

Additional Experiment: VLFFT

Dec, 2011

Application Case

- **Requirements:**

- FFT sizes: 16K – 1M samples
- Configurable to run on different number of cores: 1, 2, 4, 8
- High performance & Low latency

- **Challenges:**

- Large data set
- High computational requirement

Multicore Solution

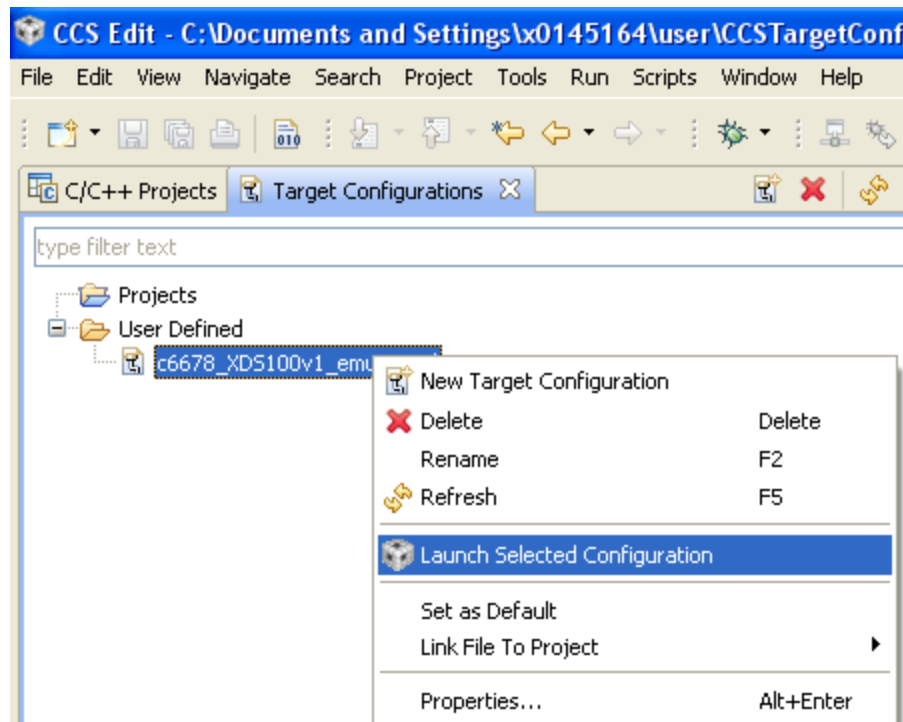
- 1.25GHz C66x Fixed/Floating point CPU Core
(KeyStone DSP: c6670/1/2/4/8)
- Algorithm: Decimation-in-Time

Multicore FFT Performance

FFT Size	Performance of Computing Very Large FFT (ms) Shannon-1GHz, DDR-1330MHz			
	1 core	2 Cores	4 Cores	8 Cores
16K	0.473	0.261	0.159	0.131
32K	0.915	0.478	0.278	0.198
64K	1.857	0.922	0.508	0.315
128K	4.100	2.004	1.060	0.641
256K	8.795	4.323	2.228	1.186
512K	18.669	9.291	4.704	3.103
1024K	38.557	19.328	9.605	6.403

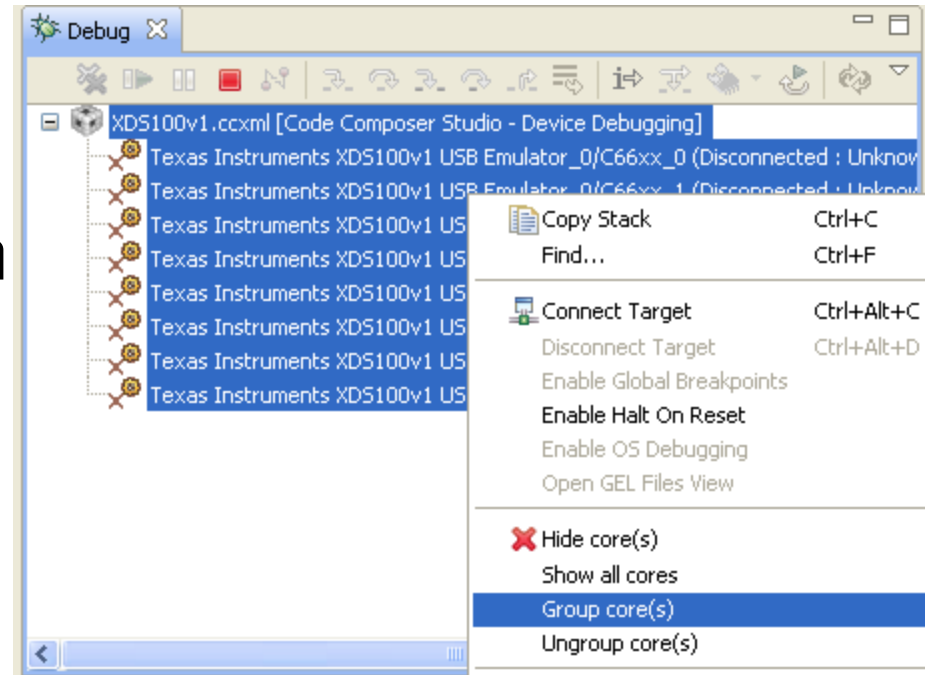
To Run - Launch target configuration

- Switch to target configuration window
- Right-click on c6678EVM.ccxml, select 'launch selected configuration'



To Run - Connect target

- Group all cores
- Connect Target
- Load Program and Run



Result

- 1 Core



1core_result.txt

- 2 core



2core_result.txt

- 4 core



4core_result.txt

- 8 core



8core_result.txt

Thanks!