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SigStream Model Number Options Decoder

797 North Grove Rd, Suite 101
Richardson, TX 75081
Phone: 972-671-9570
www.redrapids.com

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1.0 Introduction

The SigStream product family offers several analog interface options coupled to a common digital signal processing architecture. Each product is assigned a six-digit model number (Model XXX-YYY) that uniquely identifies the specific hardware features of that unit. The first three digits are the primary designator used to convey information about the structure of the analog front-end. The last three digits define the build options selected by a customer to tailor the product to a specific application.

1.1 Primary Designator

All of the SigStream primary model number designators are listed in Table 1-1. Each value defines the specific characteristics of the receiver and/or transmitter channels of the analog front-end. Please note that the actual sample rate is defined by the synthesizer build option and not necessarily the maximum rate supported by the channel.

Table 1-1 Primary Model Number Designators

Primary Designator	RX Channels	TX Channels	Maximum Sample Rate
271	2 / 16 bits	0	250 Msps
273	2 / 16 bits	0	310 Msps
276	2 / 12 bits	0	1.6 Gsps
277	4 / 16 bits	0	250 Msps
278	8 / 16 bits	0	125 Msps

1.2 Build Options

There are several build options available within each primary designator. These numbers are created as needed when a customer requests a configuration that has not previously been ordered. **Table** 1-2 lists all of the current model numbers in circulation throughout the customer base. This list continues to grow as new configurations are requested.

1.2.1 Synthesizer Frequency

The synthesizer frequency can be set to any value between the minimum and maximum sample rates supported by the front-end. Fixed frequency synthesizers are typically used to minimize phase noise, but programmable synthesizers are also available to cover a range of frequencies. Please note that the Model 276 synthesizer frequency is set to half the desired sample rate.

1.2.2 Form Factor

The SigStream products are available in three different form factors; PCIe, XMC, and CCXMC. Although these options are self-explanatory, it is worth noting that some PCIe products are actually XMC boards mounted to a PCIe/XMC carrier. They behave the same as a native PCIe product.

1.2.3 Analog Coupling

All of the SigStream products support AC coupling at the analog RX/TX interface and most also support DC coupling. The DC coupled option is only necessary when frequencies below a few hundred kilohertz are important.

1.2.4 Coaxial Inputs

Some of the SigStream products have individual coaxial clock and trigger inputs while others have a single connector that must be configured as one or the other.

The CLK/REF option accepts either a 10 MHz reference to phase lock the on-board frequency synthesizer, or an external sample clock to bypass the synthesizer.

The TRIG option accepts either an external trigger to control channel processing or a 1 PPS timing source to synchronize the on-board time of day clock. The coaxial trigger input can be terminated into 50 ohms or a high impedance (HI-Z) buffer.

1.2.5 GPIO Voltage

The GPIO connector receives external triggers that can be used to control channel processing. The electrical interface supports 3.3 V LVCMOS, 2.5 V LVCMOS, 1.8 V LVCMOS, or LVDS signaling standards.

1.2.6 Digital Down Converter

Most SigStream products offer digital down converter (DDC) resources to optionally tune and filter the raw sample data. There are multiple DDC architectures available to address specific application requirements. Refer to the SigStream Operating Guide for a description of each DDC type available. Additional architectures are added as needed by customer request.

Table 1-2 Active Model Numbers

Model Number	Firmware Revision	Synthesizer Frequency (MHz)	PCIe	CCXMC	XMC	AC RX Channels	DC RX Channels	AC TX Channels	DC TX Channels	Coax CLK/REF	Coax Trig (50 Ω)	Coax Trig (HI-Z)	3.3V GPIO	DDC-1	DDC-2
271-400	800-120-R00	250	X			2				X		X	X		X
271-401	800-126-R00	250	X			2				X		X	X	X	
273-002	800-124-R00	200			X	2				X	X		X		X
273-500	800-125-R00	310	X			2				X	X		X		X
276-500	800-122-R00	666	X			1				X		X	X		
276-501	800-123-R00	750	X			1				X		X	X		
277-400	800-121-R00	250	X			4				X			X		X

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