

Documentation

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API Collection

Out-of-Place Functions for 1D Complex FFT

Perform fast Fourier transforms out of place on 1D complex data.

Overview

The functions in this group use the following operation for a complex-to-complex transform:

```
N = 1 << Log2N;

scale = 0 < Direction ? 1 : 1./N;

// Define a complex vector, h:
for (j = 0; j < N; ++j)
    h[j] = A->realp[j*IA] + i * A->imagp[j*IA];

// Perform Discrete Fourier Transform.
for (k = 0; k < N; ++k)
    H[k] = scale * sum(h[j] * e**(-Direction*2*pi*i*j*k/N), 0 <= j < N);

// Store result.
for (k = 0; k < N; ++k)
{
    C->realp[k*IC] = Re(H[k]);
    C->imagp[k*IC] = Im(H[k]);
}
```

The temporary buffer versions perform the same operation but use a temporary buffer for improved performance.

Topics

Out-of-Place FFT Functions

`vDSP_fft_zop`

Computes a forward or inverse out-of-place, single-precision complex FFT.

`vDSP_fft_zopD`

Computes a forward or inverse out-of-place, double-precision complex FFT.

Out-of-Place FFT Functions with Temporary Buffer

`vDSP_fft_zopt`

Computes a forward or inverse out-of-place, single-precision complex FFT using a temporary buffer.

`vDSP_fft_zoptD`

Computes a forward or inverse out-of-place, double-precision complex FFT using a temporary buffer.

Fixed-Length FFT Functions

`vDSP_FFT16_copv`

Performs a 16-element FFT on interleaved-complex data.

`vDSP_FFT32_copv`

Performs a 32-element FFT on interleaved-complex data.

`vDSP_FFT16_zopv`

Performs a 16-element FFT on split-complex data.

`vDSP_FFT32_zopv`

Performs a 32-element FFT on split-complex data.

Radix 3 and Radix 5 FFT Functions

`vDSP_fft3_zop`

Computes a single-precision out-of-place radix-3 complex FFT, either forward or inverse.

`vDSP_fft3_zopD`

Computes a double-precision out-of-place radix-3 complex FFT, either forward or inverse.

`vDSP_fft5_zop`

Computes a single-precision out-of-place radix-5 complex FFT, either forward or inverse.

`vDSP_fft5_zopD`

Computes a double-precision out-of-place radix-5 complex FFT, either forward or inverse.

See Also

Functions for 1D Complex FFT

≡ In-Place Functions for 1D Complex FFT

Perform fast Fourier transforms in place on 1D complex data.