

# **Algorithmic C (AC) DSP Release Notes**

Software Version v3.1.0

October 2018

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Table of Contents

**Release 3.1.0.....2**  
    *Filter Blocks.....2*  
    *FFT Blocks.....2*  
**Supported Compilers.....3**



# Release 3.1.0

This release is the first open-source release of the *ac\_dsp* library. This release has the following DSP blocks implemented. This release provides new functionality and bug fixes.

## Filter Blocks

Filter Implementation	Class Name	Header File
CIC Decimator (Full Precision)	<code>ac_cic_dec_full</code>	<code>ac_cic_dec_full.h</code>
CIC Interpolator (Full Precision)	<code>ac_cic_intr_full</code>	<code>ac_cic_intr_full.h</code>
FIR Filter – Constant Coefficients	<code>ac_fir_const_coeffs</code>	<code>ac_fir_const_coeffs.h</code>
FIR Filter – Loadable Coefficients	<code>ac_fir_load_coeffs</code>	<code>ac_fir_load_coeffs.h</code>
FIR Filter – Programmable Coefficients	<code>ac_fir_prog_coeffs</code>	<code>ac_fir_prog_coeffs.h</code>
FIR Filter – Register Sharing	<code>ac_fir_reg_share</code>	<code>ac_fir_reg_share.h</code>
Integrate and Dump	<code>ac_intg_dump</code>	<code>ac_intg_dump.h</code>
1-D Moving Average Filter	<code>ac_mv_avg</code>	<code>ac_mv_avg.h</code>
Polyphase Decimation Filter	<code>ac_poly_dec</code>	<code>ac_poly_dec.h</code>
Polyphase Interpolation Filter	<code>ac_poly_intr</code>	<code>ac_poly_intr.h</code>

## FFT Blocks

FFT Implementation	Class Name	Header File
DIF Radix-2 In-place	<code>ac_fft_dif_r2_inpl</code>	<code>ac_fft_dif_r2_inpl.h</code>
DIF Mix-Radix Single-Delay Feedback	<code>ac_fft_dif_r2m2p2_sdf</code>	<code>ac_fft_dif_r2m2p2_sdf.h</code>
DIF Radix-2 <sup>2</sup> Single-Delay-Feedback	<code>ac_fft_dif_r2p2_sdf</code>	<code>ac_fft_dif_r2p2_sdf.h</code>
DIF Radix-2 <sup>X</sup> Block Floating Point In-place	<code>ac_fft_dif_r2pX_bfp_inpl</code>	<code>ac_fft_dif_r2pX_bfp_inpl.h</code>
DIF Radix-2 <sup>X</sup> Dynamic In-place	<code>ac_fft_dif_r2pX_dyn_inpl</code>	<code>ac_fft_dif_r2pX_dyn_inpl.h</code>
DIF Radix-2 <sup>X</sup> In-place	<code>ac_fft_dif_r2pX_inpl</code>	<code>ac_fft_dif_r2pX_inpl.h</code>
DIF Radix-2 Single-Delay-Feedback	<code>ac_fft_dif_r2_sdf</code>	<code>ac_fft_dif_r2_sdf.h</code>
DIT Radix-2 In-place	<code>ac_fft_dit_r2_inpl</code>	<code>ac_fft_dit_r2_inpl.h</code>
DIT Radix-2 Single-Delay-Feedback	<code>ac_fft_dit_r2_sdf</code>	<code>ac_fft_dit_r2_sdf.h</code>

# Supported Compilers

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The `ac_dsp` library uses functions supplied in the `ac_math` library. Since the `ac_math` library requires C++11 support for default template arguments, the same compile requirement applies to the `ac_dsp` library.