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*Griffith*Exchange Execution of the "Select For Control" InstructionMedium Speed I/O Units

COMPANY CONFIDENTIAL

Control instructions are sent to medium speed units via the output crosspoint switch in much the same manner as data is sent to output units. All medium speed units are connected to the output crosspoint switch. Output units and units serving both as input and output units such as tape or disc storage receive control instructions on the same busses that they receive output data, and obviously, input units receive control instructions on busses used for control purposes only.

During a select for control operation, an output channel is assigned to the selected unit and the number of 8 bit bytes of control information that is to be sent to the unit is set into the "final word byte count register." A "prepare for control" signal is sent to the unit, signalling the unit to interpret the information on the output busses as control information.

The dataword, which contains the control information, is read from main memory and stored in exchange memory at the dataword address of the unit. (A control word is not needed because all the control information can be stored in one dataword.) The subcycle count contained in the "final word byte count" register is written into exchange memory with the above dataword.

Each time the unit requests service, an eight bit byte of the above dataword is sent to the unit via the crosspoint and the subcycle count is stepped - 1. When the subcycle count reaches zero, the exchange disconnects the unit by turning off the crosspoint and sending a disconnect signal to the unit.

Low Speed I/O Units

All low speed units receive control instructions over the low speed output channel. When a low speed unit is selected for control, the dataword, which contains the control information, is read from main memory and stored in exchange memory at the dataword address of the unit. This dataword also contains a "select for control" flag bit and a subcycle count. The subcycle count is determined by the number of 8 bit bytes of control information to be sent to the unit.

When the selected unit is switched onto the low speed output channel by the low speed control unit, the above dataword is read from exchange memory. Because the dataword contains a "select for control" bit, the left 8 bits are set into the channel data register and a control response is sent to the unit. The subcycle count is stepped - 1 and the dataword is shifted left 8 places and written back into exchange memory. The "control response" signals the unit to read the data register and interpret it as control information. The "control response" also advances the low speed output control unit to the next unit.

Each time the selected unit is switched onto the low speed channel, an 8 bit byte of the above dataword is sent to the unit and the subcycle count is stepped -1. When the subcycle count reaches zero, the unit is deselected by removing the "select for control" flag bit from the dataword.

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