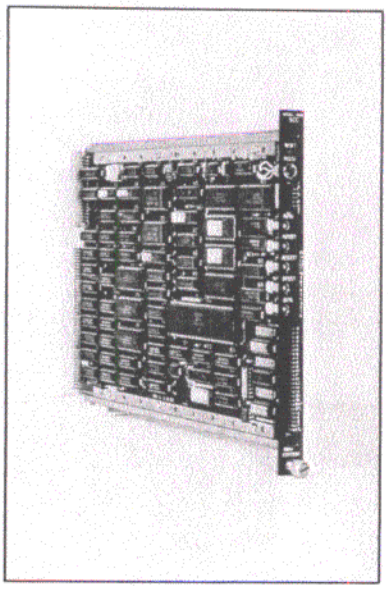
CAMAC CONTROLLER

Model 1600
Smart CAMAC Controller (SCC)
List Processor, RS-232, Auxilliary or Main Controller



FEATURES

- Primary or auxiliary CAMAC Crate Controller
- Highest possible CAMAC dataway speeds
- CAMAC read, write and control by lists or by direct host control
- CAMAC data transmitted direct to external buffer memory module via RS-485 (like Bi Ra model 1700)
- Output data is ECLport compatible with the addition of a companion module(Bi Ra Model 1601 SCCLA Level Adapter)
- Multiple SCC's may be daisy-chained to output to a single data buffer module
- Trigger port for starting lists by external sources
- Wait line for suspending lists by external sources
- RS-232 serial port for control by host computer

APPLICATIONS

- High speed CAMAC data acquisition system employing conventional CAMAC digitizing modules
- Output data to VMEbus or FASTBUS buffer modules

GENERAL DESCRIPTION

The Bi Ra model 1600 Smart CAMAC Controller (SCC) is a single- width module that makes it possible to configure a high speed data acquisition system employing conventional CAMAC digitizing modules. Using the SCC's serial control port, a host computer first down loads the SCC with lists of CAMAC operations to be performed when various trigger signals are received. Upon receipt of a trigger, the SCC executes the appropriate CAMAC operations at the maximum allowed CAMAC dataway speeds. Any data read from CAMAC modules is output through a front panel connector which is normally cabled to a data buffer memory of some sort (RBUFF, model VME1700 VME Buffer memory). The SCC can also perform CAMAC operations under direct control of the host computer; in this case operation requests and read/write data are passed through the serial control port.

The SCC consists of a single-width CAMAC module. Another module called the SCC Level Adapter (SCCLA) provides additional capabilities required by some users. The SCC can perform as a primary crate controller or an auxiliary crate controller. Its output port can be either RS-485 compatible or LeCroy ECLport compatible. If the SCC is used as an auxiliary crate controller (in conjunction with some other CCA2 primary controller(Bi Ra Model 1302- LM) and its output port is to be RS-485 compatible, then the SCCLA module is not needed. The SCCLA allows the SCC to be a primary crate controller, to output data in ECLport format, or both. More than one SCC can be connected to a single data buffer. In this case, a cable runs through the output ports of a chain of SCCs and carries data into the output data buffer. Each crate is readout in turn until all of the SCCs on the chain have completed their readout.

LIST OPERATIONS

The Readout List Memory consists of 8K longwords, each of which may be a Readout List Instruction. Multiple Readout List may be constructed. Readout Lists are executed by a sequencer at the highest possible CAMAC dataway speed. The microprocessor generally starts the sequencer upon receipt of an appropriate trigger signal, or sometimes under direct control of a host computer. A single readout list can consist of the following operations:

- Single dataway read cycle
- Multiple identical dataway read cycles while Q=1
- Single dataway control cycle
- Multiple identical dataway control cycles while Q=1
- Single dataway write cycle using the next Readout List instruction word as data
- Dataway Initialize (Z) cycle or Clear (C) cycle
- Clear it set crate inhibit (I)
- Wait until a Look-at-me (LAM) is raised by a specified module
- End of list; stop processing

FIRMWARE

A set of PROMs called SCCbug is included with the SCC which provides a startup and device initialization, vectors to exception handlers, self-checking diagnostics, program downloader and etc. Further information is available in the SCCbug users manual.

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Model 1600
Smart CAMAC Controller (SCC)
List Processor

HARDWARE

- M68000 microprocessor
- 16K words of EPROM for firmware (monitor ROMS included)
- 32K words of RAM for downloaded programs and miscellaneous
- 8K longwords of RAM for CAMAC list memory
- RS-232 communications port
- CAMAC operation sequencer
- 5-bit trigger input port
- RS-485 data and control output port
- 8-bit software readable configuration switch
- 16 front panel LEDs controlled by software
- Permit in and permit out for daisy-chaining

POWER REQUIREMENTS: +6 volts @ 3 amps
ORDERING INFORMATION: Model 1600 Smart Crate Controller (SCC)
SUGGESTED ACCESSORIES: Model 1601 SCCLA Module for use as a primary crate controller or to provide FASTBUS read ECLport output for LeCroy model 1891/92, FASTBUS Event Buffers.

Model 1601
Smart Crate Controller Level Adapter (SCCLA)

FEATURES:

- RS-485 to ECL adapter for SMART CRATE CONTROLLER (SCC)-Model 1600
- Auxiliary to primary converter for SMART CRATE CONTROLLER

APPLICATIONS:

- Convert the output data of the SMART CRATE CONTROLLER to ECL so that it may be connected to ECL modules such as the LeCroy 1891/92 FASTBUS based buffer.
- Provided CAMAC pullup resistors and N-line decoding for the SMART CRATE CONTROLLER so that it may be used as a Primary CAMAC Crate Controller.

GENERAL DESCRIPTION:

The Bi Ra model 1601 Smart Crate Controller Level Adapter (SCCLA) is a single-width CAMAC module. It is an optional companion to the Smart Crate Controller (SCC). The SCCLA is required to be used with the SCC only if the SCC is to be used as a primary crate controller; or is to output data in ECLport format; or both. The module basically provides the SCC with three functional blocks:

- CAMAC control line pullup resistors which are socket mounted and are installed if the SCCLA is used to support the SCC as a Primary Crate Controller. These pull-ups are removed is the SCC is already connected to a type CCA2 Crate Controller and is therefore performing as an Auxiliary Crate Controller.
- CAMAC station number (N) decoder and Look-at-me (LAM) receivers which connect to the SCC module through the Auxiliary Controller Bus and allow it to function as a Primary Crate Controller. This connection is not required and thus these functions are format if the SCC is already connected to a type CCA2 Crate Controller and is therefore performing as an Auxiliary Crate Controller.
- RS-485 to ECL converters. Without the SCCLA, the SCC data is output in RS-485 format which is excellent for relatively long distances at high speeds. This format matches RBUF receiver/buffer modules which reside in VMEbus, model VME1700 VME BUFFER memory module. With the SCCLA, the SCC data may be converted, if desired, to differential ECL which matches Lecroy model 1891/92 receiver/buffer modules which reside in FASTBUS.

POWER REQUIREMENTS: +6 volts @ 600 mA, -6 volts @ 700 mA
ORDERING INFORMATION: Model 1601 Smart Crate Controller Level Adapter
ACCESSORIES: Auxiliary Bus Cable

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