

```
/*
 * $Id: fft.h,v 1.2 2005/07/11 11:31:39 cperciva Exp $
 */

#ifndef _TRICL_FFT_H_
#define _TRICL_FFT_H_

#include "local.h"
```

The function *tricl_fft_makelut*(*LUT*, *n*) generates an FFT lookup table suitable for use in computing FFTs of length up to 2^n . The input *n* must satisfy $0 \leq n \leq 29$, and *LUT* must have space to store 2^n doubles (i.e., 2^{n+3} bytes).

```
void tricl_fft_makelut(double *, int);
```

The function *tricl_fft_fft*(*DAT*, *n*, *LUT*) computes a length 2^n in-place FFT on the values z_k where $z_k = \text{DAT}_{2k} + \text{DAT}_{2k+1}i$, using the precomputed lookup table *LUT*, leaving the output in a wacky order. The input *n* must satisfy $0 \leq n \leq 29$, *DAT* must be an array of 2^n complex values (2^{n+1} doubles), and *LUT* must be as created by *tricl_fft_makelut*(*LUT*, *m*) for some $m \geq n$.

```
void tricl_fft_fft(double * __restrict, int, double * __restrict);
```

The function *tricl_fft_ifft*(*DAT*, *n*, *LUT*) computes an inverse FFT corresponding to *tricl_fft_fft*; it takes its input in the wacky order from the output of that function, and leaves its output in normal order.

```
void tricl_fft_ifft(double * __restrict, int, double * __restrict);
```

```
#endif /* !_TRICL_FFT_H */
```

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