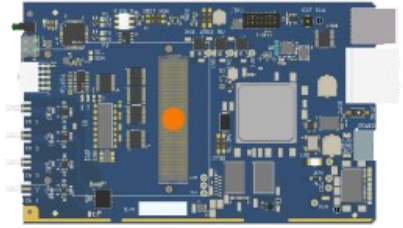


The Redwave Labs Q210 is a PXIe format card that supports the addition of standard FMC cards. A Zynq dual ARM System on Chip can be programmed from either PCIe or USB.

The system is driven from a state machine inside an FPGA allowing for time-synchronous pulse sequences to be emitted.

The dual-arm processor and DRAM allow it to be used as a stand-alone device. Multiple devices are synchronised with a common clock and trigger lines. Extra isolated GPIO allows control and triggering by external devices.



## Specification

Features	<ul style="list-style-type: none"> <li>Digital output sequencer with 4ns resolution</li> <li>Sequencer can hold up to 1024 instructions</li> <li>PXIe trigger single and star configuration</li> <li>Eight GPIO for synchronisation of other devices</li> <li>Zynq dual arm processor and USB allows stand-alone mode</li> </ul>
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Applications	<ul style="list-style-type: none"> <li>Acousto-Optical modulation (AOM/AOD) for switching</li> <li>Quantum Key Distribution (QKD)</li> <li>Quantum computing</li> <li>Quantum sensing</li> <li>Optical communications</li> <li>Software Defined Radio (SDR)</li> <li>Advanced Radar application</li> </ul>
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Specifications	Parameter	Value
Power	Dual	+12 V, 1A from PXIe or external +3V3 1A from PXIe or external
Clock Sources	Single-ended	10MHz PXI clock or 25MHz internal clock
Trigger and GPIO	Triggers	PXIe triggers 0-7 or star trigger
	GPIO	Molex microfit 10 way Up to 8 input or 8 output with various isolation
Connections Back Panel	PXI XJ4 power, trigger and GA	1x Gen 2 PCIe
	PXI XJ3 PCIe, SMBus, and clocks	1x 10MHz Clock Trigger to synchronise state-machine
	Power	Molex microfit or power from backplane
Connections Front Panel	USB C	Programmable side commands or JTAG connection.
	Clock	1x SMB.1GHz sinusoidal. Max 3dBm
Dimensions	ADC In	4x SMB 1MSPS max 0-5V
	W x H x D	160 x 100 x 60mm (2 slot PXIe 3U)
	Weight	300 g
	Storage Temp	-40 to 85 C
	Operating Temp	-20 to 85 C

## Absolute Maximum Ratings

Symbol	Parameter	Ratings	Unit
$V_{dd}$	Supply Voltage	+12	Volt
$T_{op}$	Operational Temperature	-40 to 85	C
$T_{st}$	Storage Temperature	-55 to 100	C
$P_t$	Heat dissipation	20	W

## Mechanical Information

Dual-width PXIe 3U peripheral module. It meets PXIe specifications below, non-hot-swappable, low power.

PXI-1 Hardware Specification Rev. 2.3

PXI-5 PXI Express Hardware Specification Rev. 1.1

