PARALLAX

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Propeller Proto Board (#32212)
Propeller Proto Board USB (#32812)
Proto Board Accessory Kit (#130-32212)

Parallax's Propeller Proto Board and Proto Board USB are low cost, high quality solutions for permanent projects using the Propeller™ chip. A Prop Plug (#32201, sold separately) is required for programming the Propeller Proto Board; the USB version can be programmed directly through its USB connector.

Features

- P8X32A-Q44 Propeller chip
- 64 KB EEPROM for program and data storage
- LM1086 5 V and 3.3 V regulators provide up to 1.5 Amps with an input power supply of 6-9 VDC
- Optional VGA, mouse and keyboard interface available in the Accessory Kit
- Three-position power switch (off, logic power, power to logic and servo ports)
- Sockets for 4 servos
- Removable 5 MHz crystal
- Access to all 32 I/O pins
- Large amount of prototyping area
- Unplated row of holes along perimeter to provide stress relief to off board connections
- Same size and mounting holes as Board of Education (3" x 4") for compatibility with the Boe-Bot

Application Ideas

- Low-cost Propeller development system
- Hardware platform for low-volume Propeller-based products

Key Specifications

- 6-9 VDC; boards can source up to 1.5 A
- Propeller chip: 3.3 V CMOS
- Board Dimensions: 3.05 x 4 in (7.75 x 10.6 cm)
- Operating temperature: -40 to +176 °F (-40 to +80 °C)
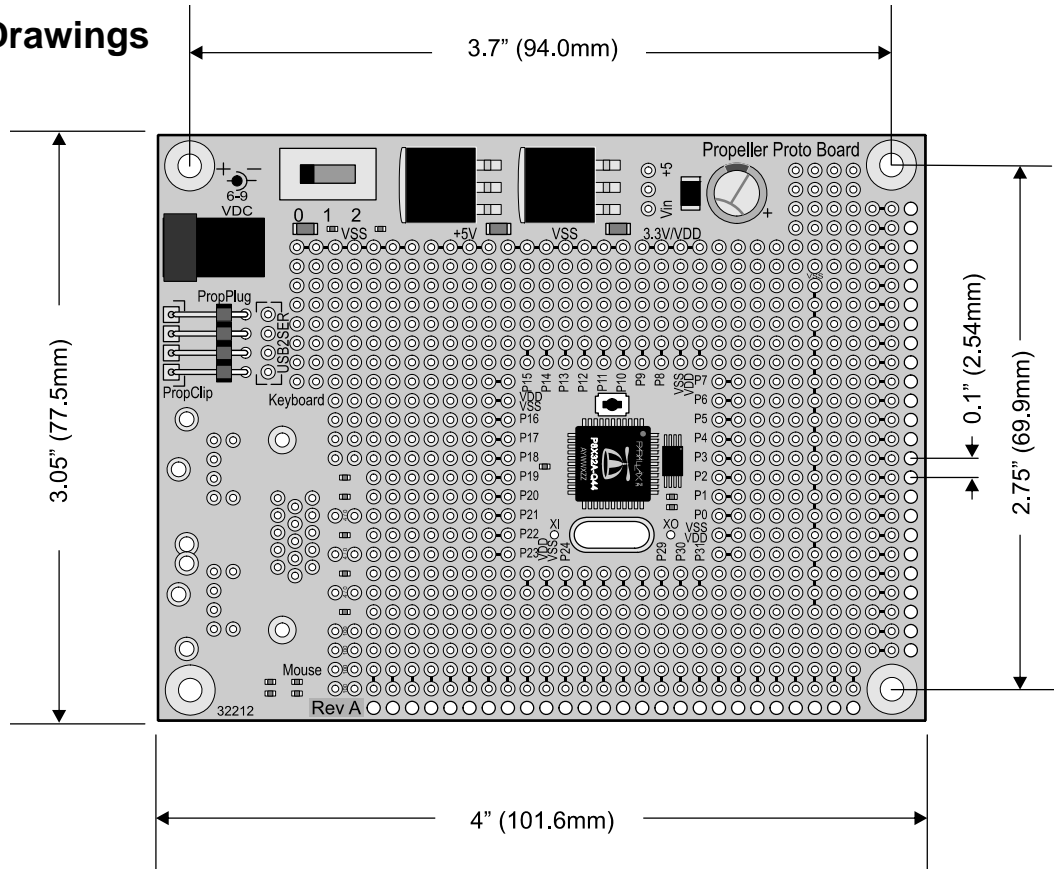
Accessory Kit

Assembly instructions for the Accessory Pack are provided on page 3. The accessory pack contains the following items:

- Norcomp 999-H15-PS2L571 integrated SVGA and PS/2 mouse and keyboard connector
- 4 - 470 Ω ¼ watt resistors
- 5 - 100 Ω ¼ watt resistors
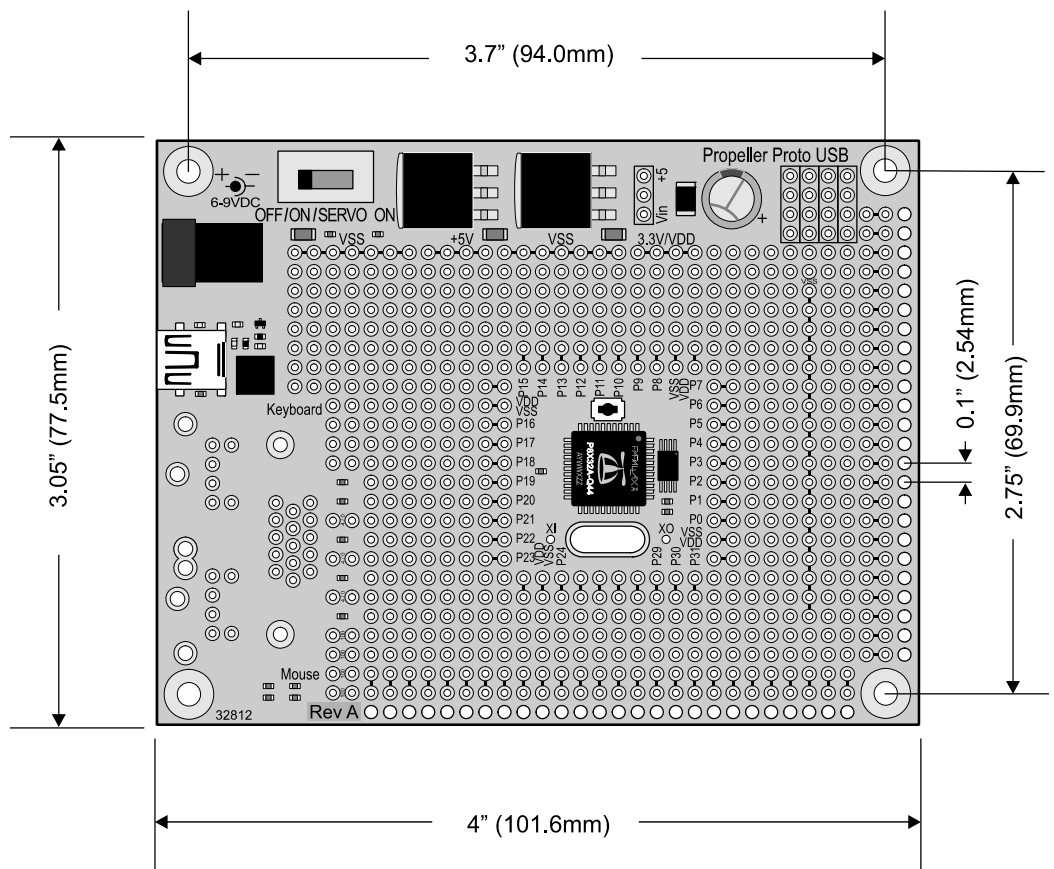- 5 - 3-pin headers
- shorting block
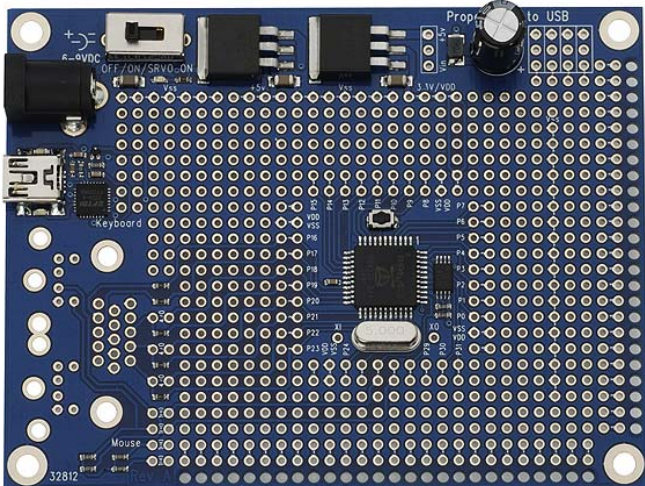
Mechanical Drawings

Propeller Proto Board

Propeller Proto Board USB

# Assembly Instructions for the Accessory Pack

Make sure your Accessory Pack contains the following parts:

- ☑ Norcomp 999-H15-PS2L571 integrated SVGA and PS/2 mouse and keyboard connector
- ☑ 4 - 470 Ω ¼ watt resistors
- ☑ 5 - 100 Ω ¼ watt resistors
- ☑ 5 - 3-pin headers
- ☑ shorting block

Add the 100 Ω and 470 Ω Resistors
- ☑ Remove the resistors from their packaging.
- ☑ Take a 100 Ω resistor (brown-black-brown-gold) and bend one lead near the resistor so that it points in the same direction as the other lead.
- ☑ Place it in the two holes marked 100 right above the Rev A label and solder it in place so the resistor is in vertical orientation.
- ☑ Repeat this process for 3 more 100 Ω resistors moving upwards (you will have 1 spare 100 Ω resistor left).
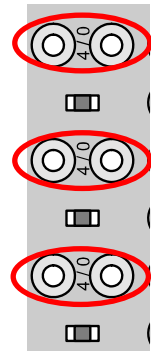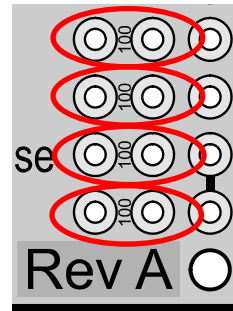
- ☑ Repeat this process using (3) 470 Ω (yellow-violet-brown-gold); placing each resistor in the 3 sets of holes marked 470.

Add the Norcomp Connector (right)
- ☑ Place the Norcomp integrated SVGA and PS/2 mouse and keyboard connector in the board.
- ☑ Solder the signal lines in the four corners (signal lines are the smaller pins).
- ☑ Once the connector is securely in place and level, solder the remaining signal pins, then solder the mechanical pins (the mechanical pins are the larger pins around the perimeter of the connector).
- ☑ The VGA/mouse/keyboard circuit is now installed.
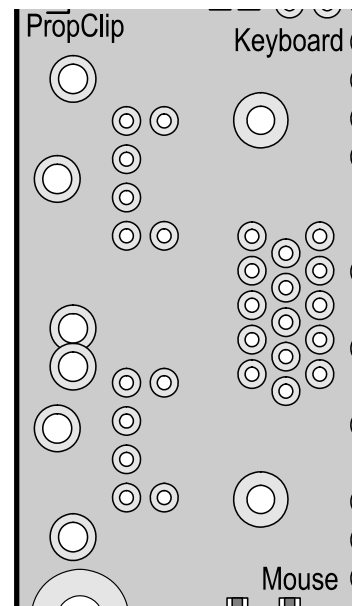
Add the Servo Circuit (below)
- ☑ Solder a 3 pin header into the 3 holes to the right of the 3.3V regulator.
- ☑ Solder the 4 remaining 3 pin headers to the right of the electrolytic capacitor.
- ☑ Install the shorting block on the first header to choose the servo supply.

IMPORTANT: Servo Power Supply (Vin)
Use only the Vin jumper setting for powering servos when power is supplied from a 6V battery pack. Damage could occur to your servos if you use an unregulated power supply.
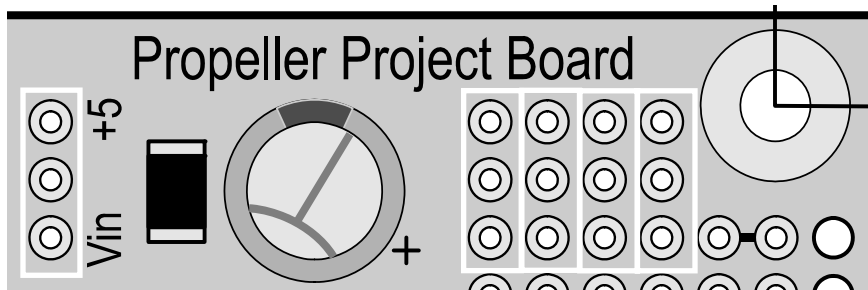
Note: If only video or PS/2 peripherals are needed for an application, standard connectors may be used on the Propeller Proto Board. If only PS/2 connectors are installed, only the 100 Ω resistors need to be installed. If only a VGA connector is installed, only the 470 Ω resistors need to be installed.

REV	BY	DATE
A	TB	090827

NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL CAPACITOR VALUES ARE IN MICROFARADS.
2. ALL RESISTOR VALUES ARE IN OHMS.

USB2SER   OPTIONAL

PROP CLIP

PROP PLUG
J2

SW2
TACT SWITCH

RESET

PROPELLER
U1
P8X32A-Q44

3.3V
VSS

3.3V
VSS

3.3V

C5
1.0uF

R7-R9
INSTALL WITH
J3 OPTION

R2 240   R3 240   R8 470   R5 240
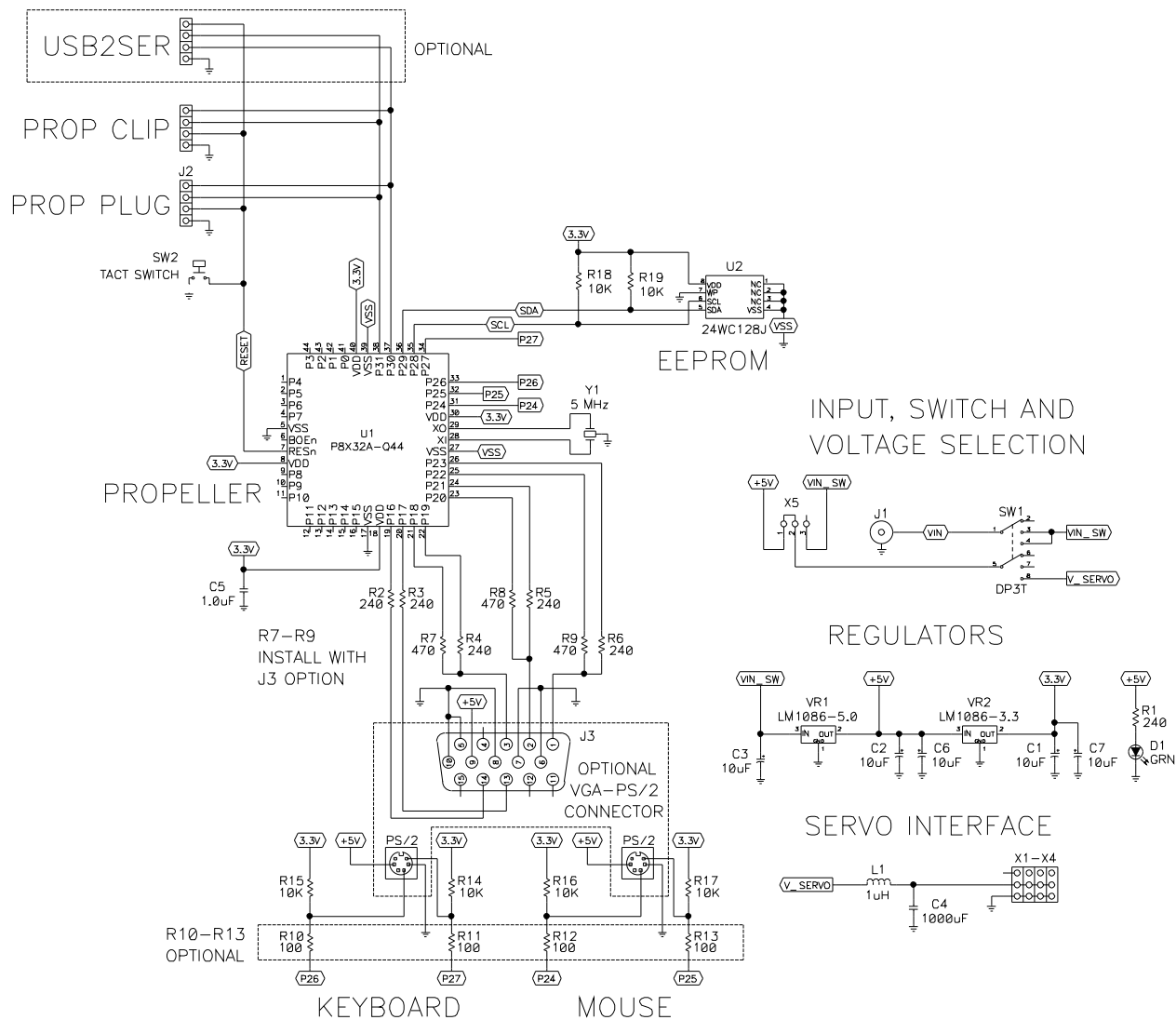R7 470   R4 240   R9 470   R6 240

+5V

J3
OPTIONAL
VGA-PS/2
CONNECTOR

R18 10K   R19 10K

3.3V

U2
VDD   NC
WP   NC
SCL   NC
SDA   VSS
24WC128J   VSS

SDA
SCL
P27

EEPROM

P26
P25
P24

Y1
5 MHz

3.3V
VSS

INPUT, SWITCH AND
VOLTAGE SELECTION

+5V   VIN_SW

X5

J1   VIN   SW1   VIN_SW

V_SERVO
DP3T

REGULATORS

VIN_SW   +5V   3.3V   +5V

VR1   VR2
LM1086-5.0   LM1086-3.3

IN OUT   IN OUT
GND   GND

C3   C2   C6   C1   C7   D1
10uF   10uF   10uF   10uF   10uF   GRN

R1
240

SERVO INTERFACE

V_SERVO   L1
1uH

C4
1000uF

X1-X4

PS/2
3.3V   +5V   3.3V   3.3V   +5V   PS/2   3.3V

R15 10K   R14 10K   R16 10K   R17 10K

R10-R13
OPTIONAL

R10 100   R11 100   R12 100   R13 100

P26   P27   P24   P25

KEYBOARD   MOUSE

REV	BY	DATE
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NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL CAPACITOR VALUES ARE IN MICROFARADS.
2. ALL RESISTOR VALUES ARE IN OHMS.

USB INTERFACE

SW2
TACT SWITCH

RESET

Q1
2SD2216

C7
0.01uF

R20
10K

3.3V_OUT

VCC\IO
RXD
RI
GND
NC
DSR
DCD
CTS

RTS
DTR
TXD
NC
OSC0
OSC1
TEST
NC

GND
NC
CB0
CB1
GND
VCC
RST
GND

U3

CB4
CB2
CB3
NC
NC
USBDP
USBDM
3V3 OUT

D3
BLUE

D2
RED

R21
100

USB-5V

C6
4.7uF

3.3V_OUT

C8
0.1uF

J2
1
2
3
4
5

USB_MINI B

3.3V

R18
10K

R19
10K

U2

VDD
WP
SCL
SDA

NC
NC
NC
VSS

24WC128J

SDA

SCL

P27

VSS

EEPROM

3.3V

VSS

PROPELLER

P3
P2
P1
P0
VDD
VSS
P31
P30
P29
P28
P27

P4
P5
P6
P7
VSS
BOEn
RESn
VDD
P8
P9
P10

U1
P8X32A-Q44

P11
P12
P13
P14
P15
VSS
P16
P17
P18
P19

P26
P25
P24
VDD
XO
XI
VSS
P23
P22
P21
P20

P26

P25

P24

3.3V

VSS

P26
P25
P24

Y1
5 MHz

INPUT, SWITCH AND
VOLTAGE SELECTION

+5V

VIN_SW

X1

J1

VIN

SW1

VIN_SW

V_SERVO

DP3T

3.3V

C5
1.0uF

R7-R9
INSTALL WITH
J3 OPTION

R2
240

R3
240

R8
470

R5
240

R7
470

R4
240

R9
470

R6
240

REGULATORS

VIN_SW

+5V

3.3V

VR1
LM1086-5.0

IN OUT
GND

VR2
LM1086-3.3

IN OUT
GND

D1
GRN

C3
10uF

C2
10uF

C9
10uF

C1
10uF

C10
10uF

R1
240

+5V

J3

OPTIONAL
VGA-PS/2
CONNECTOR

SERVO INTERFACE

V_SERVO

L1
1uH

C4
1000uF

X1-X4

PS/2

3.3V   +5V

3.3V

3.3V   +5V

PS/2

3.3V

R15
10K

R14
10K

R16
10K

R17
10K

R10-R13
OPTIONAL

R10
100

R11
100

R12
100

R13
100

P26

P27

P24

P25

KEYBOARD

MOUSE