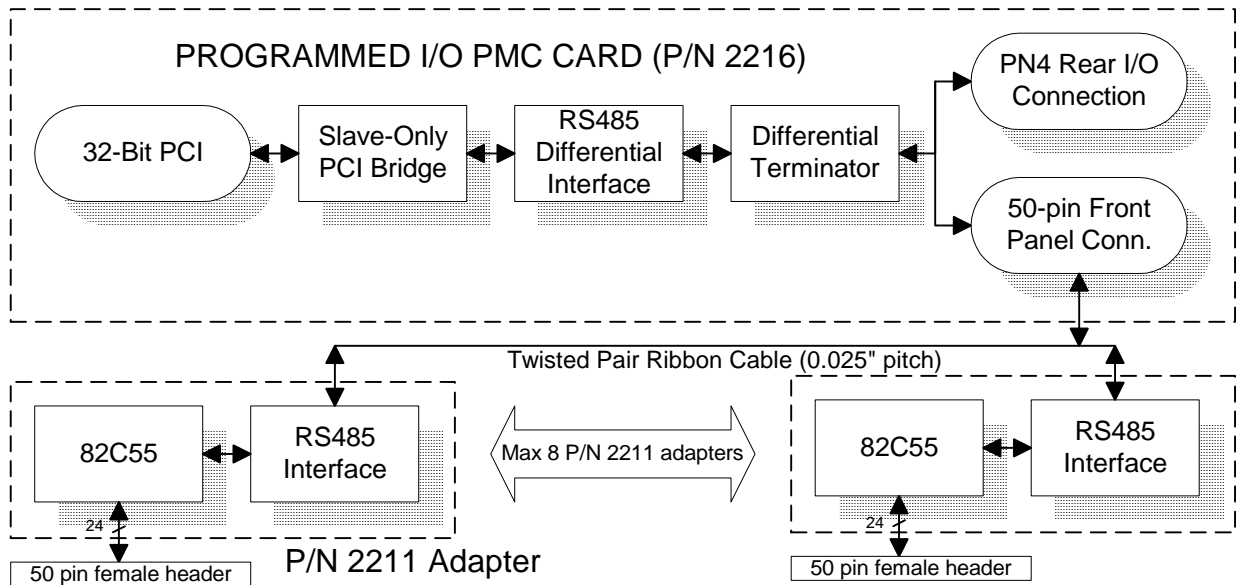


192-point 82C55 Digital I/O Subsystem



The Technobox 82C55 Digital I/O subsystem provides up to 192 points of 82C55-based digital I/O accessible from a single PMC slot.

The 82C55 is a long-standing industry component used for low current digital I/O interfaces. Various operational modes permit individual bit set/reset, as well as bi-directional byte-wide transfers with handshake. Current source/sink capability for each digital I/O is 2.5 ma.

The PMC card converts the PCI bus into a 1-byte wide differential interface using RS485 signaling levels. Components used in this design are the same as commonly used for differential SCSI, although the SCSI protocol is *not* used in this application.

Accesses from the host processor are transferred over the differential interface, and are intercepted by the 82C55 "adapter cards" located remotely on the interface cable. This scheme makes the 82C55 register set directly visible from the host processor, allowing existing 82C55 software to be readily adaptable to this solution.

Each 82C55 adapter card has a 50-pin female, two-row, 0.1" centered header which presents the 24 digital I/O signals from the 82C55, along with a corresponding ground, to the user's hardware.

Any number of 82C55 adapter cards can be installed on the differential cable, up to a maximum of eight. Since each adapter card handles 24 digital I/O lines, a total of 192 digital I/O lines for each PMC card are possible in a maximum configuration. The adapter cards

are uniquely addressed by setting a rotary switch on each adapter card.

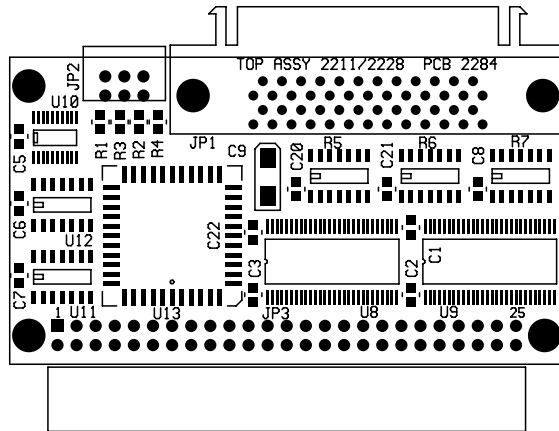
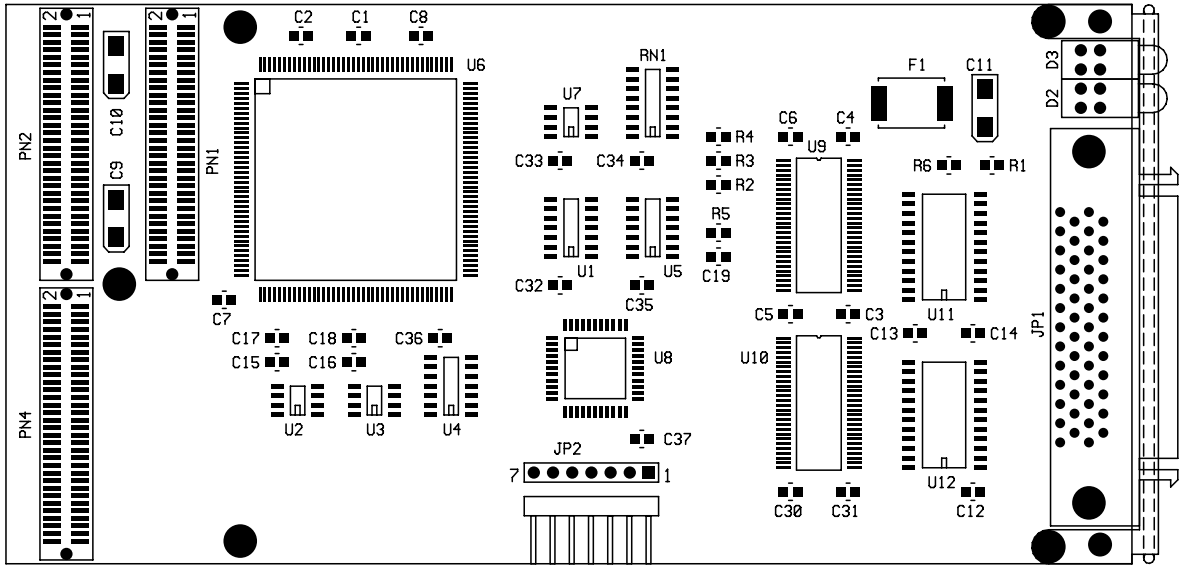
Upon system reset, all 82C55 lines default to inputs. The host software programs the 82C55 control registers to establish which signals are outputs, along with any other 82C55 operational modes. There are no pull-down or pull-up resistors on the 82C55 pins, so upon reset, the signals which are normally outputs to the user application are floating, and the user's hardware must bias these signals with pull-up/pull-down resistors accordingly.

The twisted pair flat ribbon cable used between the PMC card and the adapter card(s) is a lightweight, non-shielded, flexible PVC-insulated cable which allows convenient routing within a user's system. The maximum length of this cable is 50 feet. The 82C55 adapter loads can be placed at any position along the cable.

A 50-pin SCSI-style connector on the PMC front panel provides connection to the differential cable. Alternatively, connection via PMC rear I/O is possible, provided the host processor supports rear I/O connection to the PMC. In this case, a paddle card is used to convert the P2 DIN style connector back into the 50-pin SCSI equivalent required by the differential cable.

The 82C55 adapter cards are produced in two types: with or without on-board 100 Ohm termination for the differential interface. Exactly one terminated adapter card, located at the end of the cable, is required; all other adapter cards on the cable do not have termination resistors installed.

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Product Summary

Technobox Part Numbers:	2216 (Programmed I/O PMC card)
	2211 (82C55 Adapter Card)
	2228 (82C55 Adapter Card w/Termination)
Typical Power Dissipation:	TBD watts
Power Supplies Required:	+5
PCI Signaling Environment:	5 Volt