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DEVICE SPECIFICATION

BAENG ISOLATION CHASSIS

1. Description

This document lists specifications for BAENG 180001 Signal Isolation/Distribution Chassis, hereinafter referred to as SID Chassis (see figure 1 below for the front and back picture). SID Chassis is a 19" standard rack mountable and is used to isolate and distribute signals from/to the Unit-Under-Test (UUT) and the Test equipment or EGSE (Electronic Ground Support Equipment). Failure-Mode-Effect-Analysis (FMEA) for the SID Chassis and all submodules are complete and available upon request.



Figure 1 Isolation chassis front/back

Two internal +5.0V and +3.3V isolated voltage regulators are used to electrically isolate the EGSE and UUT power and ground. Optional NCI logic analyzer is also available for debugging (any signal can be brought out and monitored by the logic analyzer).

Following are the major components of the SID Chassis:

- 1- Motherboard
- 2- AC/DC power supply
- 3- Isolated +5.0 and +3.3V linear regulators
- 4- Daughter cards
- 5- Logic Analyzer

Any questions or comments regarding the SID chassis can be posted on the B&A engineering forum page. The forum page can be accessed by going to <http://baengineering.com/forum/>. Registering on the forum page is required to be able to post questions.

1.1. Motherboard

Input, Output Signal distribution is thru a re-programmable Xilinx CPLD IC located in the main mother board. This feature enables the user to customize the SID chassis for the specific application. External signal interfaces to the UUT and Test equipment are thru pluggable daughter cards. Up to 20 daughter cards can be plugged into the system mother board (10 isolated and 10 non-isolated). Each daughter card can be either an Input or Output, Differential or Single ended, Isolated or non-isolated for a total of 40 system channels.

To configure a SID chassis box, go to <http://baengineering.com/assembly.php>.

1.2. AC/DC power supply

Commercially-Off-The-Shelf (CTOS) bel power solutions & protection power supply, MPB1254350G, is used to convert an external 110/220VAC to +12V and +5V. The +12V supply is connected to the Isolated +5V isolated regulator, see section 1.3 below to generate the isolated +5V supply. Similarly, the +5V is connected to the Isolated +3.3V isolated regulator board to generate the isolated +3.3V supply.

1.3. Isolated +5.0V and +3.3V linear regulators

Two internal +5.0V and +3.3V isolated voltage regulators are used to electrically isolate the Test equipment and UUT power and ground. Additional Chassis ground is also available on the regulator boards that connects Regulator chassis to the SID chassis thru the mounting holes.

Options are available to allow the user to configure the grounding based on the system requirements. For how to configure the grounding of isolation chassis go to <http://baengineering.com/assembly.php>. Documentation for Isolated regulator board configuration and specification are available on www.baengineering.com.

1.4. Daughter cards

Below are the available Isolated daughter card types. Note that each isolated daughter card includes 4 channels of similar types for the total of combined 40 isolated inputs/outputs. Input or Output cards can be configured to be either +3.3V or +5.0V.

- 1- RS-422 Output – P/N# 170009
- 2- LVDS Output – P/N# 170012
- 3- LVTTTL Input – P/N# 170013
- 4- LVDS Input – P/N# 170015
- 5- RS-422 Input – P/N#170016

Below are the available non-Isolated daughter card types. Note that each non-isolated daughter card includes 4 channels of similar types for the total of combined 40 non-isolated inputs/outputs. Input or Output cards can be configured to be either +3.3V or +5.0V.

- 1- RS-422 Output – P/N# 170010
- 2- RS-422 Input – P/N# 170011
- 3- LVTTTL Output – P/N# 170017
- 4- LVDS Output – P/N# 170020

The LVTTL Outputs are connected to the external BNC connectors on the front panel.

1.5. Logic Analyzer

Optional COTS NCI logic analyzer, GXL365M is used for debugging. Any signal going thru the isolation chassis box can be brought out to the logic analyzer thru the Xilinx CPLD IC located on the main motherboard at the time of the configuration.