



Application Note: C4x FFT Functions

DATE: January 28, 1999
TO: All C4x users
FROM: Technical Staff
RE: Improper operation of FFT subroutines
CC:

Problem

Assembling the Zuma library `ifft_rl()` function with `asm30.exe` from the version 5.0 TI toolset results in an invalid object file. The object file is executable, but yields incorrect results. This is a result of bugs contained in version 5.0 of the assembler, which were not present in version 4.7 of the tool. A list of bugs in version 5.0 are available via the TI website at <http://www.ti.com/sc/docs/dsp/hotline/techbits/c4bug.htm>. Two of the bugs, <http://www.ti.com/sc/docs/dsp/hotline/techbits/c4bug.htm#SDSq03993> and <http://www.ti.com/sc/docs/dsp/hotline/techbits/c4bug.htm#SDSq04296> are responsible for the improper operation of the inverse fft subroutine.

Work-Around

The only viable work-around is to compile the `ifft_rl()` function using an earlier version of the assembler. Innovative has placed a viable copy of the `invfft.obj` object file on its website at <http://www.innovative-dsp.com/ftp>. Download this object file from the website and place it into the DSP subdirectory of your Zuma toolset.

To enable the object file, you must replace the erroneous file within the Zuma DSP.LIB library. Change into the `LIB\TARGET` subdirectory of the Zuma libraries. Then, issue the command

```
ar30 -r dsp.lib ..\..\dsp\invfft.obj
```

Then, rebuild any DSP applications which make use of the `ifft_rl()` function. Be sure to repeat this operation any time the `DSP.LIB` file is rebuilt, such as when using the supplied `makefile` to regenerate the Zuma libraries.