5518 BNC-IDC / 5528 SMA-IDC

Features

- 8 channels

- Internal IDC connector

- External BNC or SMA connectors

Applications

- Break out analog signals

- BNC or SMA adapters for:

    – 5432 DAC Zotino
    – 5632 DAC Fastino

- (5528 only) SMA adapter for 5108 Sampler

- Convert from/to HD68 with 5568 HD68-IDC

General Description

The 5518 BNC-IDC card is a 8hp EEM module; the 5528 SMA-IDC card is a 4hp EEM module. Both adapter cards break out analog signals from IDC connectors to BNC (5518) or SMA (5528). IDC connectors can be found on 5108 Sampler, 5432 DAC Zotino, 5632 DAC Fastino and 5568 HD68-IDC.

Each card provides 8 channels, with respectively BNC or SMA connectors. Breaking out all 32 channels of 5432 DAC Zotino, 5632 DAC Fastino or 5568 HD68-IDC requires four BNC/SMA-IDC cards. Breaking out all 8 ADC channels of 5108 Sampler requires only one BNC/SMA-IDC card.
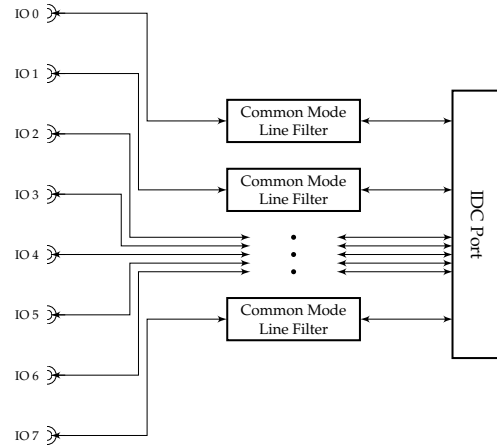

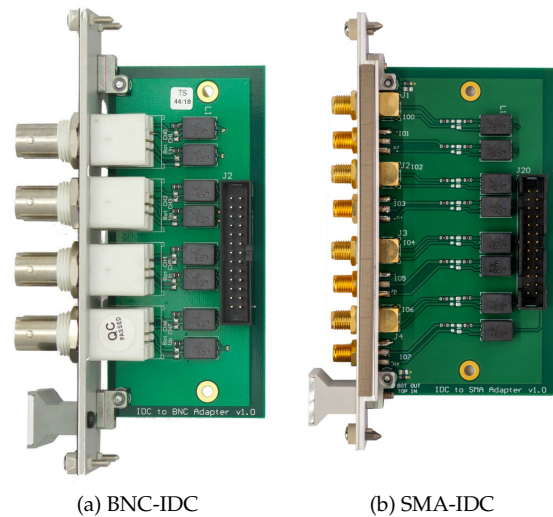**Figure 1: Simplified Block Diagram**

(a) BNC-IDC   (b) SMA-IDC

Figure 2: BNC-IDC/SMA-IDC card photos

Source

5518 BNC-IDC and 5528 SMA-IDC, like all the Sinara hardware family, are open-source hardware, and design files (schematics, PCB layouts, BOMs) can be found in detail at the repositories `https://github.com/sinara-hw/BNC_IDC` and `https://github.com/sinara-hw/SMA_IDC_Adapter`.

Electrical Specifications

Specifications of parameters are based on the datasheet of the common mode line filter[1].

Table 1: Electrical Specifications

Parameter	Max. Value	Unit	Conditions
Rated voltage	80	V	
Rated current	400	mA	$\Delta T^* = 40K$

*ΔT refers to the temperature of the CM line filter minus the ambient.

Impedance characteristics of common mode & differential mode signal at different frequencies are shown in the following graph:
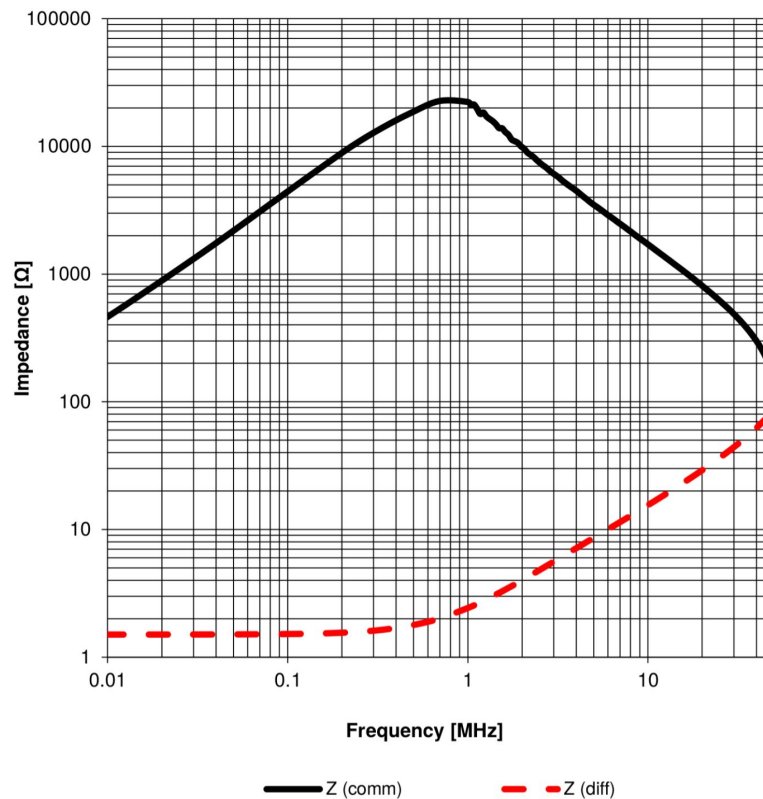

Figure 3: Common Mode Line Filter Impedance Characteristics

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[1]`https://www.we-online.com/catalog/datasheet/744229.pdf`

Channel Mapping

The following table shows the corresponding channel numbers of the BNC/SMA-IDC adapter IO ports when connected to Sinara cards that support IDC connections.

Table 2: Channel Mapping of BNC/SMA-IDC to Zotino, Fastino & HD68-IDC

IDC Port Label	IO 0	IO 1	IO 2	IO 3	IO 4	IO 5	IO 6	IO 7
CH 0-7	0	1	2	3	4	5	6	7
CH 8-15	8	9	10	11	12	13	14	15
CH 16-23	16	17	18	19	20	21	22	23
CH 24-31	24	25	26	27	28	29	30	31

Table 3: Channel Mapping of BNC/SMA-IDC to 5108 Sampler

	IO 0	IO 1	IO 2	IO 3	IO 4	IO 5	IO 6	IO 7
Sampler Ch.	7	6	5	4	3	2	1	0

Ordering Information

To order, please visit https://m-labs.hk and choose 5518 BNC-IDC/5528 SMA-IDC in the ARTIQ/Sinara hardware selection tool. Cards can be ordered as part of a fully-featured ARTIQ/Sinara crate or standalone through the 'Spare cards' option. Otherwise, orders can also be made by writing directly to mailto:sales@m-labs.hk.