

Introduction

The Redwave Labs Time Tagger Q425 is a dual width PXIe module. It provides eight time-tagging inputs and a ninth input for the frame counter, which can be used to extend long counts and to track an additional time base. The clock is locked to the 100MHz differential PXIe clock. The time-tags can be gated via the PXI trigger lines. Data are returned over the PCIe bus to the main system memory and are accessible via an API.



Specification

Features	Time Tagger Q425 provides digital timing resolution down to 0.5ps	
Applications	Photon Timing, QKD, Quantum computing, single-photon spectroscopy	
Specifications	Parameter	Value
Power	Triple	+3.3V, +5V +12 V from PXIe
	Voltage Type	0.5-5V threshold
	Digital Resolution	0.5ps
Time-tagger Inputs	Total tag rate	500 Megatags/s
	Maximum burst channel tag rate	125 Megatags/s
	Deadtime	4ns
	Precision	5ps rms single channel
	Number	8 Continuous timing inputs and 1 synchronisation or frame counter for extending long counts
Clock Sources	Differential	100MHz PXIe bus clock
	Single-ended	SMA 50Ω terminated
Reference Output	Single-ended	SMA, 1.5V into 50Ω
Trigger Input	PXIe trigger	Trigger 0-7 or can be star configuration
	External sync	SMA positive pin. Max 5V ≤10MHz
Connectors	PCIe (XJ3 and XJ4)	8 lane gen 3 PCIe
	Clock	100MHz PXIe back plane clock
	Pulses	8x SMA 50Ω terminated
Dimensions (WxHxD)	160 x 100 x 33 mm	
Weight	300 g	
Storage Temp	-55 to 100 C	
Operating Temp	-40 to 85 C	