3. When a sound is to be played, call one of the utility routines to read in the file, send the data to the server, and direct the data to a speaker.

More sophisticated applications can use the lower level [illegible]

Non-integer values (used to represent data constants and device gain

AuFixedPoint –
in increments of 65536.

```
AuFixedPoint AuFixedPointFromSum (
    short          integralpart,
    unsigned short fractionalpart)
```

or

```
AuFixedPoint AuFixedPointFromFraction (
    short          numerator,
    unsigned short denominator)
```

The integer value of a fixed point number can be oblufinacros:

The amplitude of a wave form can easily be changed by multiplying the output of the wave form generator by a constant.

Input and Output Components

Connecting to the Audio Server

Like the X Window System, NCDaudio requires applications to open a connection to the server before any operations can be performed.

Opening a Connection to the Audio Server

Before an application can send or manipulate sound data, it must

```
int AuServerNumBuckets (AuServer *audio)
```

This macro returns the number of built-in buckets.

```
AuBucketAttributes *
AuServerBucket (audi)o
```

Manipulating Audio Data Files

```
void
done_callback (
     AuServer     *audio,
     AuEventHandlerRec *which,
     AuEvent      *event,
     AuPo 2Ier    callback_data)
```

Reading Sound Files

The following routine can be used to read audio files:

```
FILE *
SoundOpenFileForReading (
    const char         *filename,
    SoundHeader        *get_header,
    char               **ret_comment)
```

This routine opens the specified *filen me* for reading. If *get_header* is not NULL, the header information is copied into *get_header*. If *get_comment* is not NULL, then *ret_comment* is set to a malloced copy

Reading Data From Buckets

The following routines can be used to read sound data from a bucket back to the application program:

```
AuBool
                            (
    AuServer           *audio,
    const char         *filename,
    int                sound_format,
    AuBucketID         bucket,
    AuStatus           *ret_status
```