

CRAY-2 Printed Circuit Board Characteristics

Circuit Board Construction - Each circuit board is four inches wide and eight inches long. Each board has six layers. The two outside layers, referred to as the vertical and horizontal layers due to the orientation of their foil runs, carry logic signals between the integrated circuits on the board. Logic signals between the backpanel connector and the gate array chips also use these two foil layers. The inner board layers are used to distribute power, system clock, and ground to each chip location. There are two power layers, -5.2 volts and -2.0 volts, one system clock layer, and one ground layer. The system clock layer is used, on a very limited basis, for logic signal foil runs.

Circuit Board Power and Ground Connections - At one end of each printed circuit board the power and ground foil layers are connected to foil pad areas on the top and bottom surfaces of the board. The power and ground bus lead connection blocks are inserted between the boards at the pad areas when the eight boards are assembled to make a complete module. The power bus blocks serve a dual purpose in the module as spacers between boards and as power bus connections. Each module has seven power bus leads to be connected to the -5.2V system bus bar, seven for the -2.0V power, and fourteen ground leads.

Circuit Board Input/Output Signal Connections - At the end of the circuit board opposite the power connections, a 72 pin connector is mounted serving as both an input/output signal connector and as a board spacer when the module is assembled. This connector is divided into three sections of 24 pins each, with the three sections being assigned the same letter designations as the chip fields of the board on which they are mounted, as described in the next paragraph. The 24 pins in each section are labeled (A through X). This allows reference to any one of the 576 pins on the module using a simple two letter designator, the first being the connector section and the second indicating the pin within the section.