

Modifications of the Parallax Propeller Proto Board

For the SRAM Expansion of the Parallax Propeller Chip

- Required components:

Hardware

Quantity	Part
1	Eurocard circuit board
250 Pin	breakaway IC socket strips - will use 246 pins in project
4	right angle 10-pin headers
2	two-position screw-type power connectors
4	Female 10-pin ribbon connectors
1	Three inch piece of 20 conductor ribbon cable
11	0.1 μ f 50 volt capacitors
1	100 μ f 25 volt capacitors
1	twisted pair power wire
8	632 threaded standoffs
12	position breakaway straight headers
1	wire-wrap tool - optional
1	small flush cut diagonal wire cutters - optional
50 feet	30-gauge Kynar wire wrap wire
1	PC board mounted RCA video jack
1	Prop Proto USB Board, Parallax part #32812, modified
1	Propeller Proto Board Accessory Kit, Parallax part #130-32212

Integrated Circuits (required for Memory Expansion Module – Explained in a later document.)

Quantity	Part Number
1	74LS02N
1	74LS139N
1	74LS138N
2	74LS193N
2	74LS273N
4	AS6C4008N - DIP package

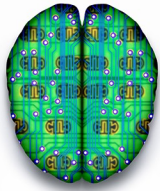
With no hardware modifications, this will interface with many robotics processors, however we have software drivers available only for the Parallax Propeller chip at this time.

The software drivers are normally simple and easy to write. It only requires 12 available I/O pins on the host processor.

- **Modification of Prop Proto USB Board**

- Install the connector block containing VGA and PS2 connectors found in the Propeller Proto Board Accessory Kit, Parallax part #130-32212 on the Prop Proto USB Board, Parallax part #32812. See instructions that came with the Accessory kit for installation. It only fits in one position on the board.
- Next, install four 100 ohm resistors standing on end. Each resistor is inserted into two adjacent holes just behind the VGA connector. Labeled “100” on the Proto board between the holes.
- Baseband video and audio for NTSC video displays – requires four resistors. May also be modified to run SECAM and PAL. Requires only software modification to achieve SECAM and PAL standards. Software provided by Parallax. The four resistors must be acquired by the user.
 - Connect I/O Pins P12-P15.
 - Connect a 1.1k ohm resistor on one end of P12.
 - Connect a 560 ohm resistor on one end of P13.
 - Connect a 270 ohm resistor on one end of P14.
 - If you desire audio, connect a 560 ohm resistor on one end of P15.
- Connect all four resistors together on the opposite end.
- Connect the far end of the resistors to the center pin of an RCA female phono video jack.
- The outer sleeve on the video jack must be connected to ground (VSS).
- Solder eight pins of the breakaway wirewrap straight pin connectors to I/O pins P0-P7. Ensure that the long end of the connector is inserted through the holes on the top of the board and are therefore present for wirewrap connections on the bottom of the board.
- Insert a set of four breakaway pins through the holes labeled P8-P11. Ensure they are inserted the same way as the previous eight pins so that wirewrap connections can be made on the bottom of the board.
- You should now have a total of twelve wirewrap pins sticking through the bottom of the board on pins P0-P11.
- Prepare two 10-pin right angle connectors from the hardware supplied in the kit. Take each 10-pin connector and install as follows:
 - With Keyboard and Mouse labels upside down on the Proto board, insert the first connector to the top left-hand side of the board, four holes down from the top and one hole to the right of the top left large mounting hole.
 - Insert the second connector horizontally aligned with the first connector and offset by two holes between to allow room for the ribbon cable connector.
 - These connectors should be tack soldered using the four outer pins. Remember that later you must make wirewrap connections to these connector pins, so make sure there is room for the wrapping.
- Wirewrapping: Pin 1 – upper right-hand pin when viewed from the bottom/wiring side of the board.
 - Propeller I/O pin P0 to J2 pin 1
 - Propeller I/O pin P1 to J2 pin 2
 - Propeller I/O pin P2 to J2 pin 3
 - Propeller I/O pin P3 to J2 pin 4
 - Propeller I/O pin P4 to J2 pin 5

- Propeller I/O pin P5 to J2 pin 6
- Propeller I/O pin P6 to J2 pin 7
- Propeller I/O pin P7 to J2 pin 8
- J2 pin 9 and pin 10 to ground (VSS)
- Propeller I/O pin P8 to J3 pin 1
- Propeller I/O pin P9 to J3 pin 2
- Propeller I/O pin P10 to J3 pin 3
- Propeller I/O pin P11 to J3 pin 4
- J3 pin 9 and Pin 10 to ground (VSS)
- Power connector – Install the power connector with the wire connections available to the outside of the board. With the right-angle ribbon cable connectors at the top of the board, insert the power connector on the left-hand side of the board starting three holes down from the upper left mounting hole and one hole to the right. This is a vertical mount down the side of the board. Tack solder both pins.
- You should now have ribbon connectors at the top of the board horizontally and the power connector vertically down the side of the board.



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