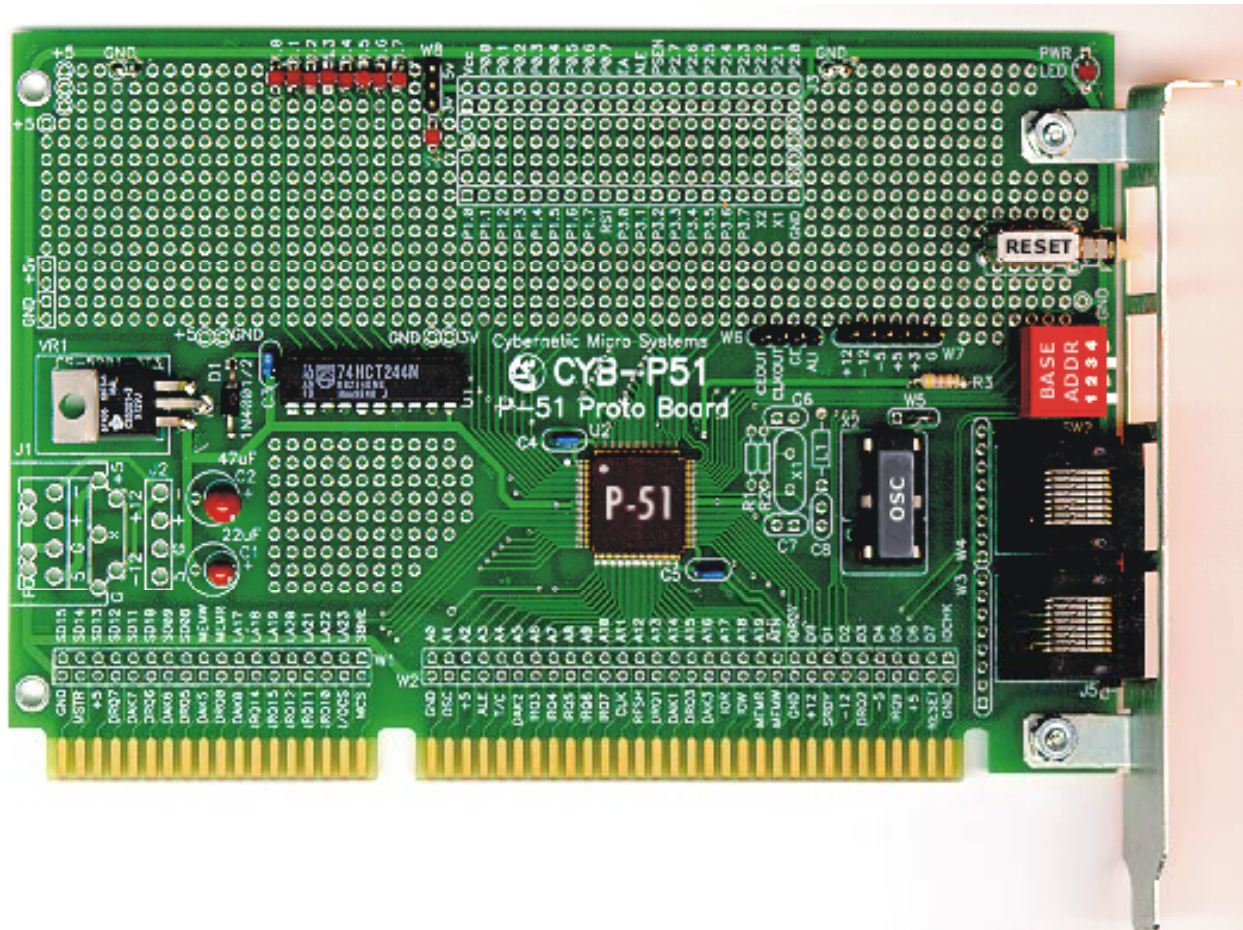


CYB-P51 Prototyping Board

The CYB-P51 (Rev A) Prototyping Board is designed as a two layer board (without power and ground planes. All components, except the P-51, are through-hole for easy probing and replacement of parts.



- ◆ The board has an oscillator circuit and a crystal circuit pattern, so that either may be used in the test application. The Oscillator is shown in this photo and it is connected to 3V at jumper W5, as required by the P-51. See the clock circuits in the user manual for support components for the Xtal circuit.
- ◆ External pushbutton switch can Reset just the board while in an active ISA slot. The host software must release this hard reset of the P-51 (see P-51 Code RAM in manual).
- ◆ The base address from the ISA host is switch selectable on a DIP-switch that is accessible from outside the computer. The required IRQ is software selectable. See the user manual for switch settings.
- ◆ On-board Voltage regulator provides 3.3 volts to the P-51 and oscillator using the computer system's 5-volt supply. The P-51 I/O pins drive 3.3 volts and are 5-volt tolerant.
- ◆ All of the ISA-bus signals are brought to a wire-wrap pattern at the bottom of the board, and all the P-51-to-ISA/PC104 signals are also available at that pattern. Alternatively, a micro-controller host could interface to the P-51 at that same jumper.



- ◆ The application signals of the P-51 are brought to a 40-pin wire-wrap pattern in the same configuration as a standard 8051 DIP (with optional IDC pattern). All 8051 signals except X1, X2, Reset, EA, and PSEN are available at the 8051 pattern. Note that a row of GND posts (indicated by white circles) runs along the end of the pattern.
- ◆ Of the excluded 8051 signals, X1 and X2 are available at the Xtal circuit, Reset is replaced by ResetDrv from the ISA-bus, and EA and PSEN are not implemented in the P-51.
- ◆ The remaining P-51 signals (CE_out, Clk_Out, CE, and ALI) are available near the wire wrap area on W6.
- ◆ Two input pins should be configured on W6: CE should be tied low and ALI should be pulled high.
- ◆ Pin 40 of the 8051 socket (J3) is not connected to power. Jumper W8 allows you to connect that pin to 3 or 5 volts, or leave it open; and an LED indicates whether power appears on that pin.
- ◆ As a convenience to your application, eight LEDs, buffered through a 74HCT244, are attached to the eight signals of the P-51 port 1 (P1.0 - P1.7).
- ◆ Two RJ-45 jack patterns allow sixteen signals to be brought outside the system chassis. Alternatively, a 3x3 wire-wrap grid is also available at each location.
- ◆ A set of power connector patterns allow the board to be used outside an ISA environment, as when using another micro-controller as a host.
- ◆ A power indicator LED is connected to 5v.

Noise issues and considerations:

As a matter of good design practice, the signals from the P-51 should not be driven off-board without buffering, and should be protected from noisy circuitry. Your low-noise digital circuitry should be added to the on-board wire-wrap area, rather than cabling to a neighboring board. Noisy circuitry should be separated and buffered from the 3-volt area. Your production design should include a ground plane with a good grounding connection to all eight P-51 ground pins.

Parts List

Qty	Location	Part#	Description	Manufacturer
1		CYB-P51-PWB	Circuit Board	Cybernetic Micro Systems
1	U2	P-51	Micro-controller	Cybernetic Micro Systems
1	VR1	CS-5201-3T3	Voltage Regulator	Cherry Semiconductor
1	SW2	BP04	Dip switch, 4-pos piano	C&K
1	SW1	PN11SHNA03QE	SPDT Mom Pushbutton Reset Switch	C&K www.ckcomponents.com
1	U1	74HCT244N	Octal Buffer/Driver	Phillips, TI, etc
1	D1	1N4001 or 4002	Diode for Volt regulator	any
1	C2	47uF tant cap	Tantalum 3v power cap	any
1	C1	22uF tant cap	Tantalum 5v power cap	any
3	C3, C4, C5	0.1 uF mono cap	Mono dip filter caps	any
1	R3	4.7K ohm	Reset resistor	any
10	(10)	HLMP-6600	LED w/internal resistor	HP
1	(Edge)	PC-BRKT-Quad	PC Bracket, w/hardware	Cybernetic Micro Systems
1	W8		WW, 1x3	
1	W6		WW, 1x4	
1	W7		WW, 1x6	
1	X2	SG-8002DC-ST-CB @ xx Mhz	3V Oscillator, DIP	Epson www.eea.epson.com/pdfs/sg8002db.pdf
Alternate Xtal Circuit (Omit Oscillator):				
1	X1	4-51 MHz Xtal	See clock circuits	
2	C6, C7	5-30pF Mono Dip Cap	Xtal cap	any
1	C8	0.01uF Mono Dip Cap		any
1	R1	1M Ohm Resistor	5%	any
1	R2	0-200 Ohm Resistor	5%	any
1	L1	3.3uH	Inductor	any
Optional Items:				
2	J4, J5		RJ45 Jack, Low Profile	
1	J1		Jack, 180° 5-pin DIN	
1	J2		Header, Molex 4-pin, .165	
1	J3		Socket, 40-pin dip or 2x20 IDC Hdr or socket	
1	W1		WW, 2x18	
1	W2		WW, 2x31	
2	W3, W4		WW, 1x8	
4	MH (4 each)		Nylon Screws & Spacers	

