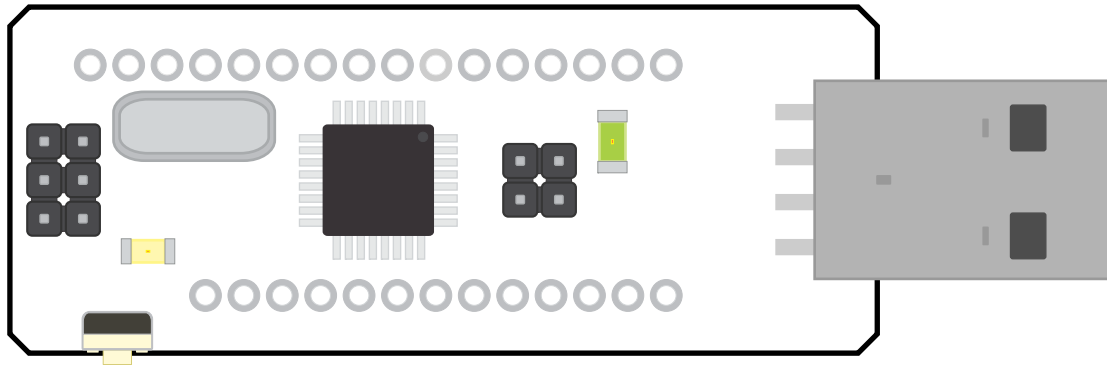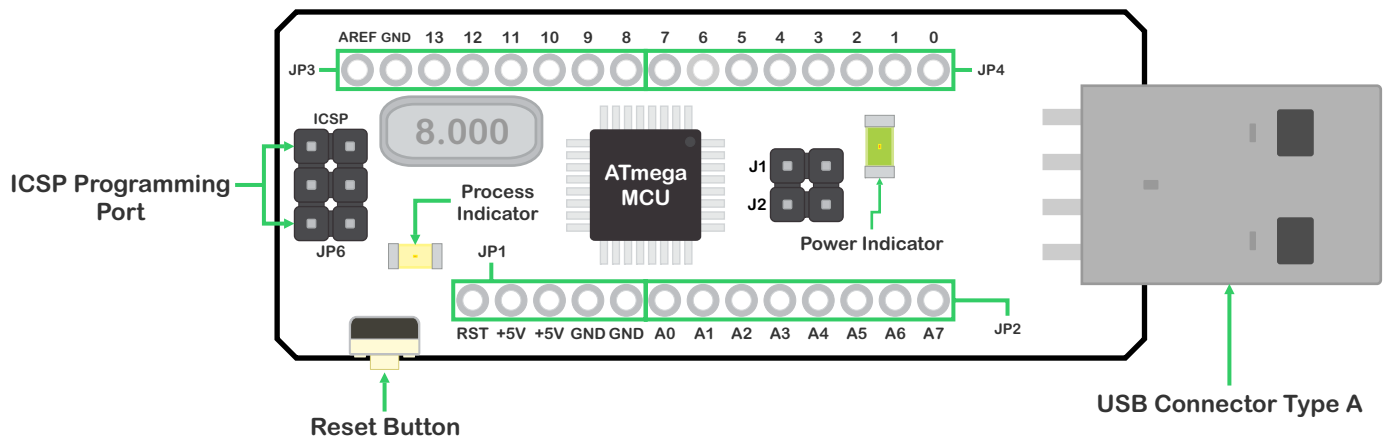# Hardware Reference Manual

gizDuino mini variant with USBasp Loader firmware and USB programming port to form a complete low cost Arduino compatible mini board! No need for a separate USB programmer. Choice of ATMEGA328 or ATMEGA168 controller.

Parts Description and Presentation

ICSP Programming Port

ICSP

JP6

JP3

AREF GND 13 12 11 10 9 8 7 6 5 4 3 2 1 0

JP4

8.000

Process Indicator

ATmega MCU

J1
J2

Power Indicator

JP1

RST +5V +5V GND GND A0 A1 A2 A3 A4 A5 A6 A7

JP2

Reset Button

USB Connector Type A

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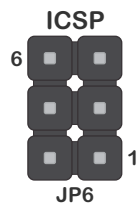
On-Board Pins (I.D. & Descriptions)

ICSP

Table 1. ICSP programming port pins (JP6)

Pin I.D.	Arduino Designation	IC Pin	IC Pin Function
1	MISO	17	(MISO)PB4
2	+5V Operating Voltage	VCC	VCC
3	SCK	17	(SCK)PB5
4	MOSI	15	(MOSI)PB3
5	RST	29	Reset
6	Ground	GND	GND

JP1

RST +5V +5V GND GND
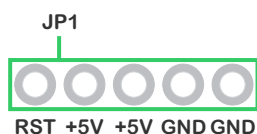
Table 2. Power Pins (JP1)

Pin I.D.	Arduino Designation	IC Pin	IC Pin Function
RST	Reset	29	RESET
+5V	+5V device supply / Output Voltage	Regulator	-
+5V	+5V device supply / Output Voltage	Regulator	-
GND	Ground	Regulator	-
GND	Ground	Regulator	-

A0   A1   A2   A3   A4   A5   A6   A7   **JP2**

Table 3. Analog Input Pins (JP2)

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

AREF GND 13 12 11 10 9 8 **JP3**

Table 4. Digital I/O & PWM Pins (JP3)

Pin I.D.	Arduino Designation	IC Pin	IC Pin Function
AREF	analog reference pin for the A/D Converter.	-	-
GND	Ground	-	-
13	Digital I/O	17	(SCK)PB5
12	Digital I/O	16	(MISO)PB4
11	PWM OUT / Digital I/O	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

7 6 5 4 3 2 1 0 **JP4**

Table 4. Digital I/O & PWM Pins (JP4)

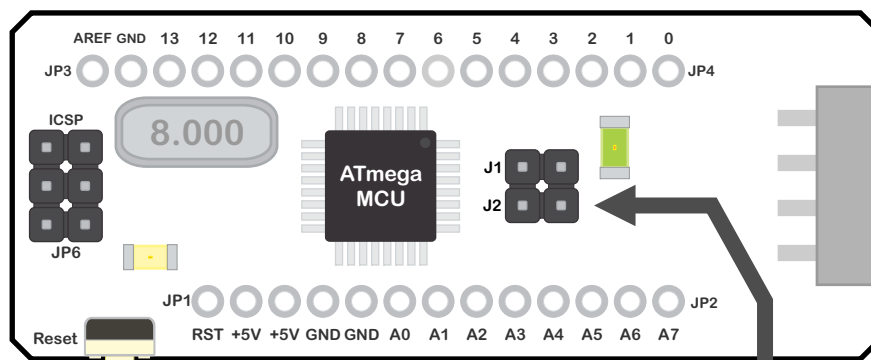| Pin I.D.	Arduino Designation	IC Pin	IC Pin Function
7	Digital I/O	11	(AIN1)PD7
6	PWM OUT / Digital I/O	10	(AIN0)PD6
5	PWM OUT / Digital I/O	9	(T1)PD5
4	Digital I/O	2	(T0)PD4
3	PWM OUT / Digital I/O	1	(INT1)PD3
2	Digital I/O	32	(INT0)PD2
1	TX / Digital I/O	31	(TXD)PD1
0	RX / Digital I/O	30	(RXD)PD0

Uploading & Running Codes

Uploading codes to gizDuino USB mini is much more complicated than gizDuino minis and standard gizDuino boards, its not just plug in > open the program codes > then upload > and then done. In gizDuino USB mini you need to follow the steps illustrated bellow in order to upload and run the program codes.
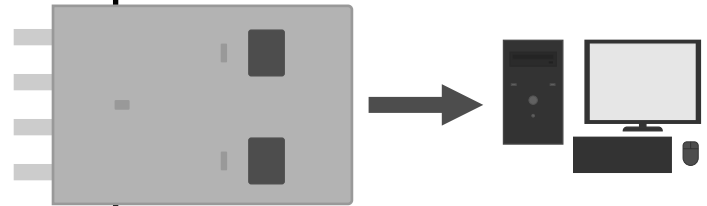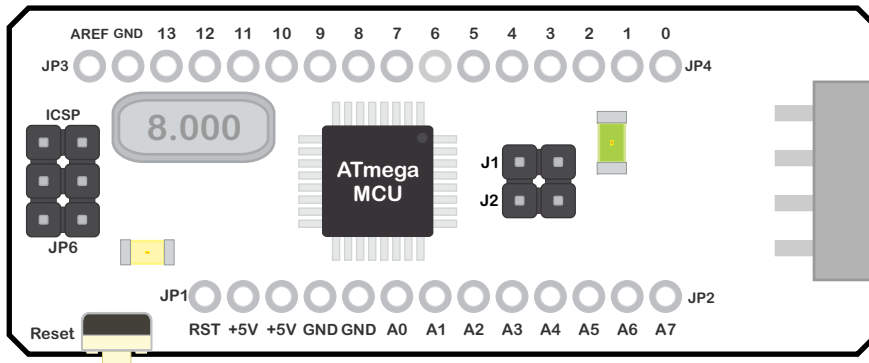
1st

First Step: Plug in your gizDuino USB mini to your Pc's USB port.
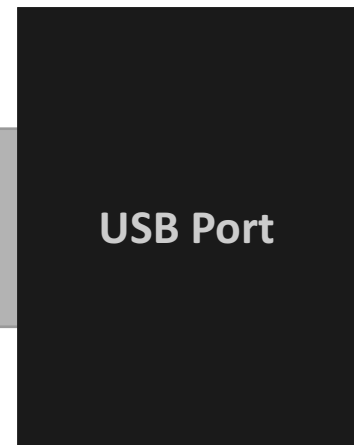
Note: After plugging in the G.U.M., a pop-up note will appear indicating "USB Device Not Recognized"

USB Port

3rd

Third Step: Put a Jumper block on "J2" port, After placing the jumper block, release the Reset button.

2nd

Second Step: Press & hold the Reset Button

4th (Driver Installation)

In order to use gizDuino USB mini, we need to install the USBasp driver. if there is no USBasp driver installed to your computer, a pop-up note will appear indicating "Found new hardware USBasp" and also after that a pop-up windows driver installation wizard will appear.
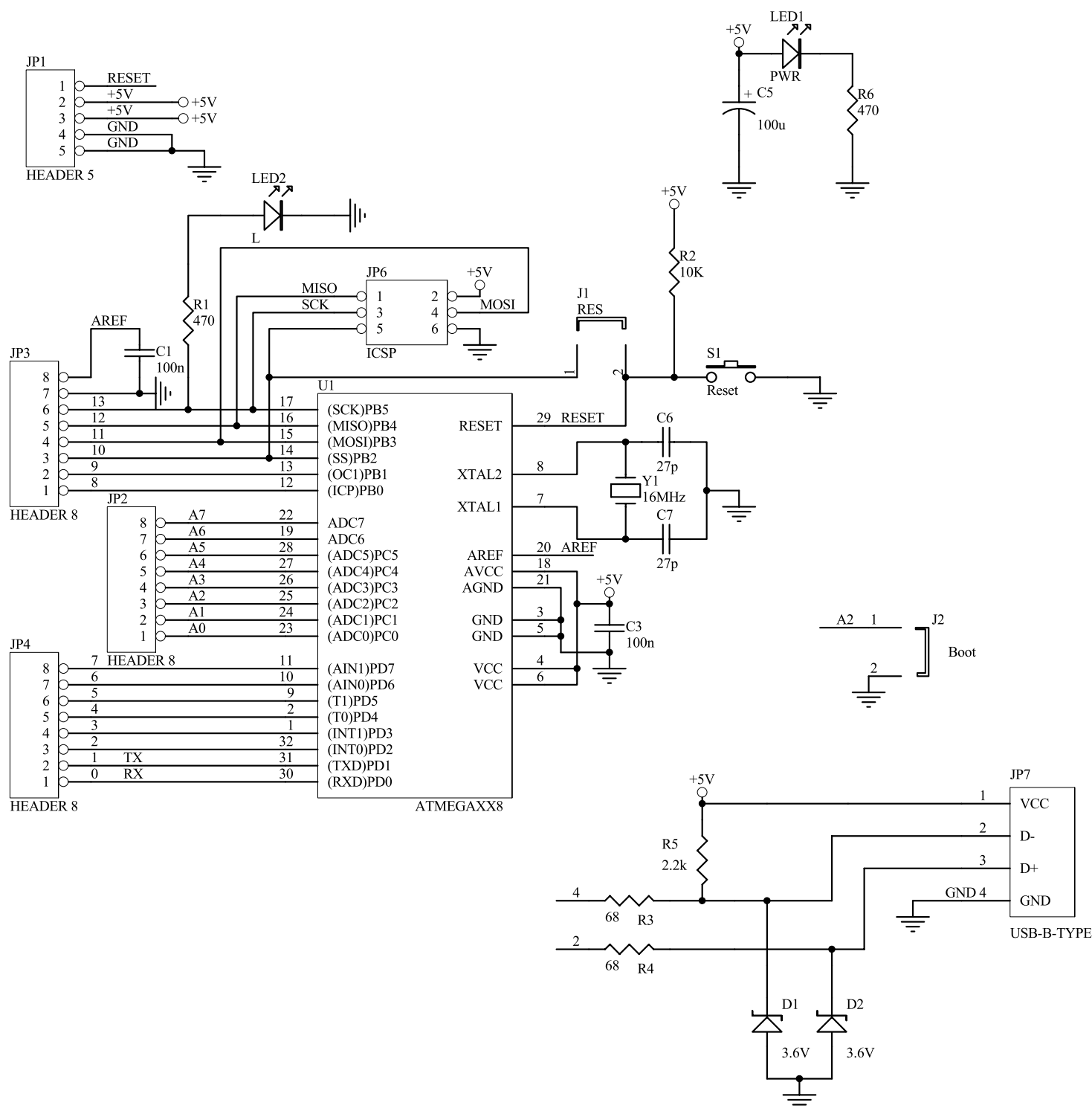
On the first page of the installation wizard there will be **2 options "Install the software automatically(Recomended)"** *and* **"Install from a list or specific location(Advance)"***, choose* **"(Advance)"** *and click* **"Next"***. After clicking the* **"Next"***, the second page of the installation wizard will appear with another* **2 options click the "Search for the best driver in these locations."** *and* **2 check box will appear, put a check to them***. In the CD given to you when you buy the kit,* **open "E:\eGizmo CD\e-Gizmo KITS\USBasp Clone" and extract the "usbasp-windriver.2011-05-28"** *and* **copy the PATH on where you extracted the driver***. Now* **go back to the installation wizard and paste the PATH to the second check box** *and click* **"Next"***. the driver will automatically install and wait until the installation is finished. After that you can now upload the program codes you desired .* **To run the uploaded program, simply remove the jumper block in "J2"**

Note: In Arduino IDE click **"Tools" > "Board" > "Gizduino miniUSB w/ ATmega168"** *if your board is a Atmega168 version and for Atmega328 version click* **"Tools" > "Board" > "Gizduino miniUSB w/ ATmega328"** *.*
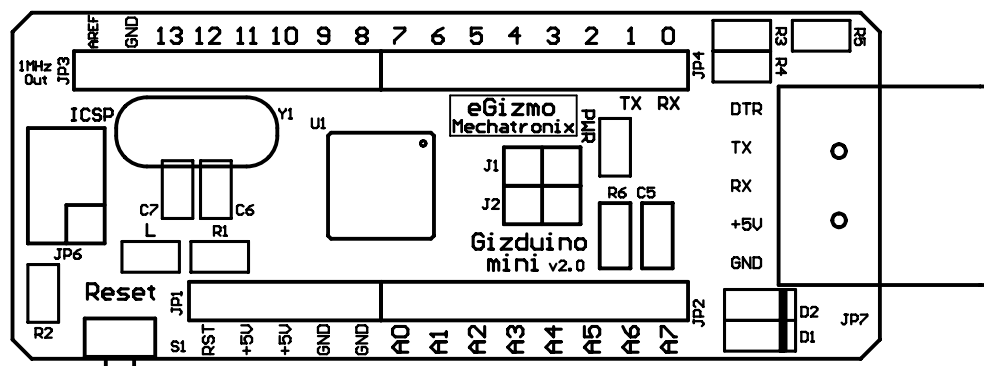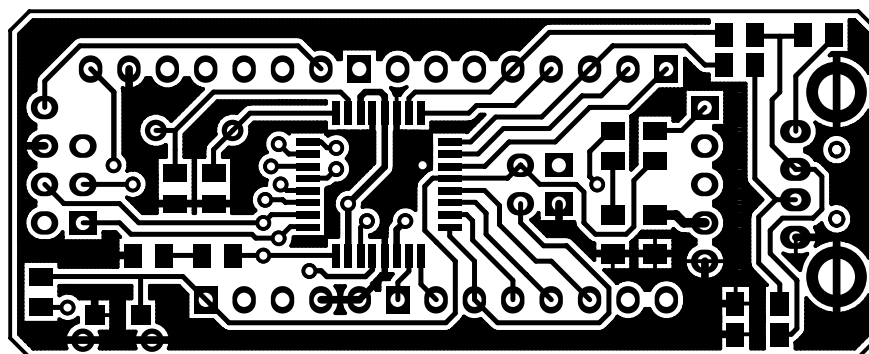*(See Patch Files to Add gizDuino in Arduino IDE Board List Menu in* **http://e-gizmo.com/wordpress/?p=1052***)*

Schematic Diagram

gizDuino USB mini|e

JP1
1 RESET
2 +5V
3 +5V → +5V
4 GND → +5V
5 GND
HEADER 5

LED1
+5V
PWR
+ C5
100u
R6
470

LED2
L

JP6
MISO
SCK
1   2
3   4
5   6
+5V
MOSI
ICSP

+5V
R2
10K

J1
RES

S1
Reset

R1
470

AREF

JP3
C1
100n
8
7   13
6   12
5   11
4   10
3   9
2   8
1
HEADER 8

U1
17 (SCK)PB5
16 (MISO)PB4
15 (MOSI)PB3
14 (SS)PB2
13 (OC1)PB1
12 (ICP)PB0

RESET   29 RESET
XTAL2   8
XTAL1   7

C6
27p
Y1
16MHz
C7
27p

JP2
8   A7   22 ADC7
7   A6   19 ADC6
6   A5   28 (ADC5)PC5
5   A4   27 (ADC4)PC4
4   A3   26 (ADC3)PC3
3   A2   25 (ADC2)PC2
2   A1   24 (ADC1)PC1
1   A0   23 (ADC0)PC0
HEADER 8

AREF   20 AREF
AVCC   18
AGND   21
GND   3
GND   5
+5V
C3
100n
VCC   4
VCC   6

A2 1   J2
Boot
2

JP4
8   7   11 (AIN1)PD7
7   6   10 (AIN0)PD6
6   5   9   (T1)PD5
5   4   2   (T0)PD4
4   3   1   (INT1)PD3
3   2   32 (INT0)PD2
2   1   TX 31 (TXD)PD1
1   0   RX 30 (RXD)PD0
HEADER 8

ATMEGAXX8

+5V
JP7
1 VCC
2 D-
3 D+
GND 4 GND
USB-B-TYPE

R5
2.2k

4   68   R3
2   68   R4
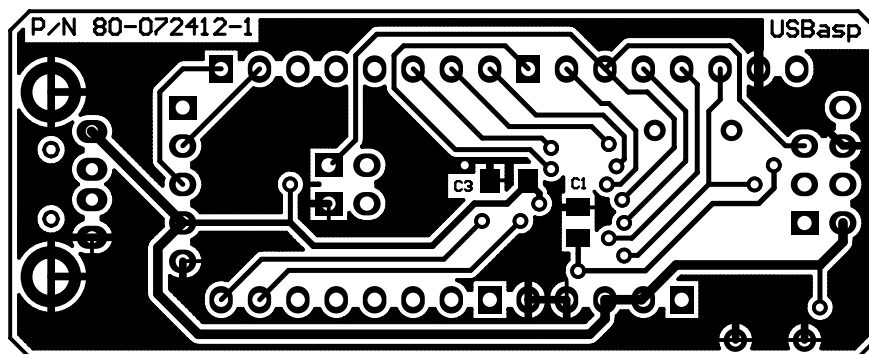
D1   D2
3.6V   3.6V

PCB Presentation

gizDuino USB mini Silk Screen Layout

*gizDuino USB mini Copper Pattern Layout
(Top Layer)*

*gizDuino USB mini Copper Pattern Layout
(Bottom Layer)*

Visit www.e-gizmo.com for more product details.