01+,UART,IIC

Electrical Characteristics

Specification	Min	Type	Max	Unit
Power Voltage	7	-	23	VDC
Input Voltage VH	Target Voltage = 3.3V			
Input Voltage VL:	-0.3	0	0.5	V
Current Consumption (Except Motor Drive Current)	-	100	500	mA
Peak Output Current (Every Channel)				
- Non Repetitive (t=100us)	-	-	3	A
- Repetitive (80%on-20%off, ton=10ms)	-	-	2.5	A
- DC operation	-	-	3	A

Hardware



Top View Map

Pin Map


ITDB02 EB Interface

Index of Interface	Name of Interface	Index of Arduino	Pin of Atmega32U4
1	EB0	A0	PF7
2	EB1	A1	PF6
3	EB2	A2	PF5
4	EB3	A3	PF4
5	EB4	A4	PF1
6	EB5	A5	PF0

nRF24L01+ Module Interface

Index of Interface	Name of Interface	Index of Arduino	Pin of Atmega32U4
1	GND	-	-
2	3V3	-	-
3	CE	D5	PC6
4	CS	D9	PB5
5	SCK	D15	PB1
6	MOSI	D16	PB2
7	MISO	D14	PB3
8	IRQ	D6	PD7

Micro SD Socket

Index of Interface	Name of Interface	Index of Arduino	Pin of Atmega32U4
2	SD_CS	D4	PD4
3	MOSI	D16	PB2
4	3V3	-	-
5	SCK	D15	PB1
6	GND	-	-
7	MISO	D14	PB3

Moto Drive Interface

Index of Interface	Name of Interface	Index of Arduino	Pin of Atmega32U4
-	IN1	D7	PE6
-	IN2	D8	PB4
-	IN3	D12	PD6
-	IN4	D13	PC7
-	ENA	D10 (PWM)	PB6
-	ENB	D11 (PWM)	PB7

XBee Communication Interface

Index of Interface	Name of Interface	Index of Arduino	Pin of Atmega32U4
2	RX	D0	PD2
3	TX	D1	PD3



Installation

Mboard can drive two DC motors at the same time. OUT1/OUT2 is completely symmetrical as OUT3/OUT4 on the board.

DC motor input has three pins, In1, In2 and EnA. In1 and In2 are digital ports which are used to control the direction of the motors, EnA is connecting with PWM port of control board to control the speed of motor.

EnA	In1	In2	LED Inductor	Description
0	X	X	C1 Off, C2 Off	Free Running Motor Stop
H	H	L	C1 On, C2 Off	Forward
H	L	H	C1 Off, C2 On	Reverse
H	In1=In2		C1 Off, C2 Off	Fast Motor Stop

EnB	In3	In4	LED Inductor	Description
0	X	X	C3 Off, C4 Off	Free Running Motor Stop
H	H	L	C3 On, C4 Off	Forward
H	L	H	C3 Off, C4 On	Reverse
H	In1=In2		C3 Off, C4 Off	Fast Motor Stop

And Mboard can control 4-wire stepper motor the same way as two DC motors with the signals from EnA,In1,In2 and EnB,In3,In4

Software

Mboard is designed for compatible for SD libraries of Arduino.cc, and all demo codes could be downloaded directly and run it.

With embedded bootloader, Mboard is easy to use by Arduino IDE through mini USB cable. ISP of Atmega32U4 is broke out for download firmware easily.

Revision History

Rev.	Description	Release date
v1.0	Initial version	2012-12-12