

# Firmware



Function		Description
Digital Complex Receiver	2 Channel	Provides two digital receiver sub channels that can support 1 to 4 IF channels - only 2 sub channels aggregated within a mode (i.e. simultaneous); ADC passthrough; I&Q demodulation and CIC decimation; video filtering; supports 1 or 2 mezzanine cards.
	4 Channel	Provides four digital receiver sub channels that can support 1 to 4 IF channels (up to 4 simultaneous sub channels); ADC passthrough; I&Q demodulation and CIC decimation; video filtering; supports 1 or 2 mezzanine cards.
	8 Channel	Provides eight digital receiver sub channels that can support 1 to 8 IF channels (up to 8 simultaneous sub channels aggregated); ADC passthrough; I&Q demodulation and CIC decimation; video filtering; supports 1 or 2 mezzanine cards.
	16 Channel	Provides sixteen digital receiver sub channels that can support 1 to 8 IF channels (up to 16 simultaneous sub channels aggregated); ADC passthrough; I&Q demodulation and CIC decimation; video filtering; supports 1 or 2 mezzanine cards.
SFP Communications	Dual 1GigE	Added option to above digital receiver firmware to allow data to be set as UDP packets out the SFP interfaces in addition to the ARENA 1GigE RJ-45. Supports 1 GigE out each SFP interface. Can be run in ping-pong aggregated mode.
	Dual 10 GigE	Added option to above digital receiver firmware to allow data to be set as UDP packets out the SFP interfaces in addition to the ARENA 1GigE RJ-45. Supports 10 GigE GB/s data rates out each SFP interface. Can be run in ping-pong aggregated mode.
Local Storage to USB driver		Added option to above digital receiver firmware providing ability to store data to flash drive or hard drive attached to the ARENA USB-2 or USB-3 port.
Real-time Digital Receiver Update		Added option to update Digital Receiver parameters on a pulse-to-pulse basis (e.g. NCO freq/phase).
Match Filter	8K	Adds 8K Match Filter to each digital receiver subchannel.
	16K	Adds 16K Match Filter to each digital receiver subchannel. Compatible with 2 and 4 Channel Digital Receivers.
	32K	Adds 32K Match Filter to each digital receiver subchannel. Compatible with 2 Channel Digital Receiver.
	Real-time Update	Added option to match filter allowing pulse-to-pulse update of match filter reference function.
Complex Analog Input Option		Added option to any of the above firmware to treat input channels as complex pairs (i.e. I & Q).



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Function		Description
Covariance, Pulse-Pair, Coherent Processor with up to 64 Channels and 64K depth.		Added option to any of the above digital receiver firmware.
Covariance, Pulse-Pair, Coherent Processor with up to 64 Channels and 128K depth.		Added option to above digital receiver firmware (memory allowing).
Spectral Processor	128 point	Added option to digital receiver firmware providing FFT (spectral) processing support up to 128 profiles.
	256 point	Added option to digital receiver firmware providing FFT (spectral) processing support up to 256 profiles.
	512 point	Added option to digital receiver firmware providing FFT (spectral) processing support up to 512 profiles.
	1024 point	Added option to digital receiver firmware providing FFT (spectral) processing support up to 1024 profiles.
	2048 point	Added option to digital receiver firmware providing FFT (spectral) processing support up to 2048 profiles.
Digital Beam Former		Added option to above digital receiver firmware implementing beam forming when using multiple ARENA modules. Works with ARENA 313 and higher products with SFP interfaces. Supports simultaneous beam forming of N beams where N is the number of subchannels of the digital receiver.
Multi-beam Digital Beam Former & Interferometric/Covariance Processor		Provides digital beam forming supporting up to 128 beams simultaneous and up to 64 ARENA units (via SFP). Digital beam forming coefficients may be updated on a pulse-to-pulse basis and Doppler correction for each beam can be applied to remove platform motion. Includes interferometric /covariance processor supporting inter and intra beam processing.



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