gizDuino Mini

The gizDuino mini series carry the same controllers as the gizDuino series (Arduino compatble). All are preloaded with Arduino optboot bootloader, hence, program development can be carried out using the Arduino IDE and all its libraries. It is essentially an Arduino compatble board stripped off its USB port.

On board is a reset push switch, a 16MHz (8MHz for atmega8L) crystal, led status indicator, and Arduino and ICSP programming port. The ICSP allows advance user to develop their programs using more advance development tools, such as AVR Studio and winAVR.gizDuino mini328 - ATMEGA328

The pins are arranged in standard 600 mils wide DIP pin spacing, making them workable with breadboards and PCB prototyping board. gizDuino minis are cost effectve microcontroller platorm for quick deployment to applicatons where USB connectvity is not needed.
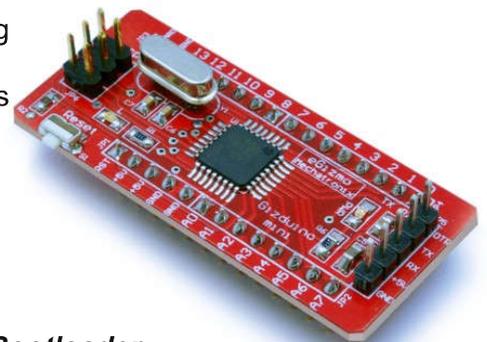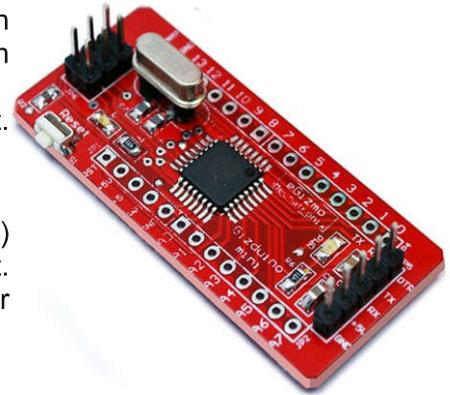
Table 1: Microcontroller variant's details

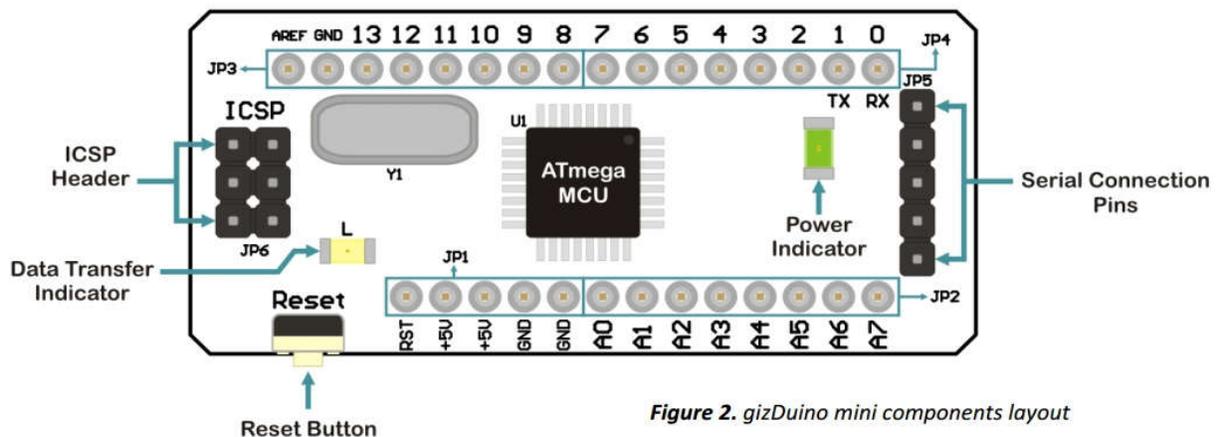| Device	Flash memory	EEPROM	RAM	Speed	Bootloader
ATMEGA 8L	8K bytes	512 bytes	1K byte	8MHz	Optiboot
ATMEGA 88	8K bytes	512 bytes	1K byte	16MHz	Optiboot
ATMEGA 168	16K bytes	512 bytes	1K byte	16MHz	Optiboot
ATMEGA 328	8K bytes	1K bytes	2K byte	16MHz	Optiboot

Figure 2. gizDuino mini components layout
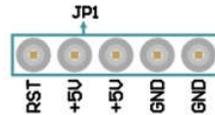
Table 2: *JP1 Power and Reset Input Port.*

Pin I.D.	Arduino Designation	IC Pin	IC Pin Function
RST	Reset.	29	RESET
+5V	5V Device Power Supply IN	4	VCC
+5V	5V Device Power Supply IN	6	VCC
GND	Ground.	3	GND
GND	Ground.	5	GND
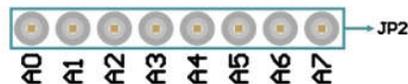
Table 3: *Arduino assignment Analog Input/Digital I/O port.*

Pin I.D.	Arduino Designation	IC Pin	IC Pin Function
A0	Analog/Digital I/O 0	23	(ADC0)PC0
A1	Analog/Digital I/O 1	24	(ADC1)PC1
A2	Analog/Digital I/O 2	25	(ADC2)PC2
A3	Analog/Digital I/O 3	26	(ADC3)PC3
A4	Analog/Digital I/O 4	27	(ADC4)PC4
A5	Analog/Digital I/O 5	28	(ADC5)PC5
A6	Analog/Digital I/O 6	19	ADC6
A7	Analog/Digital I/O 7	22	ADC7

Table 4: *Arduino assigment Digital I/O and PWM port.*

Pin I.D.	Arduino Designation	IC Pin	IC Pin Function
AREF	analog reference pin for the A/D Converter.	20	AREF
GND	Ground.	-	-
13	Digital I/O	17	(SCK)PB5
12	Digital I/O	16	(MISO)PB4
11	PWM OUT	15	(MOSI)PB3
10	PWM OUT / Digital I/O	14	(SS)PB2
9	PWM OUT / Digital I/O	13	(OC1)PB1
8	Digital I/O	12	(ICP)PB0

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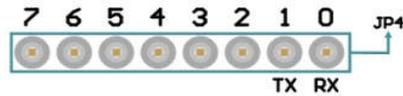
Table 5: *Arduino assigment Digital I/O and PWM port.*

Pin I.D.	Arduino Designation	IC Pin	IC Pin Function
7	Digital I/O	11	(AIN1)PD7
6	PWM OUT / Digital I/O	10	(AIN0)PD6
5	PWM OUT / Digital I/O	9	(T1)PD5
4	Digital I/O	2	(T0)PD4
3	PWM OUT / Digital I/O	1	(INT1)PD3
2	Digital I/O	32	(INT0)PD2
1	TX / Digital I/O	31	(TXD)PD1
0	RX / Digital I/O	30	(RXD)PD0

Table 6: *Arduino IDE programming port.*
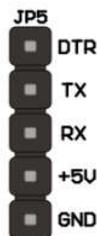
Pin I.D.	Arduino Designation	IC Pin	IC Pin Function
DTR	Data Terminal Ready	-	-
TX	TX / Digital I/O	31	(TXD)PD1
RX	RX / Digital I/O	30	(RXD)PD0
+5V	+5V device power supply	18	AVCC
GND	Ground	21	AGND
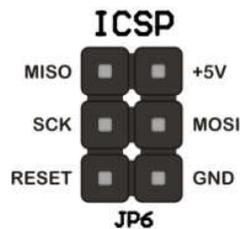
Table 7: *ICSP Programming ports*

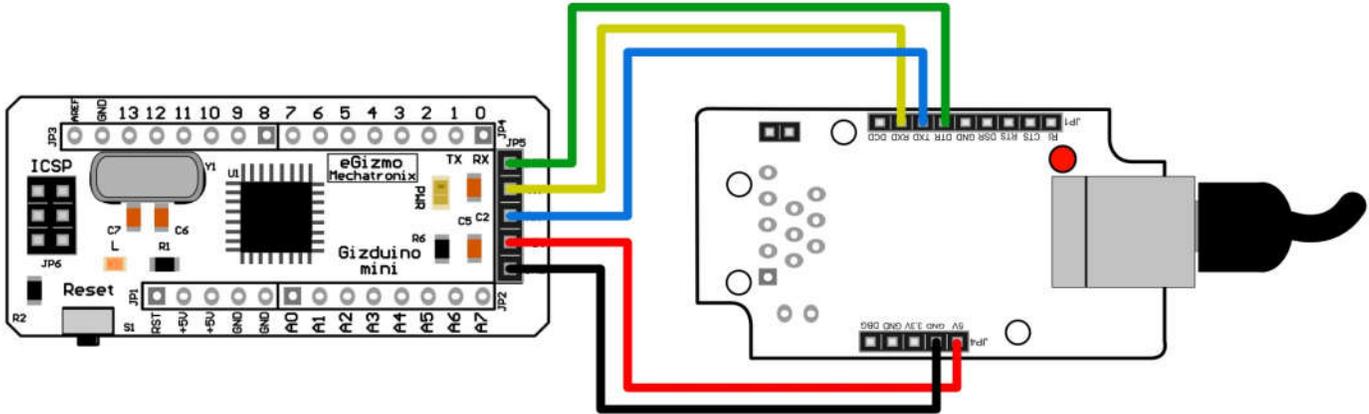| Pin I.D.	Arduino Designation	IC Pin	IC Pin Function
MISO	MISO	(MISO)PB4	(SPI Bus Master Input/ Slave Output
SCK	SCK	(SCK)PB5	SPI Bus Master clock Input
RESET	RESET	RESET	Reset
+5V	+5V	VCC	Digital supply voltage
MOSI	MOSI	(MOSI)PB3	SPI Bus Master Output/Slave Input
GND	GND	Gnd	Ground

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Figure 3. e-Gizmo USB-UART converter kit can be easily wired for use as gizDuino mini programming dongle.

An external USB programming dongle is needed to transfer program between the Arduino IDE and the gizDuino mini board. A pre-wired dongle is available and sold as an opton. If you like, you can build one yourself using the USBUART converter kit available at e-Gizmo. Just solder a 5-pin female header to wire it as shown in fgure 3. A type A to type B USB cord is needed to connect the programming dongle to your PC.

During programming, the gizDuino mini board must be powered ON from an external source. Make sure the header is inserted correctly at JP5. You can then program the gizDuino mini like a gizDuino or Arduino board.
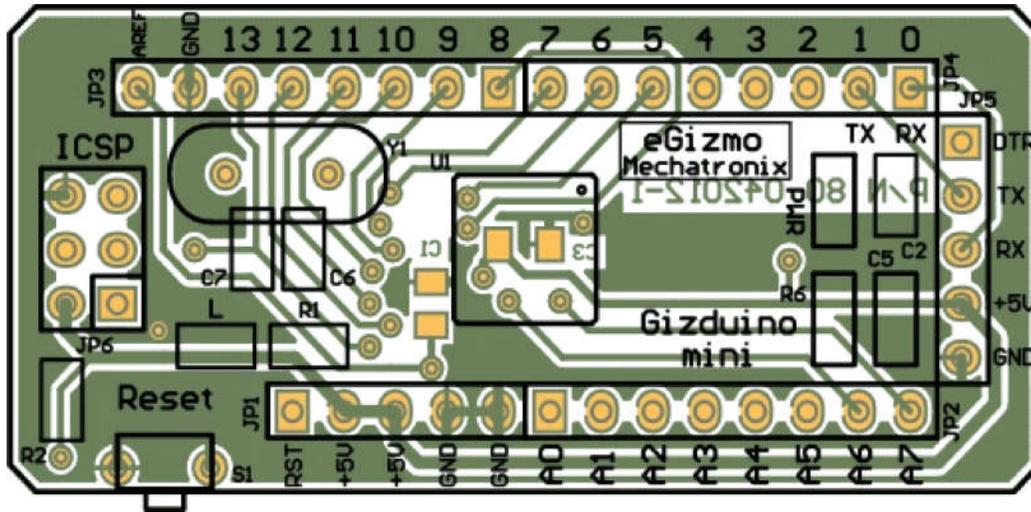
Figure 4: Schematic Diagram
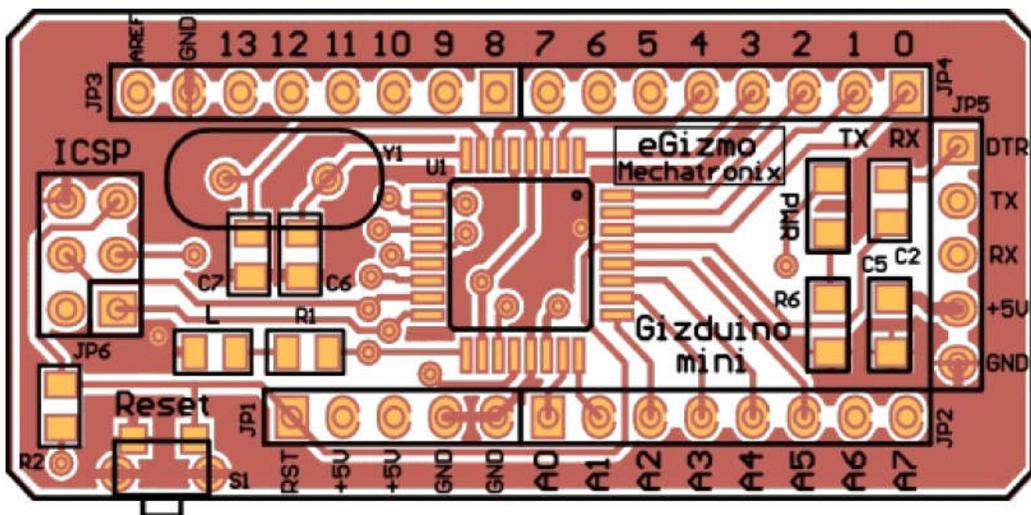
Figure 5: PCB Bottom Layer

Figure 4: PCB Top Layer