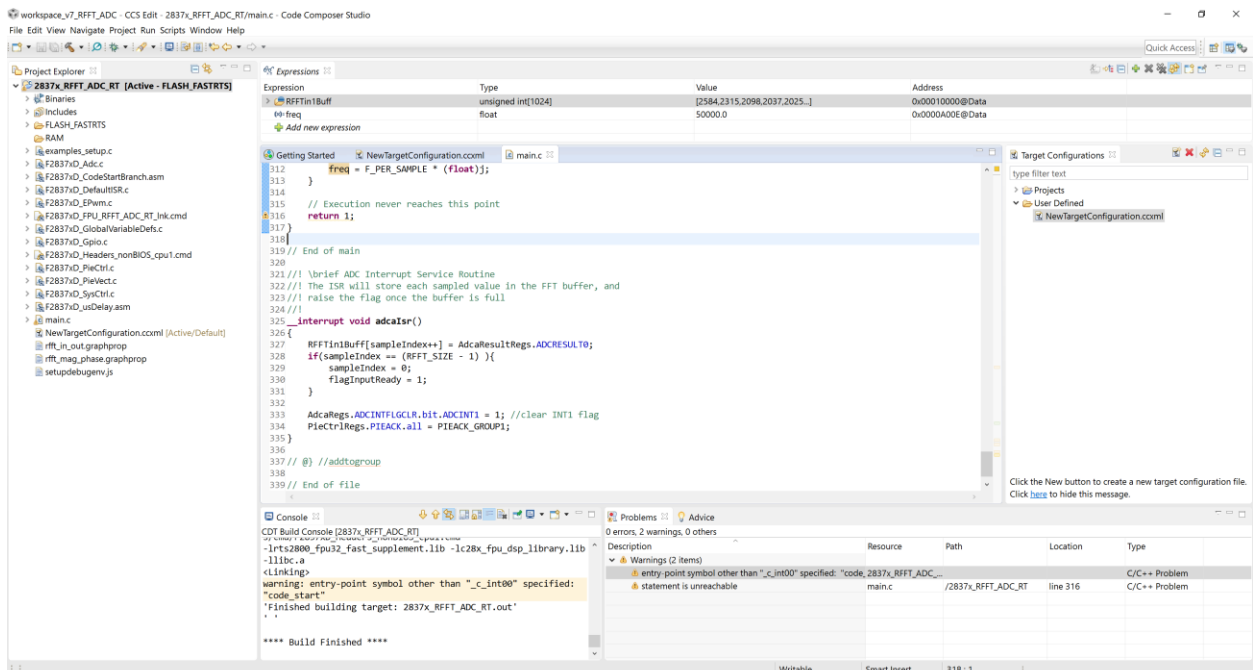


## Rebuild project:



Power up the board and connected to ccs:

S1 boot switch (Launchpad 28379): 1/1/1

After uploading program to the flash:

workspace\_v7\_RFFT\_ADC - CCS Debug - 2837A\_RFFT\_ADC\_RT/main.c - Code Composer Studio

File Edit View Project Tools Run Scripts Window Help

Debug

- terminated-NewTargetConfiguration.ccm [Code Composer Studio - Device Debugging]  
 2837A\_RFFT\_ADC\_RT [Code Composer Studio - Device Debugging]  
 Texas Instruments XDS100v2 USB Debug Probe\_0/C28x\_CPU1 (Suspended - HW Breakpoint)  
 main() at main.c:214:0x0BEC9D  
 args\_main() at args\_main.c:81:0x0B2F2F  
 c\_init00() at boot028\_ssm261:0x0B0F0D (c\_init00 does not contain frame information)  
 Texas Instruments XDS100v2 USB Debug Probe\_0/CPU1\_CLA1 (Disconnected - Unknown)  
 Texas Instruments XDS100v2 USB Debug Probe\_0/C28x\_CPU2 (Disconnected - Unknown)  
 Texas Instruments XDS100v2 USB Debug Probe\_0/CPU2\_CLA1 (Disconnected - Unknown)

Getting Started NewTargetConfiguration.ccm main.c

```

207 // (5*fs/N = 5*100K/512 = 976.5) and all its odd harmonics. Since the sampled
208 // waveform is not an integer multiple of the FFT_SIZE, you will see some
209 // spectral leakage, a portion of the fundamental will leak into the 6th bin.
210 // One way to overcome this is to window the input before running the FFT on
211 // it.
212 //
213 int16_t main(void)
214 {
215     // Locals
216     uint16_t i, j;
217     float freq = 0.0;
218
219 #ifdef FLASH
220     EALLOW;
221     FlashEccRegs.ECC_ENABLE.bit.ENABLE = 0;
222     memcpy((uint32_t *)&RamFuncsRunStart, (uint32_t *)&RamFuncsLoadStart,
223           (uint32_t *)&RamFuncsLoadSize);
224     FPU_initFlash();
225 #endif //FLASH
226
227     FPU_initSystemClocks();
228
229     FPU_initEpie();
230
  
```

Console

```

2837A_RFFT_ADC_RT
C28x_CPU1: GEL Output:
Memory Map Initialization Complete
C28x_CPU1: If erase/program (E/P) operation is being done on one core, the other core should not execute from share
IcpPICK_C_0: Trouble Reading Memory Block at 0x0 on Page 0 of Length 0xc8
IcpPICK_C_0: Trouble Reading Memory Block at 0x0 on Page 0 of Length 0xc8
  
```

Single Time - 0

workspace\_v7\_RFFT\_ADC - CCS Debug - 2837A\_RFFT\_ADC\_RT/main.c - Code Composer Studio

File Edit View Project Tools Run Scripts Window Help

Debug

- terminated-NewTargetConfiguration.ccm [Code Composer Studio - Device Debugging]  
 2837A\_RFFT\_ADC\_RT [Code Composer Studio - Device Debugging]  
 Texas Instruments XDS100v2 USB Debug Probe\_0/C28x\_CPU1 (Running)  
 Texas Instruments XDS100v2 USB Debug Probe\_0/CPU1\_CLA1 (Disconnected - Unknown)  
 Texas Instruments XDS100v2 USB Debug Probe\_0/C28x\_CPU2 (Disconnected - Unknown)  
 Texas Instruments XDS100v2 USB Debug Probe\_0/CPU2\_CLA1 (Disconnected - Unknown)

Getting Started NewTargetConfiguration.ccm main.c

```

207 // (5*fs/N = 5*100K/512 = 976.5) and all its odd harmonics. Since the sampled
208 // waveform is not an integer multiple of the FFT_SIZE, you will see some
209 // spectral leakage, a portion of the fundamental will leak into the 6th bin.
210 // One way to overcome this is to window the input before running the FFT on
211 // it.
212 //
213 int16_t main(void)
214 {
215     // Locals
216     uint16_t i, j;
217     float freq = 0.0;
218
219 #ifdef FLASH
220     EALLOW;
221     FlashEccRegs.ECC_ENABLE.bit.ENABLE = 0;
222     memcpy((uint32_t *)&RamFuncsRunStart, (uint32_t *)&RamFuncsLoadStart,
223           (uint32_t *)&RamFuncsLoadSize);
224     FPU_initFlash();
225 #endif //FLASH
226
227     FPU_initSystemClocks();
228
229     FPU_initEpie();
230
  
```

Console

```

2837A_RFFT_ADC_RT
C28x_CPU1: GEL Output:
Memory Map Initialization Complete
C28x_CPU1: If erase/program (E/P) operation is being done on one core, the other core should not execute from share
IcpPICK_C_0: Trouble Reading Memory Block at 0x0 on Page 0 of Length 0xc8
IcpPICK_C_0: Trouble Reading Memory Block at 0x0 on Page 0 of Length 0xc8
  
```

Single Time - 1

workspace\_v7\_RFFT\_ADC - CCS Debug - 2837x\_RFFT\_ADC\_RT/main.c - Code Composer Studio

Debug

Expressions

Expression	Type	Value	Address
RFFTInBuff	unsigned int[1024]	[2500,2273,2080,2033,2021,...]	0x00010000@Data
fft_freq	float	7421.875	0x0000A00E@Data

```

273 }
274
275 for (i=0; i < RFFT_SIZE/2; i++){
276     RFFTphaseBuff[i] = 0;           //Clean up phase buffer
277 }
278
279 while(1){
280     while(flagInputReady == 0){}; // wait on ADC ISR to set the flag
281     // before proceeding
282     RFFT_adc_f32(hnd_rfft_adc); // Calculate real FFT (12-bit ADC input)
283     flagInputReady = 0; // Reset the flag
284
285 #ifdef __TMS320C28XX_TMU__ //defined when --tmu_support=tmu0 in the project
286     // properties
287     RFFT_F32_mag_TMU0(hnd_rfft); //calculate magnitude
288     RFFT_F32_phase_TMU0(hnd_rfft); //calculate phase
289 #else
290     RFFT_F32_mag(hnd_rfft); //calculate magnitude
291     RFFT_F32_phase(hnd_rfft); //calculate phase
292 #endif // __TMS320C28XX_TMU__
293
294     //Find out the maximum frequency component of signal frequency
295     //component signal. This algorithm is only used for finding frequency
296     //of one component frequency signal; in this example it gives the

```

Console

```

2837x_RFFT_ADC_RT
C28xx_CPU1: GEL Output:
Memory Map Initialization Complete
C28xx_CPU1: If erase/program (E/P) operation is being done on one core, the other core should not execute from share
IcPick_C_0: Trouble Reading Memory Block at 0x0 on Page 0 of Length 0xc8
IcPick_C_0: Trouble Reading Memory Block at 0x0 on Page 0 of Length 0xc8

```

Single Time - 1

Now I can see the frequency of input signal is correct and = 7421Hz.

Next step: load symbols:

workspace\_v7\_RFFT\_ADC - CCS Debug - 2837x\_RFFT\_ADC\_RT/main.c - Code Composer Studio

Debug

Expressions

Expression	Type	Value	Address
RFFTInBuff	unsigned int[1024]	[2500,2273,2080,2033,2021,...]	0x00010000@Data
fft_freq	float	7421.875	0x0000A00E@Data

Load Symbols

```

273 }
274
275 for (i=0; i < RFFT_SIZE/2; i++){
276     RFFTphase
277 }
278
279 while(1){
280     while(flag
281     // before proceeding
282     RFFT_adc_f32(hnd_rfft_adc); // Calculate real FFT (12-bit ADC input)
283     flagInputReady = 0; // Reset the flag
284
285 #ifdef __TMS320C2
286     // properties
287     RFFT_F32_mag_TMU0(hnd_rfft); //calculate magnitude
288     RFFT_F32_phase_TMU0(hnd_rfft); //calculate phase
289 #else
290     RFFT_F32_mag(hnd_rfft); //calculate magnitude
291     RFFT_F32_phase(hnd_rfft); //calculate phase
292 #endif // __TMS320C28XX_TMU__
293
294     //Find out the maximum frequency component of signal frequency
295     //component signal. This algorithm is only used for finding frequency
296     //of one component frequency signal; in this example it gives the

```

Console

```

2837x_RFFT_ADC_RT
C28xx_CPU1: GEL Output:
Memory Map Initialization Complete
C28xx_CPU1: If erase/program (E/P) operation is being done on one core, the other core should not execute from share
IcPick_C_0: Trouble Reading Memory Block at 0x0 on Page 0 of Length 0xc8
IcPick_C_0: Trouble Reading Memory Block at 0x0 on Page 0 of Length 0xc8

```

Single Time - 1

Now, pressing mechanical button reset on the board :

# S1 boot switch (Launchpad 28379): 1/1/1

The screenshot shows the Code Composer Studio interface. The top toolbar includes icons for File, Edit, View, Project, Tools, Run, Scripts, Window, and Help. The main window is divided into several panes:

- Debug:** Shows the target configuration as "2837x\_RFFT\_ADC\_RT" and lists several Texas Instruments XDS100v2 USB Debug Probes.
- Variables:** A table with columns for Expression, Type, Value, and Address.

Expression	Type	Value	Address
RFFTIn1Buff	unsigned int[1024]	[2151.2039,2052,2137,2039...]	0x0010000@Data
fft_freq	unknown	Identifier not found: freq	
Add new expression			
- Source Code:** Displays the C code for the RFFT algorithm, including a loop to clean the phase buffer and a while loop waiting for the ADC input ready flag. It also shows calculations for magnitude and phase using RFFT functions.
- Console:** Shows system messages such as "C28xx\_CPU1: GEL Output: Memory Map Initialization Complete" and "C28xx\_CPU1: If erase/program (E/P) operation is being done on one core, the other core should not execute from share".
- Waveform Plot:** A graph titled "Single Time - 1" showing a signal over 175 samples. The y-axis ranges from 1900 to 3500. The signal is a periodic waveform with a period of approximately 25 samples.

This screenshot is similar to the first one, showing the same Code Composer Studio interface. The **Variables** pane now shows the `fft_freq` variable as a float with a value of 50000.0. The **Waveform Plot** shows a similar periodic signal, but the x-axis (sample number) is shifted, starting at 607232. The y-axis remains the same, ranging from 1900 to 3500.

Frequency of input signal is not correct.

