

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

```
#ifndef _TRICL_ROOTS_H_
#define _TRICL_ROOTS_H_
```

The value *TRICL_ROOTS_SQRTHALF* is the correctly rounded double precision value of $\sqrt{1/2}$. It is approximately $0.435 \cdot 2^{-53}$ larger than the exact value.

```
#define TRICL_ROOTS_SQRTHALF    0x1.6A09E667F3BCDp-1
```

For inputs $2 \leq n \leq 29$, *tricl_roots_makelut* computes the value $\exp(2\pi i k / 2^n)$ for all values $0 \leq k < 2^{n-2}$, and stores the real part into *LUT*[2*k*] and the imaginary part into *LUT*[2*k* + 1]. *LUT* must be a pointer to sufficient space to store 2^{n-1} doubles.

The complex values stored are within $1.5 \cdot 2^{-53}$ of the exact values.

```
void tricl_roots_makelut(double * LUT, int n);
```

```
#endif /* !_TRICL_ROOTS_H_ */
```

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