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SWISS LIGHT SOURCE

Data Sheet

30 CHANNEL DAC CONTROL BOARD

DCB-30

for WS 2126 SHARC Modul

November 1999 © SLS CH-5232 Villigen-PSI, R. Kramert/Diagnostics

Features

VME-INPUT

- 30 Channels
- 16 data bits per channel
- 76uV / bit resolution (5V divided by 65536)
- update rate 500µs for all channels

SERIAL-OUTPUT

- low active
- six serial ports
- serial clock rate 1 MHz
- five DAC-words; MSB first; (80 bits)

General Description

The DCB-30 has a dual ported ram area which is accessible via sharc io-pack rear connector address- data- and control-lines. Serial datas go via J2 VME connector to the rear transition board. From here each serial port is connected with one rf-board (also via a rear transition board).

DATABUS	DAC-WORD
SD31..SD16	MSB..LSB

Serial port 0

SA5..SA0	DAC NO:
0x00	DAC 0
0x01	DAC 1
0x02	DAC 2
0x03	DAC 3
0x04	DAC 4

0x1A	DAC 1
0x1B	DAC 2
0x1C	DAC 3
0x1D	DAC 4

Serial port 2

SA5..SA0	DAC NO:
0x0A	DAC 0
0x0B	DAC 1
0x0C	DAC 2
0x0D	DAC 3
0x0E	DAC 4

Serial port 4

SA5..SA0	DAC NO:
0x14	DAC 0
0x15	DAC 1
0x16	DAC 2
0x17	DAC 3
0x18	DAC 4

Serial port 1

SA5..SA0	DAC NO:
0x05	DAC 0
0x06	DAC 1
0x07	DAC 2
0x08	DAC 3
0x09	DAC 4

Serial port 3

SA5..SA0	DAC NO:
0x0F	DAC 0
0x10	DAC 1
0x11	DAC 2
0x12	DAC 3
0x13	DAC 4

Serial port 5

SA5..SA0	DAC NO:
0x19	DAC 0

The sharc can update the DAC-values at any time. The on board logic of the DCB-30 takes care of all the rest. A successful write to the DAC-ram is acknowledged by the DCB-logic. The DCB takes five DAC-words from the dual ported ram and puts it into a 80 bit shiftregister.

DAC0	DAC1	DAC2	DAC3	DAC4
LSB MSB	LSB MSB	LSB MSB	LSB MSB	LSB MSB

It starts shifting the datas with the msb of DAC4. When all datas are shifted, a latch signal is generated on the latch signal line of this serial port.

SERIAL PORT 0	DAC4..DAC0
SERIAL PORT 1	DAC4..DAC0
SERIAL PORT 2	DAC4..DAC0
SERIAL PORT 3	DAC4..DAC0
SERIAL PORT 4	DAC4..DAC0
SERIAL PORT 5	DAC4..DAC0

Datas are shifted first on serial port 0 then on serial port1 and up to port 5. When all bits have been shifted, the controller starts again with port 0 and so on.