Personal Computer Hardware Reference Library

IBM Prototype Card

6361513

Contents

Description

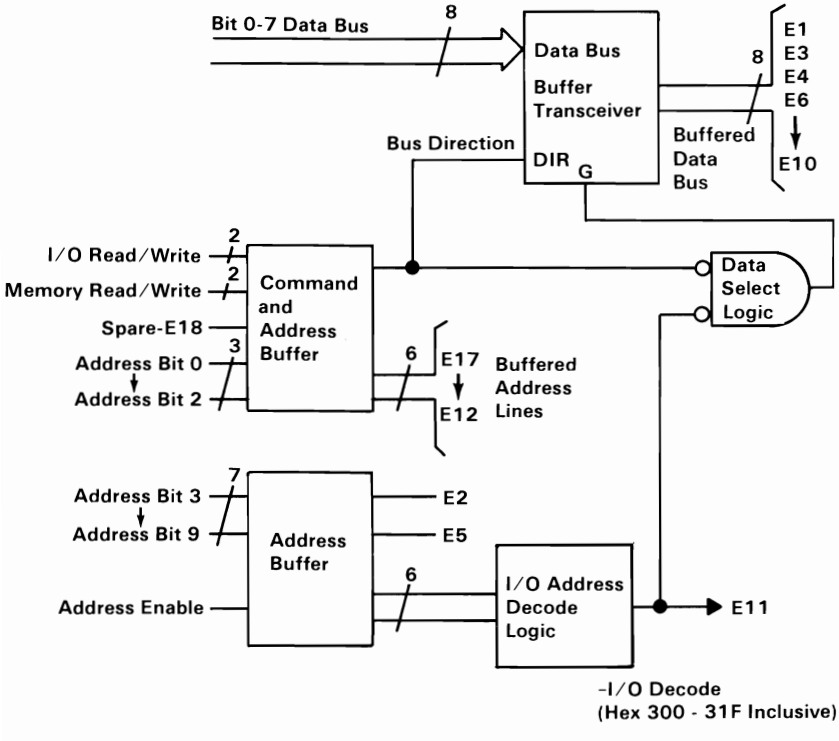
The IBM Prototype Card is 106.7 millimeters (4.2 inches) high by 335.3 millimeters (13.2 inches) long and plugs into an expansion unit or system unit expansion slot. All system control signals and voltage requirements are provided through a 2- by 31-position card-edge tab.

The card contains a voltage bus (+5 Vdc) and ground bus (0 Vdc). Each bus borders the card, with the voltage bus on the back (pin side) and the ground bus on the front (component side). A system interface design is provided on the Prototype Card.

The Prototype Card can also accommodate a D-shell connector if it is needed. The connector size can range from a 9- to a 37-position connector.

> **Warning:** Install all components on the component side of the Prototype Card. The total width of the card, including components, should not exceed 12.7 millimeters (0.500 inch). If these specifications are not met, components on the Prototype Card may touch other cards plugged into adjacent slots.

The following is a block diagram of the IBM Prototype Card.



Prototype Card Block Diagram

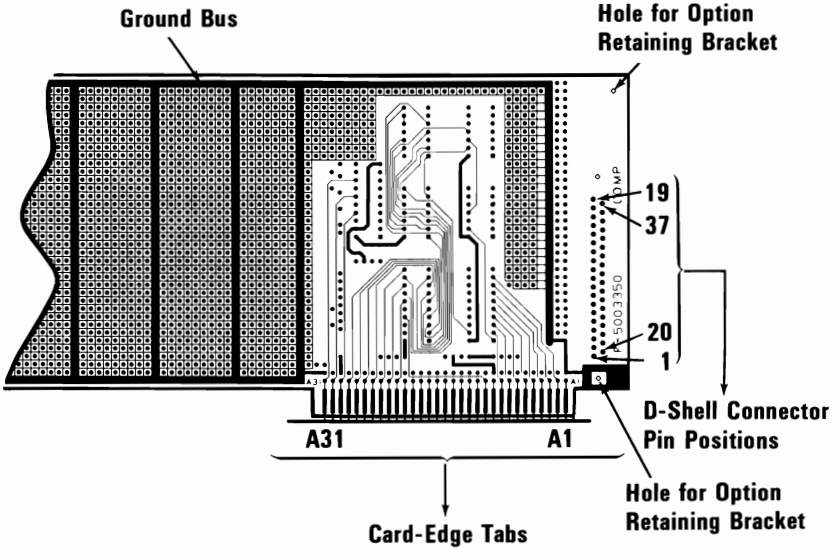
Interface

I/O Channel Interface

The Prototype Card has two layers screened onto it (one on the front and one on the back). It also has 3,909 plated through-holes that are 10.1 millimeters (0.040 inch) in size and have a 1.52-millimeter (0.060-inch) pad, which is on a 2.54-millimeter (0.10-inch) grid. There are 37 plated through-holes that are 1.22 millimeter (0.048 inch) in size. These holes are at the rear of the card (viewed as if installed in the machine). These 37 holes are used for a 9- to 37-position D-shell connector. The card also has 5 holes that are 3.18 millimeters (0.125 inch) in size. One hole is located just above the two rows of D-shell connector holes, and the other four are located in the corners of the board (one in each corner).

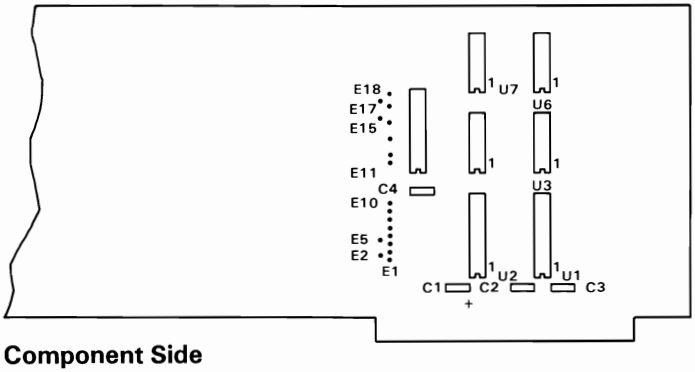
Prototype Card Layout

The component side has the ground bus, 1.27 millimeters (0.05 inch) wide, screened onto it, and card-edge tabs that are labeled A1 through A31.



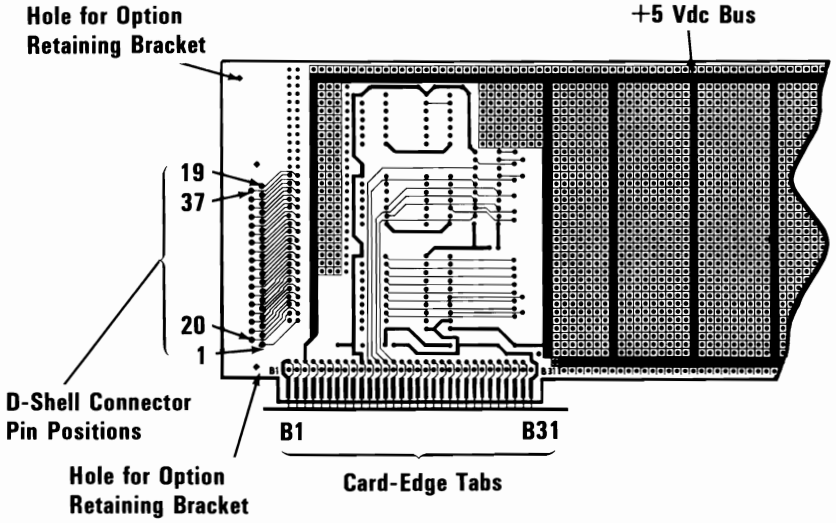
Component Side

The component side also has a silk screen printed on it that is used as a component guide for the I/O interface.



Component Side

The pin side has a +5-Vdc bus, 1.27 millimeters (0.05 inch) wide, screened onto it, and card-edge tabs that are labeled B1 through B31.



Pin Side

Each card-edge tab is connected to a plated through-hole by a 0.3-millimeter (0.012-inch) land. There are three ground tabs connected to the ground bus by three 0.3-millimeter (0.012-inch) lands. Also, there are two +5-Vdc tabs connected to the voltage bus by two 0.3-millimeter (0.012-inch) lands.

For additional interfacing information, refer to "I/O Channel Description" and "I/O Channel Diagram" in your *Technical Reference* system manual. If the recommended interface logic is used, the following list of TTL-type numbers will help you select the necessary components.

Component	TTL Number	Description
U1	74LS245	Octal Bus Transceiver
U2, U5	74LS244	Octal Buffers Line Driver/Line Receivers
U4	74LS04	Hex Inverters
U3	74LS08	Quadruple 2 - Input Positive - AND Gate
U6	74LS02	Quadruple 2 - Input Positive - NOR Gate
U7	74LS21	Dual 4 - Input Positive - AND Gate
C1		10.0 µF Tantalum Capacitor
C2, C3, C4		0.047 µF Ceramic Capacitor

System Loading and Power Limitations

Because of the number of options that may be installed in the system, the I/O bus loading should be limited to one Schottky TTL load. If the interface circuity on the card is used, then this requirement is met.

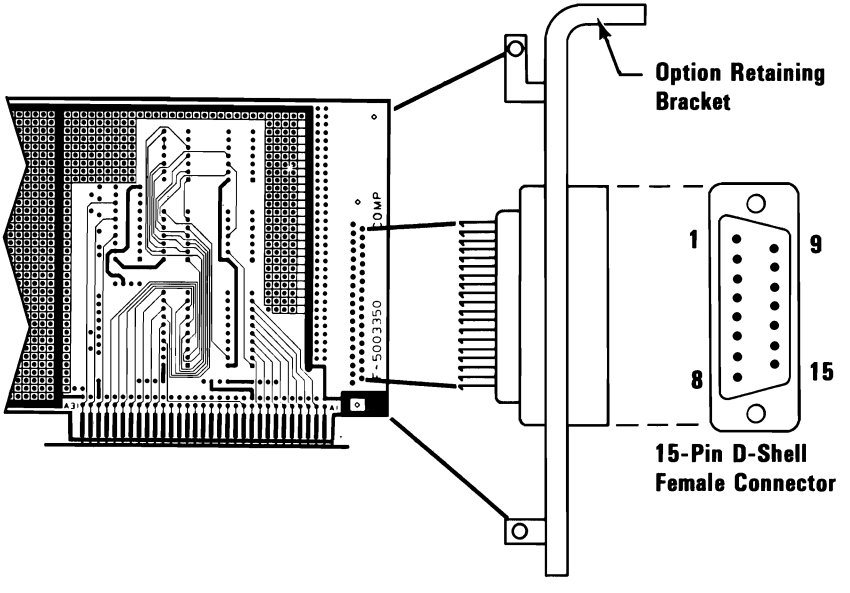
Refer to the power supply information in your *Technical Reference* system manual for the power limitations to be observed.

External Interface

If a connector is required for the card function, you should purchase one of the recommended Amp connectors listed in the following table, or its equivalent.

Connector Size	Part Number (Amp)
9-pin D-shell (Male)	205865-1
9-pin D-shell (Female)	205866-1
15-pin D-shell (Male)	205867-1
15-pin D-shell (Female)	205868-1
25-pin D-shell (Male)	205857-1
25-pin D-shell (Female)	205858-1
37-pin D-shell (Male)	205859-1
37-pin D-shell (Female)	205860-1

The following example shows how a 15-pin, D-shell, female connector is attached to a prototype card.



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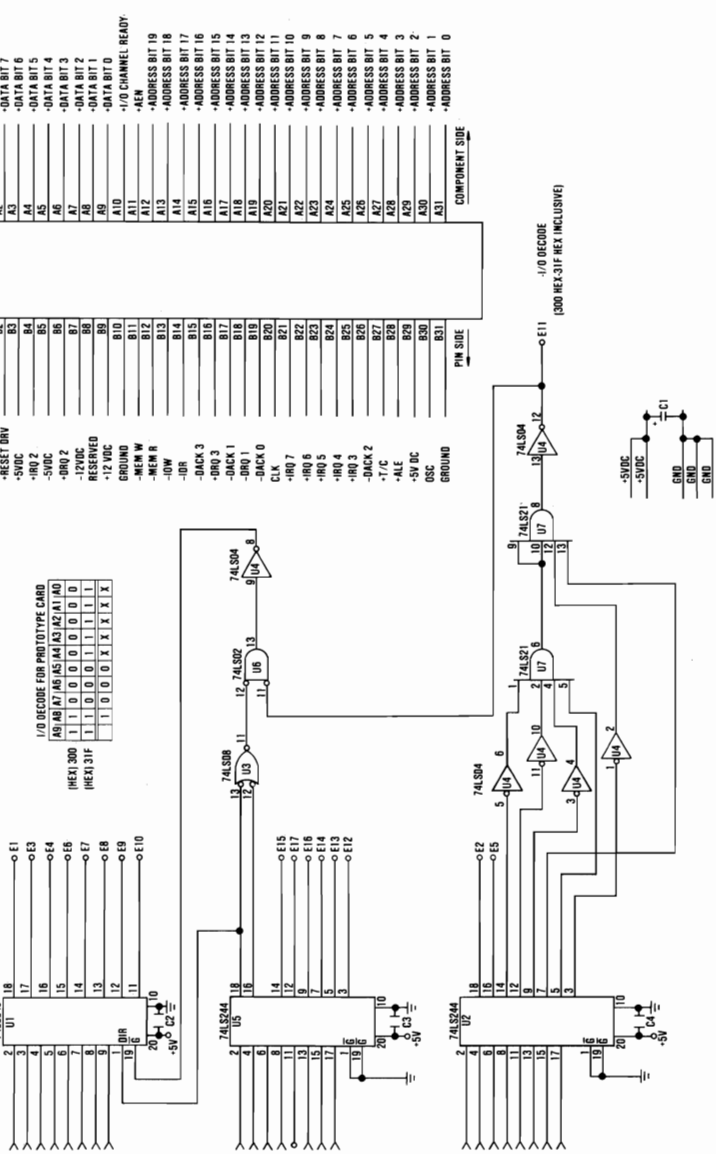
Logic Diagram



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