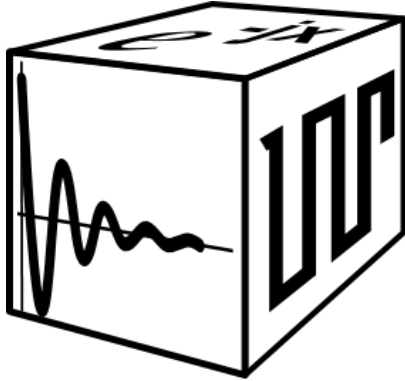# SIGNALBLOX®

DigitalBlox®

CLOCKWORKS
Signal Processing

3X2 MIXED SIGNAL AND DIGITAL CARRIER SYSTEM

Summary

The CC003 carrier board provides a mixed signal input/output capability along with adding a DSP processor and/or A2B interface to other hardware.

The carrier has two parallel paths for and ADC, DCP, and DAC module. Input and output follows the SignalBlox convention with a 40 pin connector providing 8 balanced analog I/O per section; the CC0003's two sections therefor provide 16 in and 16 out capability.

Typically the CC0003 is used for:

- Creating DSP systems with 8 or 16 channels of input and/or output.
- Application areas: audio, industrial, medical, control, test, and monitoring

The CC003 can be used with Clockworks multivoltage supplies and I/O cards to create a compact environment for both bench use and for deploying for in-field use.
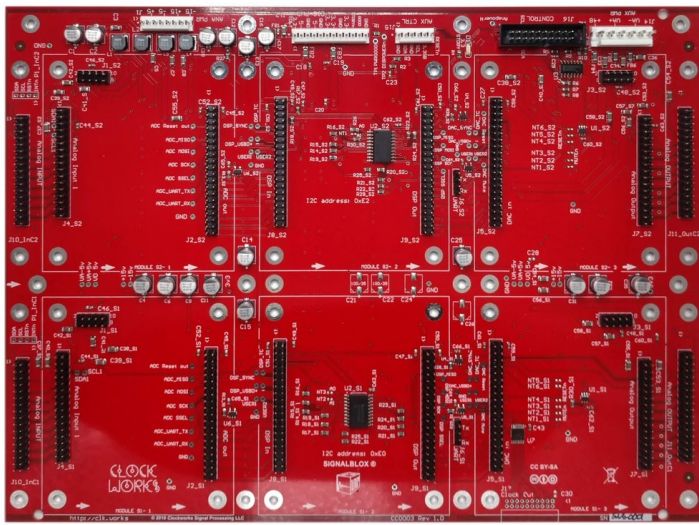
Introduction

Clockworks SignalBlox product series provide a module system of off the shelf hardware for developing signal processing applications. Modules handle 8 channels, and carrier provide a simple way to parallel modules for channel counts up to 256.
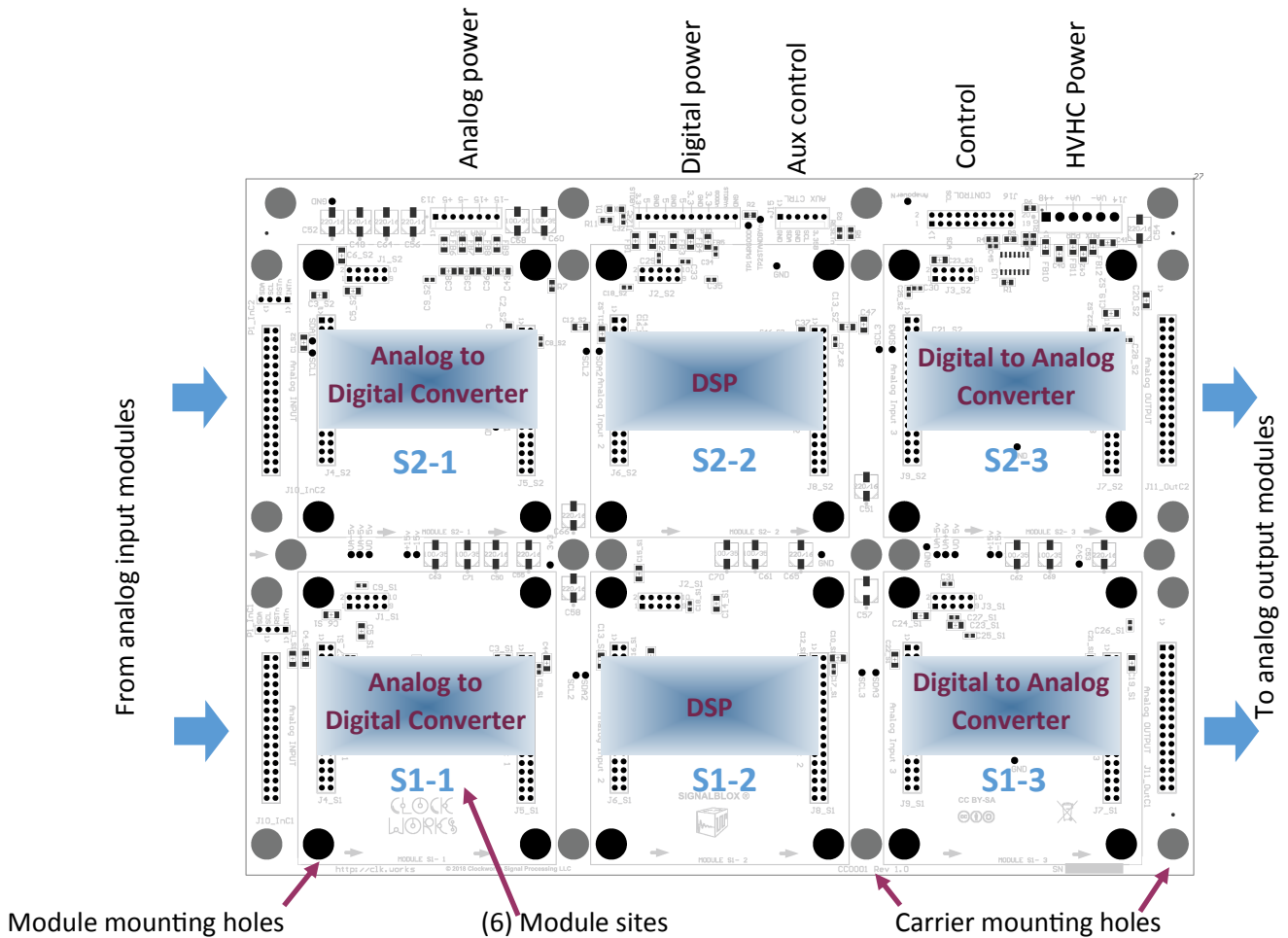
The DigitalBlox products consist of mixed signal modules (ADC, DAC) and DSP modules for signal processing. These an be combined with AnalogBlox modules; they have 8 balanced input and outputs. Standard functions from Clockworks include volume control, switching, and single ended/balanced conversion.

All SignalBlox hardware design documentation is released under a Creative Commons CC BY-SA 4.0 license, allowing you to modify the designs to your own needs.

CC0003 specifications

- Number of AD module sites: 2
  - 34 pin (analog - 8 balanced) input header
  - 40 pin (digital - 4/8 I^{2}S/TDM) output header
  - 10 pin secondary power header (left top)
- Number of DSP module sites: 2
  - 40 pin (digital - 4/8 I^{2}S/TDM) input header
  - 40 pin (digital - 4/8 I^{2}S/TDM) output header
- Number of DA module sites: 2
  - 40 pin (digital- 4/8 I^{2}S/TDM) input header
  - 34 pin (analog - 8 balanced) output header
  - 10 pin secondary power header (right top)
- Size:
  - All module sites are 75 x 85mm and use 11 mm M3 standoffs
  - Carrier size 275 x 202 mm (4 layer)
  - Module board to board edge spacing (standard modules) 10mm
  - Mounting holes: Twelve, use M3 bolt. (grounded)
- Power input:
  - SignalBlox *Digital Supply* 12 pin MTA-100 series digital supply connector for 3.3V standby, 3.3V, and 5V plus status and control.
    - 3.3V standby only connects to the 20 pin *Control* header and the 6 pin *Aux Control* header.
  - SignalBlox *Analog Supply* 8 pin MTA-100 +/-15V and +/- 5V , plus control
  - SignalBlox *Aux Supply* 6 pin MTA-156 +48 and +/- user supplies
  - Optional power inputs: Plasma Conduits (secondary only, for release in 2157).
- Power draw:
  - Dependent on installed modules
  - 10 mA typical from 3.3V supply
- Control:
  - SignalBlox *Control* 20 pin .1" header (I2C and GPIO lines)
  - SignalBlox *Aux Control* 6 pin MTA-100 connector
  - Single I^{2}C bus with two I^{2}C controlled MUX (PCA9545A) located at addresses 0XE0 and 0E2
  - See schematic and user guide for details of interrupt, fault, and MUTE line
  - Access to unused module SPI, USER, Reset., UART, and USB pins via test points
- Clock out connector
  - SignalBlox Clockout 20 pin 2mm header, LVDS, MCLK, BCLK, FSYNC, RESET
  - Driven by (DSP) module slot S1-2
- Indicators:
  - LED connected to the 3.3V standby to indicate system power is on.

Analog power Digital power Aux control Control HVHC Power

From analog input modules

To analog output modules

Analog to Digital Converter
S2-1

DSP
S2-2

Digital to Analog Converter
S2-3

Analog to Digital Converter
S1-1

DSP
S1-2

Digital to Analog Converter
S1-3

Module mounting holes   (6) Module sites   Carrier mounting holes

Ordering information

CC0003	Carrier only: 3x2 DigitalBlox module carrier. Does not include mounting hardware for this board nor the modules.
SYS05	Complete system for A^2B: 8 input, 8 output system with CC0003 carrier, AD2100 ADC, DD3100 adapter with A2B Module, DA1100 DAC, input and output connector modules, 7 output power supply (+3.3, +5, +/-15V +/- 5V), ribbon, power, and A2B cables, and mounting hardware for modules. (please see separate datasheet for details)

Custom SignalBlox boards

For customers that don't have the resources for designing their own boards Clockworks offers custom design and integration services.