Baseline Program

guitar\_trim.wav

% cumulative self self total

time seconds seconds calls ms/call ms/call name

33.80 0.24 0.24 3 80.00 234.47 fft(std::valarray<std::complex<double> >&)

9.86 0.31 0.07 14155776 0.00 0.00 std::complex<double> std::polar<double>(double const&, double const&)

8.45 0.37 0.06 29510826 0.00 0.00 std::complex<double>::real[abi:cxx11]() const

7.04 0.42 0.05 29360128 0.00 0.00 std::complex<double>::imag[abi:cxx11]() const

7.04 0.47 0.05 14417920 0.00 0.00 std::complex<double>& std::complex<double>::operator\*=<double>(std::complex<double> const&)

5.63 0.51 0.04 7077888 0.00 0.00 std::complex<double>& std::complex<double>::operator+=<double>(std::complex<double> const&)

5.63 0.55 0.04 1572858 0.00 0.00 void std::\_\_valarray\_copy\_construct<std::complex<double> >(std::complex<double> const\*, unsigned int, unsigned int, std::complex<double>\*)

4.23 0.58 0.03 42768725 0.00 0.00 std::valarray<std::complex<double> >::operator[](unsigned int)

4.23 0.61 0.03 14417920 0.00 0.00 std::complex<double> std::operator\*<double>(std::complex<double> const&, std::complex<double> const&)

4.23 0.64 0.03 1572864 0.00 0.00 void std::\_\_valarray\_destroy\_elements<std::complex<double> >(std::complex<double>\*, std::complex<double>\*)

2.82 0.66 0.02 14680068 0.00 0.00 std::complex<double>::complex(double, double)

1.41 0.67 0.01 7077888 0.00 0.00 std::complex<double>& std::complex<double>::operator-=<double>(std::complex<double> const&)

1.41 0.68 0.01 7077888 0.00 0.00 std::complex<double> std::operator-<double>(std::complex<double> const&, std::complex<double> const&)

1.41 0.69 0.01 7077888 0.00 0.00 std::complex<double> std::operator+<double>(std::complex<double> const&, std::complex<double> const&)

1.41 0.70 0.01 1572861 0.00 0.00 std::valarray<std::complex<double> >::~valarray()

1.41 0.71 0.01 1572858 0.00 0.00 std::slice::start() const

0.00 0.71 0.00 14942208 0.00 0.00 operator new(unsigned int, void\*)

0.00 0.71 0.00 4718578 0.00 0.00 std::\_Array<std::complex<double> >::\_Array(std::complex<double>\*)

0.00 0.71 0.00 1572865 0.00 0.00 std::valarray<std::complex<double> >::size() const

0.00 0.71 0.00 1572864 0.00 0.00 std::\_\_valarray\_release\_memory(void\*)

0.00 0.71 0.00 1572861 0.00 0.00 std::\_\_valarray\_get\_memory(unsigned int)

0.00 0.71 0.00 1572861 0.00 0.00 std::complex<double>\* restrict std::\_\_valarray\_get\_storage<std::complex<double> >(unsigned int)

0.00 0.71 0.00 1572858 0.00 0.00 std::slice::size() const

0.00 0.71 0.00 1572858 0.00 0.00 std::slice::stride() const

0.00 0.71 0.00 1572858 0.00 0.00 std::\_Array<std::complex<double> >::begin() const

0.00 0.71 0.00 1572858 0.00 0.00 std::slice\_array<std::complex<double> >::slice\_array(std::\_Array<std::complex<double> >, std::slice const&)

0.00 0.71 0.00 1572858 0.00 0.00 std::slice::slice(unsigned int, unsigned int, unsigned int)

0.00 0.71 0.00 1572858 0.00 0.00 std::valarray<std::complex<double> >::valarray(std::slice\_array<std::complex<double> > const&)

0.00 0.71 0.00 1572858 0.00 0.00 std::valarray<std::complex<double> >::operator[](std::slice)

0.00 0.71 0.00 1572858 0.00 0.00 void std::\_\_valarray\_copy\_construct<std::complex<double> >(std::\_Array<std::complex<double> >, unsigned int, unsigned int, std::\_Array<std::complex<double> >)

0.00 0.71 0.00 1048576 0.00 0.00 std::valarray<std::complex<double> >::operator[](unsigned int) const

0.00 0.71 0.00 524288 0.00 0.00 std::\_Expr<std::\_RefFunClos<std::\_ValArray, std::complex<double> >, std::complex<double> >::operator[](unsigned int) const

0.00 0.71 0.00 524288 0.00 0.00 std::\_FunBase<std::valarray<std::complex<double> >, std::complex<double> const&>::operator[](unsigned int) const

0.00 0.71 0.00 524288 0.00 0.00 std::complex<double> std::conj<double>(std::complex<double> const&)

0.00 0.71 0.00 262144 0.00 0.00 std::complex<double> std::\_\_multiplies::operator()<std::complex<double> >(std::complex<double> const&, std::complex<double> const&) const

0.00 0.71 0.00 262144 0.00 0.00 std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::complex<double> >::operator[](unsigned int) const

0.00 0.71 0.00 262144 0.00 0.00 std::\_BinBase<std::\_\_multiplies, std::valarray<std::complex<double> >, std::valarray<std::complex<double> > >::operator[](unsigned int) const

0.00 0.71 0.00 262144 0.00 0.00 std::complex<double>& std::complex<double>::operator/=<double>(std::complex<double> const&)

0.00 0.71 0.00 150699 0.00 0.00 std::complex<double>::operator=(double)

0.00 0.71 0.00 12 0.00 0.00 WaveFile::nextIntLSB()

0.00 0.71 0.00 8 0.00 0.00 WaveFile::nextShortLSB()

0.00 0.71 0.00 5 0.00 0.00 WaveFile::nextIntLSB(int)

0.00 0.71 0.00 5 0.00 0.00 WaveFile::~WaveFile()

0.00 0.71 0.00 4 0.00 0.00 WaveFile::nextShortLSB(short)

0.00 0.71 0.00 3 0.00 0.00 WaveFile::WaveFile()

0.00 0.71 0.00 3 0.00 0.00 std::\_Array\_init\_ctor<std::complex<double>, false>::\_S\_do\_it(std::complex<double>\*, std::complex<double>\*, std::complex<double>)

0.00 0.71 0.00 3 0.00 0.00 std::valarray<std::complex<double> >::resize(unsigned int, std::complex<double>)

0.00 0.71 0.00 3 0.00 0.00 std::valarray<std::complex<double> >::valarray()

0.00 0.71 0.00 3 0.00 0.00 void std::\_\_valarray\_fill\_construct<std::complex<double> >(std::complex<double>\*, std::complex<double>\*, std::complex<double>)

0.00 0.71 0.00 2 0.00 0.00 WaveFile::readHeader()

0.00 0.71 0.00 2 0.00 0.00 WaveFile::read(std::\_\_cxx11::basic\_string<char, std::char\_traits<char>, std::allocator<char> >)

0.00 0.71 0.00 2 0.00 0.00 WaveFile::readData()

0.00 0.71 0.00 2 0.00 0.00 WaveFile::WaveFile(WaveFile const&)

0.00 0.71 0.00 2 0.00 0.00 std::\_Expr<std::\_RefFunClos<std::\_ValArray, std::complex<double> >, std::complex<double> >::size() const

0.00 0.71 0.00 2 0.00 0.00 std::\_FunBase<std::valarray<std::complex<double> >, std::complex<double> const&>::size() const

0.00 0.71 0.00 2 0.00 0.00 std::valarray<std::complex<double> >::apply(std::complex<double> (\*)(std::complex<double> const&)) const

0.00 0.71 0.00 2 0.00 0.00 std::\_RefFunClos<std::\_ValArray, std::complex<double> >::\_RefFunClos(std::valarray<std::complex<double> > const&, std::complex<double> (\*)(std::complex<double> const&))

0.00 0.71 0.00 2 0.00 0.00 std::\_Expr<std::\_RefFunClos<std::\_ValArray, std::complex<double> >, std::complex<double> >::\_Expr(std::\_RefFunClos<std::\_ValArray, std::complex<double> > const&)

0.00 0.71 0.00 2 0.00 0.00 std::\_FunBase<std::valarray<std::complex<double> >, std::complex<double> const&>::\_FunBase(std::valarray<std::complex<double> > const&, std::complex<double> (\*)(std::complex<double> const&))

0.00 0.71 0.00 2 0.00 1.34 std::valarray<std::complex<double> >& std::valarray<std::complex<double> >::operator=<std::\_RefFunClos<std::\_ValArray, std::complex<double> > >(std::\_Expr<std::\_RefFunClos<std::\_ValArray, std::complex<double> >, std::complex<double> > const&)

0.00 0.71 0.00 2 0.00 1.34 void std::\_\_valarray\_copy<std::complex<double>, std::\_RefFunClos<std::\_ValArray, std::complex<double> > >(std::\_Expr<std::\_RefFunClos<std::\_ValArray, std::complex<double> >, std::complex<double> > const&, unsigned int, std::\_Array<std::complex<double> >)

0.00 0.71 0.00 1 0.00 0.00 convolution(WaveFile, WaveFile)

0.00 0.71 0.00 1 0.00 0.00 upper\_power\_of\_two(unsigned long)

0.00 0.71 0.00 1 0.00 238.12 ifft(std::valarray<std::complex<double> >&)

0.00 0.71 0.00 1 0.00 0.00 WaveFile::writeHeader()

0.00 0.71 0.00 1 0.00 0.00 WaveFile::write(std::\_\_cxx11::basic\_string<char, std::char\_traits<char>, std::allocator<char> >)

0.00 0.71 0.00 1 0.00 0.00 WaveFile::writeData()

0.00 0.71 0.00 1 0.00 0.00 std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::complex<double> >::size() const

0.00 0.71 0.00 1 0.00 0.00 std::\_BinBase<std::\_\_multiplies, std::valarray<std::complex<double> >, std::valarray<std::complex<double> > >::size() const

0.00 0.71 0.00 1 0.00 0.00 std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::complex<double> >::\_Expr(std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> > const&)

0.00 0.71 0.00 1 0.00 0.00 std::\_BinBase<std::\_\_multiplies, std::valarray<std::complex<double> >, std::valarray<std::complex<double> > >::\_BinBase(std::valarray<std::complex<double> > const&, std::valarray<std::complex<double> > const&)

0.00 0.71 0.00 1 0.00 0.00 std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >::\_BinClos(std::valarray<std::complex<double> > const&, std::valarray<std::complex<double> > const&)

0.00 0.71 0.00 1 0.00 2.43 std::valarray<std::complex<double> >& std::valarray<std::complex<double> >::operator=<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> > >(std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::complex<double> > const&)

0.00 0.71 0.00 1 0.00 0.98 std::valarray<std::complex<double> >::operator/=(std::complex<double> const&)

0.00 0.71 0.00 1 0.00 2.43 void std::\_\_valarray\_copy<std::complex<double>, std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> > >(std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::complex<double> > const&, unsigned int, std::\_Array<std::complex<double> >)

0.00 0.71 0.00 1 0.00 0.98 void std::\_Array\_augmented\_\_\_divides<std::complex<double> >(std::\_Array<std::complex<double> >, unsigned int, std::complex<double> const&)

0.00 0.71 0.00 1 0.00 0.00 std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::\_\_fun<std::\_\_multiplies, std::complex<double> >::result\_type> std::operator\*<std::complex<double> >(std::valarray<std::complex<double> > const&, std::valarray<std::complex<double> > const&)

guitar\_dry.wav

% cumulative self self total

time seconds seconds calls s/call s/call name

100.00 407.87 407.87 1 407.87 407.87 convolution(WaveFile, WaveFile)

0.00 407.88 0.01 1 0.01 0.01 WaveFile::writeData()

0.00 407.88 0.00 12 0.00 0.00 WaveFile::nextIntLSB()

0.00 407.88 0.00 8 0.00 0.00 WaveFile::nextShortLSB()

0.00 407.88 0.00 5 0.00 0.00 WaveFile::nextIntLSB(int)

0.00 407.88 0.00 5 0.00 0.00 WaveFile::~WaveFile()

0.00 407.88 0.00 4 0.00 0.00 WaveFile::nextShortLSB(short)

0.00 407.88 0.00 3 0.00 0.00 WaveFile::WaveFile()

0.00 407.88 0.00 2 0.00 0.00 WaveFile::readHeader()

0.00 407.88 0.00 2 0.00 0.00 WaveFile::read(std::\_\_cxx11::basic\_string<char, std::char\_traits<char>, std::allocator<char> >)

0.00 407.88 0.00 2 0.00 0.00 WaveFile::readData()

0.00 407.88 0.00 2 0.00 0.00 WaveFile::WaveFile(WaveFile const&)

0.00 407.88 0.00 1 0.00 0.00 WaveFile::writeHeader()

0.00 407.88 0.00 1 0.00 0.01 WaveFile::write(std::\_\_cxx11::basic\_string<char, std::char\_traits<char>, std::allocator<char> >)

FFT

guitar\_trim.wav

% cumulative self self total

time seconds seconds calls ms/call ms/call name

21.05 0.08 0.08 3 26.67 118.22 fft(std::valarray<std::complex<double> >&)

15.79 0.14 0.06 7340032 0.00 0.00 std::complex<double>& std::complex<double>::operator\*=<double>(std::complex<double> const&)

10.53 0.18 0.04 35690837 0.00 0.00 std::valarray<std::complex<double> >::operator[](unsigned int)

5.26 0.20 0.02 22282240 0.00 0.00 std::complex<double>::imag[abi:cxx11]() const

5.26 0.22 0.02 7602180 0.00 0.00 std::complex<double>::complex(double, double)

5.26 0.24 0.02 7077888 0.00 0.00 std::complex<double>& std::complex<double>::operator-=<double>(std::complex<double> const&)

5.26 0.26 0.02 7077888 0.00 0.00 std::complex<double> std::polar<double>(double const&, double const&)

5.26 0.28 0.02 7077888 0.00 0.00 std::complex<double> std::operator-<double>(std::complex<double> const&, std::complex<double> const&)

5.26 0.30 0.02 1572858 0.00 0.00 void std::\_\_valarray\_copy\_construct<std::complex<double> >(std::complex<double> const\*, unsigned int, unsigned int, std::complex<double>\*)

2.63 0.31 0.01 22432938 0.00 0.00 std::complex<double>::real[abi:cxx11]() const

2.63 0.32 0.01 4718578 0.00 0.00 std::\_Array<std::complex<double> >::\_Array(std::complex<double>\*)

2.63 0.33 0.01 1572864 0.00 0.00 void std::\_\_valarray\_destroy\_elements<std::complex<double> >(std::complex<double>\*, std::complex<double>\*)

2.63 0.34 0.01 1572861 0.00 0.00 std::valarray<std::complex<double> >::~valarray()

2.63 0.35 0.01 1572861 0.00 0.00 std::complex<double>\* restrict std::\_\_valarray\_get\_storage<std::complex<double> >(unsigned int)

2.63 0.36 0.01 1572858 0.00 0.00 std::slice::size() const

2.63 0.37 0.01 3 3.33 3.33 std::\_Array\_init\_ctor<std::complex<double>, false>::\_S\_do\_it(std::complex<double>\*, std::complex<double>\*, std::complex<double>)

2.63 0.38 0.01 1 10.00 12.50 void std::\_\_valarray\_copy<std::complex<double>, std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> > >(std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::complex<double> > const&, unsigned int, std::\_Array<std::complex<double> >)

0.00 0.38 0.00 14942208 0.00 0.00 operator new(unsigned int, void\*)

0.00 0.38 0.00 7340032 0.00 0.00 std::complex<double> std::operator\*<double>(std::complex<double> const&, std::complex<double> const&)

0.00 0.38 0.00 7077888 0.00 0.00 std::complex<double>& std::complex<double>::operator+=<double>(std::complex<double> const&)

0.00 0.38 0.00 7077888 0.00 0.00 std::complex<double> std::operator+<double>(std::complex<double> const&, std::complex<double> const&)

0.00 0.38 0.00 1572865 0.00 0.00 std::valarray<std::complex<double> >::size() const

0.00 0.38 0.00 1572864 0.00 0.00 std::\_\_valarray\_release\_memory(void\*)

0.00 0.38 0.00 1572861 0.00 0.00 std::\_\_valarray\_get\_memory(unsigned int)

0.00 0.38 0.00 1572858 0.00 0.00 std::slice::start() const

0.00 0.38 0.00 1572858 0.00 0.00 std::slice::stride() const

0.00 0.38 0.00 1572858 0.00 0.00 std::\_Array<std::complex<double> >::begin() const

0.00 0.38 0.00 1572858 0.00 0.00 std::slice\_array<std::complex<double> >::slice\_array(std::\_Array<std::complex<double> >, std::slice const&)

0.00 0.38 0.00 1572858 0.00 0.00 std::slice::slice(unsigned int, unsigned int, unsigned int)

0.00 0.38 0.00 1572858 0.00 0.00 std::valarray<std::complex<double> >::valarray(std::slice\_array<std::complex<double> > const&)

0.00 0.38 0.00 1572858 0.00 0.00 std::valarray<std::complex<double> >::operator[](std::slice)

0.00 0.38 0.00 1572858 0.00 0.00 void std::\_\_valarray\_copy\_construct<std::complex<double> >(std::\_Array<std::complex<double> >, unsigned int, unsigned int, std::\_Array<std::complex<double> >)

0.00 0.38 0.00 1048576 0.00 0.00 std::valarray<std::complex<double> >::operator[](unsigned int) const

0.00 0.38 0.00 524288 0.00 0.00 std::\_Expr<std::\_RefFunClos<std::\_ValArray, std::complex<double> >, std::complex<double> >::operator[](unsigned int) const

0.00 0.38 0.00 524288 0.00 0.00 std::\_FunBase<std::valarray<std::complex<double> >, std::complex<double> const&>::operator[](unsigned int) const

0.00 0.38 0.00 524288 0.00 0.00 std::complex<double> std::conj<double>(std::complex<double> const&)

0.00 0.38 0.00 262144 0.00 0.00 std::complex<double> std::\_\_multiplies::operator()<std::complex<double> >(std::complex<double> const&, std::complex<double> const&) const

0.00 0.38 0.00 262144 0.00 0.00 std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::complex<double> >::operator[](unsigned int) const

0.00 0.38 0.00 262144 0.00 0.00 std::\_BinBase<std::\_\_multiplies, std::valarray<std::complex<double> >, std::valarray<std::complex<double> > >::operator[](unsigned int) const

0.00 0.38 0.00 262144 0.00 0.00 std::complex<double>& std::complex<double>::operator/=<double>(std::complex<double> const&)

0.00 0.38 0.00 150699 0.00 0.00 std::complex<double>::operator=(double)

0.00 0.38 0.00 12 0.00 0.00 WaveFile::nextIntLSB()

0.00 0.38 0.00 8 0.00 0.00 WaveFile::nextShortLSB()

0.00 0.38 0.00 5 0.00 0.00 WaveFile::nextIntLSB(int)

0.00 0.38 0.00 5 0.00 0.00 WaveFile::~WaveFile()

0.00 0.38 0.00 4 0.00 0.00 WaveFile::nextShortLSB(short)

0.00 0.38 0.00 3 0.00 0.00 WaveFile::WaveFile()

0.00 0.38 0.00 3 0.00 3.33 std::valarray<std::complex<double> >::resize(unsigned int, std::complex<double>)

0.00 0.38 0.00 3 0.00 0.00 std::valarray<std::complex<double> >::valarray()

0.00 0.38 0.00 3 0.00 3.33 void std::\_\_valarray\_fill\_construct<std::complex<double> >(std::complex<double>\*, std::complex<double>\*, std::complex<double>)

0.00 0.38 0.00 2 0.00 0.00 WaveFile::readHeader()

0.00 0.38 0.00 2 0.00 0.00 WaveFile::read(std::\_\_cxx11::basic\_string<char, std::char\_traits<char>, std::allocator<char> >)

0.00 0.38 0.00 2 0.00 0.00 WaveFile::readData()

0.00 0.38 0.00 2 0.00 0.00 WaveFile::WaveFile(WaveFile const&)

0.00 0.38 0.00 2 0.00 0.00 std::\_Expr<std::\_RefFunClos<std::\_ValArray, std::complex<double> >, std::complex<double> >::size() const

0.00 0.38 0.00 2 0.00 0.00 std::\_FunBase<std::valarray<std::complex<double> >, std::complex<double> const&>::size() const

0.00 0.38 0.00 2 0.00 0.00 std::valarray<std::complex<double> >::apply(std::complex<double> (\*)(std::complex<double> const&)) const

0.00 0.38 0.00 2 0.00 0.00 std::\_RefFunClos<std::\_ValArray, std::complex<double> >::\_RefFunClos(std::valarray<std::complex<double> > const&, std::complex<double> (\*)(std::complex<double> const&))

0.00 0.38 0.00 2 0.00 0.00 std::\_Expr<std::\_RefFunClos<std::\_ValArray, std::complex<double> >, std::complex<double> >::\_Expr(std::\_RefFunClos<std::\_ValArray, std::complex<double> > const&)

0.00 0.38 0.00 2 0.00 0.00 std::\_FunBase<std::valarray<std::complex<double> >, std::complex<double> const&>::\_FunBase(std::valarray<std::complex<double> > const&, std::complex<double> (\*)(std::complex<double> const&))

0.00 0.38 0.00 2 0.00 1.04 std::valarray<std::complex<double> >& std::valarray<std::complex<double> >::operator=<std::\_RefFunClos<std::\_ValArray, std::complex<double> > >(std::\_Expr<std::\_RefFunClos<std::\_ValArray, std::complex<double> >, std::complex<double> > const&)

0.00 0.38 0.00 2 0.00 1.04 void std::\_\_valarray\_copy<std::complex<double>, std::\_RefFunClos<std::\_ValArray, std::complex<double> > >(std::\_Expr<std::\_RefFunClos<std::\_ValArray, std::complex<double> >, std::complex<double> > const&, unsigned int, std::\_Array<std::complex<double> >)

0.00 0.38 0.00 1 0.00 0.00 convolution(WaveFile, WaveFile)

0.00 0.38 0.00 1 0.00 0.00 upper\_power\_of\_two(unsigned long)

0.00 0.38 0.00 1 0.00 120.66 ifft(std::valarray<std::complex<double> >&)

0.00 0.38 0.00 1 0.00 0.00 WaveFile::writeHeader()

0.00 0.38 0.00 1 0.00 0.00 WaveFile::write(std::\_\_cxx11::basic\_string<char, std::char\_traits<char>, std::allocator<char> >)

0.00 0.38 0.00 1 0.00 0.00 WaveFile::writeData()

0.00 0.38 0.00 1 0.00 0.00 std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::complex<double> >::size() const

0.00 0.38 0.00 1 0.00 0.00 std::\_BinBase<std::\_\_multiplies, std::valarray<std::complex<double> >, std::valarray<std::complex<double> > >::size() const

0.00 0.38 0.00 1 0.00 0.00 std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::complex<double> >::\_Expr(std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> > const&)

0.00 0.38 0.00 1 0.00 0.00 std::\_BinBase<std::\_\_multiplies, std::valarray<std::complex<double> >, std::valarray<std::complex<double> > >::\_BinBase(std::valarray<std::complex<double> > const&, std::valarray<std::complex<double> >

const&)

0.00 0.38 0.00 1 0.00 0.00 std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >::\_BinClos(std::valarray<std::complex<double> > const&, std::valarray<std::complex<double> >

const&)

0.00 0.38 0.00 1 0.00 12.50 std::valarray<std::complex<double> >& std::valarray<std::complex<double> >::operator=<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> > >(std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::complex<double> > const&)

0.00 0.38 0.00 1 0.00 0.35 std::valarray<std::complex<double> >::operator/=(std::complex<double> const&)

0.00 0.38 0.00 1 0.00 0.35 void std::\_Array\_augmented\_\_\_divides<std::complex<double> >(std::\_Array<std::complex<double> >, unsigned int, std::complex<double> const&)

0.00 0.38 0.00 1 0.00 0.00 std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::\_\_fun<std::\_\_multiplies, std::complex<double> >::result\_type> std::operator\*<std::complex<double> >(std::valarray<std::complex<double> > const&, std::valarray<std::complex<double> > const&)

guitar\_dry.wav

% cumulative self self total

time seconds seconds calls s/call s/call name

33.78 2.00 2.00 3 0.67 1.92 fft(std::valarray<std::complex<double> >&)

8.78 2.52 0.52 134217728 0.00 0.00 std::complex<double>& std::complex<double>::operator\*=<double>(std::complex<double> const&)

8.45 3.02 0.50 136314884 0.00 0.00 std::complex<double>::complex(double, double)

7.60 3.47 0.45 132120576 0.00 0.00 std::complex<double> std::polar<double>(double const&, double const&)

5.24 3.78 0.31 274505830 0.00 0.00 std::complex<double>::real[abi:cxx11]() const

4.56 4.05 0.27 12582906 0.00 0.00 void std::\_\_valarray\_copy\_construct<std::complex<double> >(std::complex<double> const\*, unsigned int, unsigned int, std::complex<double>\*)

4.05 4.29 0.24 400113869 0.00 0.00 std::valarray<std::complex<double> >::operator[](unsigned int)

3.89 4.52 0.23 272629760 0.00 0.00 std::complex<double>::imag[abi:cxx11]() const

3.38 4.72 0.20 66060288 0.00 0.00 std::complex<double> std::operator-<double>(std::complex<double> const&, std::complex<double> const&)

2.87 4.89 0.17 66060288 0.00 0.00 std::complex<double> std::operator+<double>(std::complex<double> const&, std::complex<double> const&)

2.70 5.05 0.16 66060288 0.00 0.00 std::complex<double>& std::complex<double>::operator-=<double>(std::complex<double> const&)

2.53 5.20 0.15 134217728 0.00 0.00 std::complex<double> std::operator\*<double>(std::complex<double> const&, std::complex<double> const&)

1.86 5.31 0.11 12582912 0.00 0.00 void std::\_\_valarray\_destroy\_elements<std::complex<double> >(std::complex<double>\*, std::complex<double>\*)

1.52 5.40 0.09 66060288 0.00 0.00 std::complex<double>& std::complex<double>::operator+=<double>(std::complex<double> const&)

1.18 5.47 0.07 37748722 0.00 0.00 std::\_Array<std::complex<double> >::\_Array(std::complex<double>\*)

1.01 5.53 0.06 138412032 0.00 0.00 operator new(unsigned int, void\*)

0.84 5.58 0.05 12582906 0.00 0.00 std::slice\_array<std::complex<double> >::slice\_array(std::\_Array<std::complex<double> >, std::slice const&)

0.84 5.63 0.05 12582906 0.00 0.00 std::valarray<std::complex<double> >::operator[](std::slice)

0.51 5.66 0.03 12582913 0.00 0.00 std::valarray<std::complex<double> >::size() const

0.51 5.69 0.03 12582906 0.00 0.00 std::slice::start() const

0.34 5.71 0.02 12582912 0.00 0.00 std::\_\_valarray\_release\_memory(void\*)

0.34 5.73 0.02 12582909 0.00 0.00 std::valarray<std::complex<double> >::~valarray()

0.34 5.75 0.02 12582909 0.00 0.00 std::complex<double>\* restrict std::\_\_valarray\_get\_storage<std::complex<double> >(unsigned int)

0.34 5.77 0.02 12582906 0.00 0.00 std::slice::size() const

0.34 5.79 0.02 12582906 0.00 0.00 std::slice::slice(unsigned int, unsigned int, unsigned int)

0.34 5.81 0.02 12582906 0.00 0.00 std::valarray<std::complex<double> >::valarray(std::slice\_array<std::complex<double> > const&)

0.34 5.83 0.02 2097152 0.00 0.00 std::complex<double>& std::complex<double>::operator/=<double>(std::complex<double> const&)

0.34 5.85 0.02 3 0.01 0.01 std::\_Array\_init\_ctor<std::complex<double>, false>::\_S\_do\_it(std::complex<double>\*, std::complex<double>\*, std::complex<double>)

0.34 5.87 0.02 2 0.01 0.02 void std::\_\_valarray\_copy<std::complex<double>, std::\_RefFunClos<std::\_ValArray, std::complex<double> > >(std::\_Expr<std::\_RefFunClos<std::\_ValArray, std::complex<double> >, std::complex<double> > const&, unsigned int, std::\_Array<std::complex<double> >)

0.17 5.88 0.01 1876071 0.00 0.00 std::complex<double>::operator=(double)

0.17 5.89 0.01 1 0.01 0.01 WaveFile::writeData()

0.17 5.90 0.01 1 0.01 0.02 void std::\_\_valarray\_copy<std::complex<double>, std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> > >(std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::complex<double> > const&, unsigned int, std::\_Array<std::complex<double> >)

0.17 5.91 0.01 operator delete(void\*)

0.17 5.92 0.01 cos

0.00 5.92 0.00 12582909 0.00 0.00 std::\_\_valarray\_get\_memory(unsigned int)

0.00 5.92 0.00 12582906 0.00 0.00 std::slice::stride() const

0.00 5.92 0.00 12582906 0.00 0.00 std::\_Array<std::complex<double> >::begin() const

0.00 5.92 0.00 12582906 0.00 0.00 void std::\_\_valarray\_copy\_construct<std::complex<double> >(std::\_Array<std::complex<double> >, unsigned int, unsigned int, std::\_Array<std::complex<double> >)

0.00 5.92 0.00 8388608 0.00 0.00 std::valarray<std::complex<double> >::operator[](unsigned int) const

0.00 5.92 0.00 4194304 0.00 0.00 std::\_Expr<std::\_RefFunClos<std::\_ValArray, std::complex<double> >, std::complex<double> >::operator[](unsigned int) const

0.00 5.92 0.00 4194304 0.00 0.00 std::\_FunBase<std::valarray<std::complex<double> >, std::complex<double> const&>::operator[](unsigned int) const

0.00 5.92 0.00 4194304 0.00 0.00 std::complex<double> std::conj<double>(std::complex<double> const&)

0.00 5.92 0.00 2097152 0.00 0.00 std::complex<double> std::\_\_multiplies::operator()<std::complex<double> >(std::complex<double> const&, std::complex<double> const&) const

0.00 5.92 0.00 2097152 0.00 0.00 std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::complex<double> >::operator[](unsigned int) const

0.00 5.92 0.00 2097152 0.00 0.00 std::\_BinBase<std::\_\_multiplies, std::valarray<std::complex<double> >, std::valarray<std::complex<double> > >::operator[](unsigned int) const

0.00 5.92 0.00 12 0.00 0.00 WaveFile::nextIntLSB()

0.00 5.92 0.00 8 0.00 0.00 WaveFile::nextShortLSB()

0.00 5.92 0.00 5 0.00 0.00 WaveFile::nextIntLSB(int)

0.00 5.92 0.00 5 0.00 0.00 WaveFile::~WaveFile()

0.00 5.92 0.00 4 0.00 0.00 WaveFile::nextShortLSB(short)

0.00 5.92 0.00 3 0.00 0.00 WaveFile::WaveFile()

0.00 5.92 0.00 3 0.00 0.01 std::valarray<std::complex<double> >::resize(unsigned int, std::complex<double>)

0.00 5.92 0.00 3 0.00 0.00 std::valarray<std::complex<double> >::valarray()

0.00 5.92 0.00 3 0.00 0.01 void std::\_\_valarray\_fill\_construct<std::complex<double> >(std::complex<double>\*, std::complex<double>\*, std::complex<double>)

0.00 5.92 0.00 2 0.00 0.00 WaveFile::readHeader()

0.00 5.92 0.00 2 0.00 0.00 WaveFile::read(std::\_\_cxx11::basic\_string<char, std::char\_traits<char>, std::allocator<char> >)

0.00 5.92 0.00 2 0.00 0.00 WaveFile::readData()

0.00 5.92 0.00 2 0.00 0.00 WaveFile::WaveFile(WaveFile const&)

0.00 5.92 0.00 2 0.00 0.00 std::\_Expr<std::\_RefFunClos<std::\_ValArray, std::complex<double> >, std::complex<double> >::size() const

0.00 5.92 0.00 2 0.00 0.00 std::\_FunBase<std::valarray<std::complex<double> >, std::complex<double> const&>::size() const

0.00 5.92 0.00 2 0.00 0.00 std::valarray<std::complex<double> >::apply(std::complex<double> (\*)(std::complex<double> const&)) const

0.00 5.92 0.00 2 0.00 0.00 std::\_RefFunClos<std::\_ValArray, std::complex<double> >::\_RefFunClos(std::valarray<std::complex<double> > const&, std::complex<double> (\*)(std::complex<double> const&))

0.00 5.92 0.00 2 0.00 0.00 std::\_Expr<std::\_RefFunClos<std::\_ValArray, std::complex<double> >, std::complex<double> >::\_Expr(std::\_RefFunClos<std::\_ValArray, std::complex<double> > const&)

0.00 5.92 0.00 2 0.00 0.00 std::\_FunBase<std::valarray<std::complex<double> >, std::complex<double> const&>::\_FunBase(std::valarray<std::complex<double> > const&, std::complex<double> (\*)(std::complex<double> const&))

0.00 5.92 0.00 2 0.00 0.02 std::valarray<std::complex<double> >& std::valarray<std::complex<double> >::operator=<std::\_RefFunClos<std::\_ValArray, std::complex<double> > >(std::\_Expr<std::\_RefFunClos<std::\_ValArray, std::complex<double> >, std::complex<double> > const&)

0.00 5.92 0.00 1 0.00 0.00 convolution(WaveFile, WaveFile)

0.00 5.92 0.00 1 0.00 0.00 upper\_power\_of\_two(unsigned long)

0.00 5.92 0.00 1 0.00 1.99 ifft(std::valarray<std::complex<double> >&)

0.00 5.92 0.00 1 0.00 0.00 WaveFile::writeHeader()

0.00 5.92 0.00 1 0.00 0.01 WaveFile::write(std::\_\_cxx11::basic\_string<char, std::char\_traits<char>, std::allocator<char> >)

0.00 5.92 0.00 1 0.00 0.00 std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::complex<double> >::size() const

0.00 5.92 0.00 1 0.00 0.00 std::\_BinBase<std::\_\_multiplies, std::valarray<std::complex<double> >, std::valarray<std::complex<double> > >::size() const

0.00 5.92 0.00 1 0.00 0.00 std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::complex<double> >::\_Expr(std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> > const&)

0.00 5.92 0.00 1 0.00 0.00 std::\_BinBase<std::\_\_multiplies, std::valarray<std::complex<double> >, std::valarray<std::complex<double> > >::\_BinBase(std::valarray<std::complex<double> > const&, std::valarray<std::complex<double> > const&)

0.00 5.92 0.00 1 0.00 0.00 std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >::\_BinClos(std::valarray<std::complex<double> > const&, std::valarray<std::complex<double> > const&)

0.00 5.92 0.00 1 0.00 0.02 std::valarray<std::complex<double> >& std::valarray<std::complex<double> >::operator=<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> > >(std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::complex<double> > const&)

0.00 5.92 0.00 1 0.00 0.02 std::valarray<std::complex<double> >::operator/=(std::complex<double> const&)

0.00 5.92 0.00 1 0.00 0.02 void std::\_Array\_augmented\_\_\_divides<std::complex<double> >(std::\_Array<std::complex<double> >, unsigned int, std::complex<double> const&)

0.00 5.92 0.00 1 0.00 0.00 std::\_Expr<std::\_BinClos<std::\_\_multiplies, std::\_ValArray, std::\_ValArray, std::complex<double>, std::complex<double> >, std::\_\_fun<std::\_\_multiplies, std::complex<double> >::result\_type> std::operator\*<std::complex<double> >(std::valarray<std::complex<double> > const&, std::valarray<std::complex<double> > const&)

Graphical user interface

Description automatically generated with medium confidence